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TABLE OF CONTENTS

CHAPTER	Page
1. INTRODUCTION	1
Background	1
Purpose of the Study	3
Significance of the Study	4
Theoretical Framework	5
Definition of Terms	6
Organization of the Study	8
2. LITERATURE REVIEW	9
A Brief History of CTE.....	9
<i>History of the US CTE Programs</i>	
<i>History of the China's CTE Programs</i>	
Current Contexts	13
<i>Postsecondary Education in China</i>	
<i>Demands for a Globally Competent Workforce</i>	
<i>Challenges Facing the US CTE Programs</i>	
<i>Challenges Facing China's CTE Programs</i>	
<i>Educational Cooperation between the US and China</i>	
Globalization and CTE Programs	32
<i>Importance of Globalization Theory</i>	
<i>Community Colleges as a Globalized Institution</i>	
<i>Impacts of Globalization on Higher Education and CTE</i>	
<i>Internationalization of the CTE Programs</i>	
<i>Globalization, Community Colleges, and World Peace</i>	

	Career Development Theory	40
	<i>Importance of Career Development Theory</i>	
	<i>Influence of Career Development Theory on CTE programs</i>	
	Research Related to CTE Programs	45
	<i>Background on Comparative Research and CTE</i>	
	<i>Comparative Research Studies of US and Chinese Contexts</i>	
	<i>A Gap in the Comparative Research</i>	
	<i>Significance of This Research Study</i>	
	Summary	53
3.	METHODOLOGY	54
	Introduction	54
	Restatement of the Purpose and Research Questions	54
	Research Design.....	55
	<i>Qualitative Methodology</i>	
	<i>Case Study Method</i>	
	Participants	58
	<i>Case Selection</i>	
	<i>Participant Selection</i>	
	Instrumentation	61
	Data Collection Methods.....	62
	<i>Documents</i>	
	<i>Interviews</i>	
	<i>Demographical Questionnaire</i>	
	<i>Field Notes</i>	
	Data Collection Procedures.....	65

Ethical Considerations	69
Data Analysis Procedures	69
<i>Coding into Categories and Themes</i>	
<i>Within-Case Analysis</i>	
<i>Cross-Case Analysis</i>	
Trustworthiness, Reliability, and Transferability	73
Limitations	75
Summary	75
4. CASE ANALYSIS: CTE AT A US COMMUNITY COLLEGE	76
Restatement of the Research Questions	76
Organization and Operation of the CTE Programs	77
<i>Case Institution Background</i>	
<i>Organization Structure of the Institution</i>	
<i>Mission of the College</i>	
<i>Mission of the CTE Programs</i>	
Decision-Making Processes for a New Program	86
Planning a CTE Program	88
<i>Financial Support</i>	
<i>Teacher Preparation</i>	
<i>Curriculum Development</i>	
<i>Teaching Methods</i>	
<i>Student Recruitment and Services</i>	
Strengths and Challenges of the CTE programs	111
<i>Strengths of the CTE Programs</i>	
<i>Impact of Globalization on CTE</i>	
<i>Challenges of the CTE Programs</i>	

	Summary	119
5.	CASE ANALYSIS: CTE AT THE COMPARABLE CHINESE INSTITUTION	120
	Organization and Operation of the CTE Programs	120
	<i>Case Institution Background</i>	
	<i>CCI Structure</i>	
	<i>Mission of the University</i>	
	<i>Mission of the CTE Programs</i>	
	Decision-Making Processes for a New Program	133
	Planning a CTE program.....	136
	<i>Financial Support</i>	
	<i>Teacher Preparation</i>	
	<i>Curriculum Development</i>	
	<i>Teaching Methods</i>	
	<i>Student Enrollment and Services</i>	
	Strengths and Challenges of the CTE Programs	155
	<i>Strengths of the CTE Programs</i>	
	<i>Impact of Globalization on CTE</i>	
	<i>Challenges Facing the CTE Programs</i>	
	Summary	166
6.	CROSS-CASE ANALYSIS	167
	A Comparison of Contextual Factors.....	167
	<i>Philosophical – Confucian Versus Western</i>	
	<i>Cultural – Chinese Versus American</i>	
	<i>Economic – Socialist Market Versus Free Market</i>	
	<i>Political – One Party Versus Two Parties</i>	

	<i>Functional – Centralized System Versus Decentralized System</i>	
	Cross-Case Analysis of Institutional Strategies and CTE	175
	<i>Similarities and Differences in Organization and Operation</i>	
	<i>Similarities and Differences in Mission and Purposes</i>	
	<i>Similarities and Differences in Decision-Making Processes</i>	
	Cross-Case Analysis of CTE Program Planning Processes...	183
	<i>Similarities and Differences in Financial Support</i>	
	<i>Similarities and Differences in Teacher Preparation</i>	
	<i>Similarities and Differences in Curriculum Development</i>	
	<i>Similarities and Differences in Teaching Methods</i>	
	<i>Similarities and Differences in Student Enrollment and Student Services</i>	
	Cross-Case Analysis of CTE Strengths and Challenges.....	192
	<i>Similarities and Differences in Strengths of CTE</i>	
	<i>Similarities and Differences in Challenges of CTE</i>	
	<i>Similarities and Differences in Impacts of Globalization</i>	
	Summary	198
7.	CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS	199
	Overview of the Research Study.....	199
	<i>Objectives of the Study</i>	
	<i>Theoretical Frameworks for the Study</i>	
	Conclusions	201
	<i>Structure and Operation of CTE</i>	

<i>Mission of CTE</i>	
<i>Decision-Making Processes for a New Program</i>	
<i>Financial Support</i>	
<i>Teacher Preparation</i>	
<i>Curriculum Development</i>	
<i>Teaching Methods</i>	
<i>Student Enrollment and Services</i>	
Implications	209
<i>Comparative Studies</i>	
<i>Globalization of CTE</i>	
Recommendations	215
<i>Recommendations for CTE Programs in Both the US and Chinese Institutions</i>	
<i>Recommendations for the USCC</i>	
<i>Recommendations for CCI</i>	
<i>Recommendations for Future Research</i>	
Summary	219
REFERENCES	221
APPENDICES	237
Appendix A: Participant Interview Questions	
Appendix B: Informed Consent – Participant	
Appendix C: Demographic Questions for Research Participant	
Appendix D: Confidentiality Agreement on Data Transcription/Translation	

LIST OF TABLES

- 3.1 Case Selection Criteria
- 3.2 Qualifications of the Participants
- 3.3 Interview Procedure and Protocol
- 4.1 Examples of CTE Programs Offered at the USCC
- 5.1 Examples of Popular CTE Programs Offered at the CCI
- 6.1 Organization and Operation
- 6.2 Mission of the Institution and Purposes of CTE Programs
- 6.3 Decision-Making for a New Program
- 6.4 Financial Support
- 6.5 Teacher Preparation
- 6.6 Curriculum Development
- 6.7 Teaching Methods
- 6.8 Student Enrollment and Student Services
- 6.9 Strengths of CTE Programs
- 6.10 Challenges of CTE programs
- 6.11 Impacts of Globalization

LIST OF FIGURES

- 4.1. The College Board of Trustees
- 4.2. The President's Cabinet
- 4.3. Student Affairs
- 4.4. Academic affairs
- 5.1 The University Structure
- 5.2 The Presidential Meeting of the University
- 5.3 The Educational Group
- 5.4 Academic and Student Affairs at the CCI

CHAPTER 1

INTRODUCTION

Background

This research study explores and compares the career and technical education programs offered in a US community college and the vocational/career and technical education programs offered in a comparable Chinese postsecondary institution. The study sought to find positive characteristics in the programs of each case study institution that could be shared with similar institutions in China and the US. The ultimate aim was to provide information that might help improve the quality of career and technical education programs in addressing global economic needs locally and benefit postsecondary educational systems in both countries.

Career and technical education (CTE) in the US covers a variety of subject areas such as agriculture, trade, industry, business, marketing, families and consumers, health occupations, public safety and security, and technology (ACTE, 2008). According to a 2006 U.S. Department of Labor Bureau of Labor Statistics Report and the 2005 National Association of Manufacturer's Skills Gap Report, nearly one-third of the fastest growing occupations require an associate degree or a postsecondary vocational certificate, and the Association of Career and Technical Education (2008) states there is a shortage of qualified workers. Career and technical education has been the major provider of a competitive workforce in a borderless world with a globalized economy. However, CTE programs in the US community colleges face a number of challenges that affect the quality of graduates and the colleges' ability to satisfy the special economic needs of local communities (Stromquist, 2002).

In recent decades, China's vocational and technical education has produced a large quantity of low-level technical workers, low-level managerial professionals, and skilled workers. However, China needs to increase the quality and level of vocational education (DICE, 1998) in order to respond to the impact of globalization on the competitiveness of product quality. The Central Institute of Career and Technical Education (CICTE) (2009) has reported that Chinese CTE faces five challenges: (a) the public's negative perception of CTE, (b) a shortage of funding for CTE, (c) an imbalance in the development of CTE between regions, (d) a CTE system mismatched with the demands of the economy, and (e) a curriculum mismatched with the needs of the job market. China has started to reform its higher educational system by placing an emphasis on career and technical education and actively engaging in international cooperation and exchange in vocational education in order to adapt to globalization trends in modern education. McMurtrie (2008), the international editor at *The Chronicle of Higher Education*, stated, "China is eager to tap into the workforce training expertise of American community colleges" (p. 1).

In May 2008, the American Association of Community Colleges (AACC) and China Education Association for International Exchange (CEAIE) agreed to work together on mutually beneficial projects. The CEAIE is affiliated with China's Ministry of Education and represents more than 1,000 vocational and technical institutions throughout China. The cooperative projects included:

1. Training senior leaders to enhance the leadership skills of Chinese college administrators,
2. Improving market-oriented curriculum design,
3. Enhancing teaching methods,

4. Developing strong relationships with local businesses (CCTIMES, 2008).

This research study may support such cooperative projects by providing a conceptual understanding of CTE programs in the US and China through the case study analysis. Moreover, the study reveals strategies and insights that result in suggestions to help both countries address the challenges of educating a high quality workforce for a globalizing economy. Globalization requires community colleges and vocational educational institutions to provide more graduates with advanced skills.

Purpose of the Study

The purpose of this qualitative study was to explore and compare how the CTE programs are organized and operated in a US community college and a comparable Chinese institution. The study had four major objectives: (a) to understand the concept of the CTE programs in a U.S. community college and a Chinese institution; (b) to identify and explain the CTE model employed at the institution in each country; (c) to describe and analyze the similarities and differences of the CTE programs in the two countries; (d) and to explore the possibility of adopting, or adapting positive characteristics from each of the CTE programs to benefit the case institutions, and potentially the postsecondary education systems in both countries.

Five driving questions have guided the study:

1. How are the CTE programs organized and operated in a US community college and a comparable Chinese institution?
2. What administrative decision-making processes are used by the US and Chinese institutions when establishing a new CTE program?
3. How does each institution plan for a CTE program in relation to financial support, teacher preparation, and student services?

4. What strengths and challenges do the CTE programs exhibit in each institution?
5. What similarities and differences exist in the CTE programs operated by a US community college and a comparable Chinese institution?

Significance of the Study

US community colleges have been a major contributor in training the work-force to meet community needs for over a century. Since the 1980s, career and technical education in community colleges has developed rapidly, especially in health, office automation, and technology fields. According to Cohen and Brawer (2003), CTE programs have been highly successful in the last two decades. This research study sought to understand forces and factors that may have contributed to the success of CTE programs in a US community college and to identify concepts and practices of potential benefit to China's institutional context.

China has been considered one of the largest manufacturing and labor markets in the world for the last few decades. From 1979 to 2007, the GDP increased 9.8% annually compared with a 3.0% world economic growth during the same period. China had reached the position of fourth in the world economically and third in the global trade market. In 2008, China moved up to third in the world economy behind the US and Japan (China Value, 2009; NBSC, 2008). China has been developing its CTE programs for many years through a complex educational structure. The government and education institutions understand that China needs to have a large number of skilled workers available in order to keep the economy growing (DICE, 1998; CICTE, 2009); therefore, the quality of the CTE programs is important to China.

For both the US and China to keep their economic edge in advanced technology and the world market, they need to (a) improve the quality of career and technical education programs, and (b) train a larger highly skilled and well qualified workforce. In recognition of these needs, this research compared CTE at case study institutions in the US and China looking for positive characteristics that could be adopted and shared by either country to improve and enhance their CTE programs. Moreover, this study helps to fill a void in the literature as no comparative institutional research examining CTE programs in the US and China appears to have been conducted. One of the most important purposes in comparative inquiry is to learn from others and understand ourselves (Phillips & Schweisfurth, 2008); therefore, the absence of such literature on CTE in the US and China needs to be addressed.

Theoretical Framework

The theoretical framework of this research study comprised globalization theory and career development theory. Globalization impacts many areas such as transport, communications, and information technologies, as well as higher education. Moreover, globalization tends to promote advanced technology, research achievements, and democratic ideology (Levin, 2001). The pioneer of globalization theory, Robertson (1992), has described globalization as "the compression of the world" (p. 8), which means human beings live in this world as a single place, thus the world is interdependent.

Higher education is the place where people learn the experiences of others, exchange different ideas, and share common knowledge among people, thus it facilitates globalization. Bloom (2002), a Harvard professor of economics, explained globalization as the process whereby countries

become more integrated via movements of goods, capital, labor, and ideas. Globalization has both facilitated, and been facilitated by advances in information and communications technology. The flows of globalization can help institutions benefit from lessons learned in other countries and from collaborating with foreign institutions to solve problems. The combination of globalization and higher education offers potential for improving living standards.

Finding ways to improve higher education is a global challenge. Providing higher education opportunities for everyone has become an important goal for countries like China because knowledge is the engine that will keep the Chinese economy growing over the next 30 years. The global economy is a knowledge economy. As Bloom (2002) stated, knowledge has become more portable and increasingly important to global markets and the wealth of nations. Thus, globalization creates increased pressure on countries to provide more post-secondary education and higher quality within that system.

Career development theory served as a secondary theoretical framework to analyze student employment services associated with the CTE programs at each of the institutions. This theory deals with providing guidance for students in finding and maintaining a meaningful career.

Definition of Terms

CTE—Career and Technical Education. This term includes all traditional and current (e.g., Internet and medical imaging) technical education. Related terms, including vocational, semiprofessional, occupational, and technological have been used occasionally in the study as being synonymous with career and technical education.

Community college. The college is a typical postsecondary education

institution in the US and some other countries, which provides five educational services: (a) transfer programs for the first two years of college programs, (b) CTE programs, (c) developmental programs, (d) continuing education, and (e) community services (Cohen & Brawer, 2003). However, there is no equivalent institution to the community college in China. There are educational institutions that perform some of the functions of a community college.

Education. This implies a formal, for credit program in a postsecondary education institution. Students will receive a diploma when they finished the program.

Educational group. This is a uniquely Chinese organization affiliated with a university, which uses the university's resources to conduct business functions as an educational enterprise, and also provides educational training as an academic institution. The educational group has some similarities to a US community college.

Junior secondary vocational education. In China, this is equivalent to US middle school level special technical training.

Open Access. A higher education institution gives anyone, who is 18 years of age or older or a high school graduate, or has a General Education Diploma (GED) certificate, the opportunity to receive a postsecondary education regardless of personal background and socioeconomic status.

Release-time. A reduction in teaching load to enable participation in non-teaching activities.

Senior secondary vocational education. In China, this is equivalent to US high school level career education.

Tertiary vocational education. In China, this is equivalent to US junior or community college level CTE.

Training program. This implies a non-credit program in a postsecondary education institution. Students receive a certificate when they finished the training program.

Organization of the Study

Chapter 1 introduces the research study including its purpose, research questions, significance, theoretical framework, and a definition of terms. Chapter 2 reviews literature related to the development of CTE in the US and China, examines the difficulties and challenges that have existed in the CTE programs, and discusses the relevance of globalization theory and career development theory as analytical lenses. Chapter 3 explains the comparative qualitative case study design, sampling procedures, data collection and analysis procedures, ethical considerations, and research limitations.

Chapter 4 and chapter 5 focus on the US and Chinese case studies respectively. Both chapters begin by introducing the background of each institution and its CTE programs, then answer Research Questions 1, 2, 3, and 4. Chapter 6 begins by reviewing the key points generated in both cases, makes comparisons of the cases in seven categories, and then addresses Research Question 5. The final chapter starts with a brief overview of the research study, discusses the conclusions by indentifying the positive characteristics of the CTE programs and their implications, and then provides recommendations.

CHAPTER 2

LITERATURE REVIEW

This chapter reviews literature related to development of Career and Technical Education (CTE) in the US and China, including the history, policies, and current issues. It also examines the difficulties that have existed in the CTE programs of both countries, and particularly the types of challenges CTE programs have faced in attempting to meet globalized economic demands for a competent workforce. Moreover, this chapter discusses the relevance of globalization theory and career development theory as analytical lenses for examining the development of CTE programs in both countries, and reports on previous related research. Overall, the chapter provides a foundation for the research study and shows there is a gap in the literature regarding comparative research that examines CTE programs in the US and China.

A Brief History of CTE

History of the US CTE Programs

According to the Association for Career and Technical Education (ACTE) (2008), CTE provides training and education for students' future careers in a variety of fields. These careers may require varying levels of education from high school and two-year community college to four-year college degrees (ACTE, 2008). CTE is essentially a combination of informal, semi-formal on-the-job training, and formal education with courses in academic and practical technology at training institutions, community colleges, and four-year universities.

Cohen and Brawer (2003), in writing about the history of American community colleges, stated that in 1900, William Harper, a proponent of establishing American Junior Colleges, called for the inclusion of vocational

education in these two year institutions. Later California junior colleges started to provide terminal programs in agriculture, technical studies, and manual training programs. The graduates from these vocational programs would occupy the middle positions between manual laborers and the professional workforce. In the 1930s, higher education leadership and policy makers had become enthusiastic about vocationalization of the two year colleges, in part because the student's lacked interest in college-transfer programs (Brint & Karabel, 2006). During the 1940s, terminal programs were offered in 70% of the colleges (Cohen & Brawer, 2003), including secretarial studies, teaching, and home economics. Before the 1960s, vocational programs failed to grow because of their terminal nature, which turned potential students away from future studies.

After decades of student resistance, enrollments in community college vocational programs finally surged (Brint & Karabel, 2006). In the 1960s, vocational education grew in demand, especially as some programs gained the prominence of postsecondary status, such as health, engineering, and electronic technology. The prestige factor was influential in the college decision-making processes of students and their parents. The Vocational Education Act of 1963 and later amendments of 1968 and 1972 added impetus to the growth of the vocational programs because the legislation made federal funds available to community colleges (Cohen & Brawer, 2003).

The growth of vocational education in community colleges during the 1960s and 1970s also resulted from the upgrading and expanding of institutions, and changing values and attitudes toward the level of education required to produce quality employees and employment. These developments were followed by a relatively stable period of growth from the

1980s to the 1990s and during this period a series of vocational education acts and amendments were established (Cohen & Brawer, 2003).

While in earlier years most CTE secondary students viewed their high school diploma as terminal, today further training is typically an explicit goal. Like other high school graduates, those with vocational aspirations are increasingly likely to enroll in higher education. Within two years of graduating from public high school, most of these students attend a two-year community college (Keating, Medrich, Volkoff, & Perry, 2002).

These trends have reinforced the role of two-year community colleges in relation to CTE and the community colleges have continued to maintain a strong focus on CTE coursework. Nontraditional students (25 years and older) have been entering postsecondary institutions, or returning for retraining or additional training; this is an important trend in the evolving role of community colleges and their student population. The most popular majors for associate degrees have been business, health, and technical fields (Keating et al., 2002).

Now in the twenty first century, the community colleges and their CTE programs are faced with new challenges. For example, the need for vocational and collegiate education is growing, financial support from government funds is declining, competition from the proprietary schools is rigorous, and outsourcing of labor has a major impact on vocational education (Cohen & Brawer, 2003).

History of the China's CTE Programs

China's Ministry of Education states that vocational and technical education provides vocational training and education that prepares students to be skilled workers and high level professional technicians (DICE, 1998). These students are required to go through a variety of training and education

offered by the education system at three levels: (a) primary technical school, which is equivalent to the US middle or junior high school; (b) middle level special vocational school, or secondary, which is equivalent to the US high school or senior high school; and (c) higher level vocational and technical institute, or tertiary, which is equivalent to the US community or technical college. Four-year institutions in China also offer some CTE programs at the tertiary level (DICE, 1998; CERN, 2006).

The earliest vocational education began in the 1860s mainly to study Western technology and train the labor force with practical skills. However, the formal system of schooling for vocational education was started in 1902 and developed slowly until 1949. Only about 4% of the total student population in secondary schools enrolled in vocational programs because the country was facing difficult economic conditions due to backward industrial development, civil wars, and the disruptions of World War II (DICE, 1998). In the 1950s and early 1960s, vocational education went through a process of adjustment, rectification, substantiation, reform, improvement, and steady development. Thousands of specialized secondary schools and skilled worker schools were established; industrial and agricultural vocational schools had developed rapidly in order to meet the needs of economic expansion. However, the Cultural Revolution (1966-1976) adversely affected the pace of Chinese vocational education development (DICE, 1998).

In 1980, the Ministry of Education implemented a structural reform of secondary education and developed vocational education to meet the needs of socialistic modernization. In 1985, the *Decision on the Structural Reform of Education* by the Communist Party of China (CPC) Central Committee made an impact on vocational education (DICE, 1998). In 1991, the State

Council, which is the highest level of administration in the nation's government, formulated a *Decision on Energetically Developing Vocational and Technical Education*, and later in 1996, the first *Vocational Education Law* in China set clear goals and objectives for the future development of vocational education. During the 1980s and 1990s, the tertiary vocational institutions developed in five major categories: (a) higher vocational technology colleges, (b) short-term vocational universities, (c) five-year higher vocational programs provided by secondary vocational schools, (d) tertiary vocational education in regular four-year institutions, and (e) reformed two or three-year institutions with an emphasis on high level professional and technical education. Approximately 300 higher educational institutions were involved with tertiary vocational education (DICE, 1998).

In 1999, the Chinese government announced a *Decision on Deepening Educational Reform and Promoting Quality Education*, which emphasized development of tertiary vocational education (i.e., higher education). Currently, tertiary vocational education in China faces challenges in five areas: (a) competition from multiple levels and a variety of organizations, and institutions established by private ownership; (b) the need for new curricula that is relevant to the present economy; (c) job market competition from four-year institution graduates; (d) the quality of vocational education; and (e) faculty training and upgrading in teaching technology and methodology (Ma, 2001; CICTE, 2009).

Current Contexts

Postsecondary Education in China

Vocational education in China is primarily associated with two or three-year institutions, and specialized training institutions closely linked to local industry and business needs. Student admissions are based on a

nationwide college entrance exam and most of the vocational education students have lower scores than those who have enrolled in formal four-year institutions (Li, 2009). Unlike in the past, students now must pay the tuition and boarding fees, but some students may commute between school and home.

Postsecondary education in China is divided into four categories: formal four-year higher education institutions (*Benke* in Chinese), three-year or two-year vocational education institutions (*Zhuanke*), private institutions (*Minban*), and adult universities (*Yeyu*). The four-year institutions are government sponsored and usually enroll students directly out of high school. The three-year (*Dazhuan*) and two-year (*Zhongzhuan*) vocational and technical colleges, which are primarily supported by and affiliated with industries and local governments, generally enroll those students who do not achieve a high enough score on the national college entrance examination to gain admission to a four-year institution. Private colleges and universities (*Minban*) offer a variety of academic or vocational programs and receive no funding from the government. These private institutions primarily enroll students who have received low scores on the national college entrance examination. Adult universities and continuing education colleges, which include all kinds of training, retraining, and upgrading, mostly enroll adult students in all age groups (CERN, 2007; CICTE, 2009).

In 2005, China's population reached 1.3 billion, of which 5.42% had received a higher education (NPFPC, 2005). In 2006, the higher education system comprised 2311 government sponsored colleges and universities with 17.39 million students, 444 adult continuing education institutions with 5.25 million students, 278 private higher educational institutions with 1.34 million students, and 318 independent colleges with 1.47 million students.

Although the enrollment has rapidly increased, the higher education enrollment rate is still only 22% of those who may potentially want a higher education (CERN, 2007; CICTE, 2009).

Demands for a Globally Competent Workforce

Globalizing the economy requires a high quality workforce and globally competent workers. According to a recent Government Accounting Office (GAO) (2008) report, “The United States is moving increasingly toward a knowledge-based economy, requiring workers to have higher-level skills and more education” (p. 1). Moreover, the GAO predicts that almost 54% of total job openings by 2014 will be filled by highly trained and skilled people. Roekel (2010), president of the National Education Association, has said that global competence is a 21st century imperative. This competence includes four areas: (a) international awareness, (b) appreciation of cultural diversity, (c) proficiency in foreign languages, and (d) competitive skills.

Over the past few decades, China has become a world factory (Yu, 2005), which means the country’s industries are major bases of manufacturing, producing, and supplying; and the country’s primary consumer products occupy a major share in the world market. Yu (2005) traced the history of “world factory” development in several countries, including Britain, the United States, and Japan. A common characteristic across all of these world factories is that they have been driven by vocational education. The British started their early vocational education based on apprenticeships and trained many skillful workers to set the foundation for becoming a world factory before the nineteenth century. The US started in the late 1800s and early 1900s when developing postsecondary education into a less elitist system. The federal and state governments promoted and

supported vocational education, which contributed to successful economic development. The US surpassed Britain to become the leading world factory in the early twentieth century. After World War II, Japanese vocational education developed rapidly and trained a great number of workers, who understood and could create as well as apply new technology; this brought Japan into the forefront and made it the third world factory (US, Britain, and Japan) in the global economy before the twenty first century (Yu, 2005).

It can be inferred from this history that in order to maintain world factory status and continue its economic development, China must develop and enhance CTE, especially tertiary CTE. The CTE programs must provide and support large numbers of higher quality technologically skilled workers, who are confident in using technology and can compete in the world economic market.

Challenges Facing the US CTE Programs

CTE is an essential component of the American comprehensive community college. The Office of Educational Improvement and Innovation (2007) states that career and technology education provides students and adults (a) the technical skills and knowledge necessary to succeed in occupations and careers; (b) the cross functional or workplace basics necessary for success in any occupation or career (such as problem solving, teamwork, and the ability to find and use information); and (c) the context in which traditional academic skills and a variety of more general educational goals can be enhanced. The US government recognizes the importance of community college CTE programs, as implicitly indicated in the GAO's (2008) report: "Community colleges are providers of education and training for those seeking basic skills for entry into the workforce as well as those

seeking to acquire new skills or upgrade existing ones to obtain a different job or retain current employment” (p. 1).

Keating et al. (2002) reported that recent US vocational education reforms have emphasized greater academic preparation and further education and training. Moreover, five other factors are associated with better employment and learning outcomes: (a) finding a job in an occupation that matches one’s vocational field of study, (b) concentrating coursework in a vocational field of study in high school, (c) completing a post-secondary vocational program and obtaining a degree or certificate, (d) training in the business and health fields at the high school level and in the health and technical fields at the post-secondary level, and (e) pursuing vocational studies at an accredited postsecondary institution.

The Office of Educational Improvement and Innovation (OEII) (2007) stated that CTE is no longer viewed as a second chance educational system; it is a partner in the first chance system that has a unique curriculum primarily from the workplace. The workplace provides the context, objectives, and organizing concepts for instruction and assessment. CTE offers benefits for all students ranging from providing a contextual environment for developing higher-level academic skills to providing specific industry certification in an occupational field. Also, CTE has a long and successful history of enhancing student leadership, teamwork, and citizenship skills (OEII, 2007). Community colleges have developed a variety of programs for CTE to meet the needs of industry sectors, individual employers, and certain types of students and workers, as well as providing training directly to local employers through contract or customized training programs (GAO, 2008). CTE in the US is at a crossroads. On the one hand, CTE must align with the forces of reform that are shaping academic

education in the classroom. On the other hand, CTE must continue to impart skills responsive to the increasingly sophisticated demands of the evolving workplace (Keating et al., 2002).

Improving the quality of CTE programs to meet the global economic needs locally is always challenging, as illustrated in the Keating et al. (2002) report:

Vocational and technical education will need to demand the same level of performance against national and state standards of excellence to which students in the general and college preparatory curriculum are held. This means that, in secondary school, all students will receive a firm grounding in English, language arts, mathematics, science, history, and the social sciences, so that they are equally well prepared for post-secondary education, the workforce, or further learning while pursuing a career.... Aligning coursework with real world experience and engaging students in applying knowledge, thinking critically and solving authentic problems: Emerging curriculum trends seek to instruct in ways that require students to problem-solve, analyze, and become involved in higher order tasks that are characteristic of the high skills workplace. Instructors will not just purvey knowledge; they will facilitate inquiry. (pp. 164-165)

Moreover, as community colleges enter the twenty first century, they are still faced with the challenges described by Harris (1996): (a) budget cuts, (b) demographic shifts, (c) diversity of faculty and staff, and (d) accountability.

Challenges Facing China's CTE Programs

In the globalized economy, advanced technology and new information systems promote a knowledge-economy, bringing a revolution in education, the labor market, and lifestyles throughout the world. As Salmi (2000)

stated, “economic growth is as much a process of knowledge accumulation as of capital accumulation” (p. 4). China needs a large number of skilled and knowledgeable workers who receive internationalized higher education in order to compete with the world (Jie, 2007). China is now going through a comprehensive transformation, with remarkable achievements not only in its economic development but also in all aspects of society. The new market economy has created both a critical demand for career development of the masses and increased openings for career professionals (Zhang, Hu, & Pope, 2002).

Although China needs vocational education, especially in advanced technology and professional programs, the form cannot be merely borrowed from abroad. As Li (2005) emphasized, there are six principles related to Chinese characteristics that must be factored into the development of vocational education to ensure a fit for the Chinese society: Vocational education must (a) correspond with national development, (b) be set as the key issue of education, (c) solve and reduce unemployment, (d) establish an environment of involvement with corporations and businesses, and (e) use diversified funding sources.

As mentioned previously, CTE in China generally has three different levels: primary CTE, which is equivalent to the US middle school level; secondary or special CTE, equivalent to the high school level; and tertiary CTE, equivalent to the higher educational level. The first two levels of CTE have very clear missions and goals for training entry-level workers and midlevel technicians. However, tertiary CTE has struggled to establish its status and purpose while competing with the four-year higher education programs. Cao (2002), a scholar of tertiary CTE, questioned the positioning of tertiary CTE in China: (a) what was the status of tertiary CTE, and was it

equivalent to higher education; (b) did tertiary CTE act as a unique element in the postsecondary education system; and (c) was tertiary CTE a higher level of CTE? Cao has attempted to identify the source of confusion related to tertiary CTE in China. The current tertiary CTE is a relatively new educational system in China. These tertiary CTE institutions basically came from either a conversion or a transformation of adult colleges, specialized schools, and vocational universities; however, a small number of the tertiary CTE institutions were upgraded from very accomplished secondary CTE schools.

As explained by Cao (2002), there are complex historical, socioeconomic, and cultural reasons for the lack of clarity surrounding tertiary CTE in China. First, confusion could be expected because the converted and transformed schools were not on the same level as higher education. Second, the national policy concerning college student recruitment treated the tertiary CTE institutions differently (at a lower level) than the traditional postsecondary education institutions. For example, the tertiary CTE institutions recruiting new students are required to wait until after the regular higher education institutions complete their recruitment, thus the grades of new students entering the tertiary CTE programs are lower. Third, among the general public, tertiary CTE has been considered terminal education. Cao summarized that society did not consider tertiary CTE as belonging to higher education due to the public's perceptions of it as an ending point, and the students' view that tertiary CTE only accepted those students who were left over after admissions were finalized for regular higher education institutions.

Chinese scholars, Yang (2003) and Li (2006), identified four similar issues related to tertiary CTE: (a) people in postsecondary education and

tertiary CTE do not have a clear vision of what CTE should be, (b) policies at the national and local levels for tertiary CTE are not yet well developed thus causing negative opinions in the general population toward tertiary CTE, (c) facilities are insufficient and inadequate to deal with the enrollment expansion and there is a lack of updated teaching materials for the tertiary CTE programs, and (d) the quality of the tertiary CTE graduates is declining as the tertiary CTE programs are failing to meet the rapid increase in economic demands for a trained workforce.

Moreover, the Chinese and British scholars Li and Lumby (2005) discussed additional problems that exist in China's vocational education sector: (a) the low employment rate for vocational students, which results from an excess of university graduates competing with vocational students in the job market; (b) the low status of vocational education causing lower enrollment; (c) the low quality of students as well as lack of qualified teachers; and (d) the ineffectiveness of school management related to the role of school principals, curricular development, quality of teacher's training, and levels of income.

Confucian thought has been infused into the society as reflected in a classic Chinese phrase: "If while studying one has a surplus of energy, it should be directed at seeking public office" (Ames & Rosemont, 1998, p. 221). In contemporary Chinese the phrase has become a common, socially embraced slogan saying that the best scholar should become a government official. Another historical saying that has had a substantial affect on people's perceptions is that "all jobs are in low status, except the scholar" (Wang, n.d). Traditionally, Chinese people looked down on workers and farmers while looking up to scholars and officials; therefore, theory was emphasized more than practice in academe. Moreover, practical knowledge,

handcraft techniques, and skills did not become a part of the mainstream Chinese education system, and some of those techniques and skills could not be continued because no one wanted to learn them. According to Chen (2002), this perception of looking up to officials and looking down on a labor career “was why China was behind those industrialized countries in the early twentieth century.” (p. 1). Because the purpose of tertiary CTE was not understood, it did not show promise for a bright future in the public’s view (Cao, 2002; Li, 2006). Thus, tertiary CTE has been faced with lack of support and understanding from students’ parents and society as a whole.

Keating et al. (2002) assert that the rapid economic growth in China has been accompanied by a considerable degree of industrial and social disruption. The former state owned enterprises and company-based industry training are being dismantled. Now China is searching for new approaches to CTE and the relationship of CTE to mainstream international education systems. This transition presents major challenges for the future direction and funding of CTE. In the context of an emerging market economy, meeting the demand for skilled labor is arguably the major change.

Vice Premier of the State Council, Li (2003), who previously was the national leader in charge of education, summarized the problems that tertiary CTE faced:

First, lack of understanding the importance of vocational education results in the tendency of emphasizing regular education more than vocational education and training; second, lacking operational models of vocational education and funding resources, the reform of program, course curriculum, and teaching methods are far behind the demand of the workforce; third, the development of vocational education in the

countryside and Western area is slow; and fourth, job preparation and an occupational certification system are not implemented. (p. 431)

Although the situation started to change gradually, the problems still existed. The State Council had issued a decision in 2002 on promoting the reform and development of vocational education, yet it was not until 2005 that the government really took action on vocational education reform. In 2005, the State Council of China announced *A Decision of Strongly Developing Vocational Education* in which nine major tasks were prioritized and laid out in an action plan with 30 strategies. The nine tasks directed by this decision were:

1. Setting the vocational education development in a strategic position as a foundation of socioeconomic and educational development.
2. Cultivating millions and millions of high quality workers and thousands and thousands of high technology specialized experts.
3. Reforming the vocational educational curricula and aiming at the employment.
4. Improving the quality of vocational education and increasing the efficiency level of management.
5. Reforming the system and promoting creativity to enhance vocational education.
6. Encouraging industries to join the vocational education and depending more on support from corporations and industries.
7. Establishing the career preparation system and completing the career qualification licenses and certification systems.
8. Increasing budgets from multiple resources and establishing a student aid system.

9. Strengthening the importance of vocational education and motivating the whole society to care about and support vocational development. (State Council of China, 2005)

In the following year, 2006, the State Council of China issued *The Guidelines and Action Plan for Scientific Attainment for All the People (2006-2010-2020)* in which the Council again emphasized the importance of education for all, especially in scientific quality. The State Council (2006) said all levels of government should promote the plan, all people should participate in the plan and learn sciences as a lifelong task, and accomplishment of the plan was necessary in order to reach harmony within the entire society. Using vocational education to implement the plan was one of many action strategies, particularly for peasants and farmers.

National policies for CTE have gradually established a clear vision and mission; therefore, finding ways to implement the mission and accomplish the goals has become the major challenge. Chen (2002) described three strategies for addressing challenges presented by the situation of tertiary CTE: (a) strengthen the importance of tertiary CTE and equalize the position of tertiary CTE with regular higher education, (b) change the traditional thinking and create a new model for tertiary CTE, and (c) provide employment services and introduce entrepreneurship. Shi (2001), who is a senior researcher in the field of CTE policy in China, identified four major strategies to develop tertiary CTE: (a) Changing and reforming the ideology and perception, (b) establishing a national career qualification system, (c) building a solid foundation and developing a substantial curriculum for tertiary CTE, and (d) strengthening the research on tertiary CTE. Both Chen and Shi, as well as researchers Li (2006) and Li (2009),

offered similar considerations regarding a need to change the public's perceptions and elevate the importance of CTE.

Yang and Zhang (2003) analyzed the situation of Chinese tertiary CTE when entering the 21st century. They provided seven recommendations regarding the development of tertiary CTE: (a) stressing efficiency and effectiveness internally and externally; (b) emphasizing program development in terms of setting up programs dynamically to meet current demands, standardizing teacher training, updating the teaching materials with modern content, and requiring well rounded student quality development; (c) diversifying CTE ownership by involving government, industry, corporations, social groups, individuals, and even international sources; (d) providing a variety of training and services for society and individual needs, such as credit and non-credit courses, and degree and certificate programs; (e) giving operational autonomy and independence to institutions under the general guidance of the government; (f) making teaching and learning a dual process using interactive approaches; and (g) modernizing teaching methods and techniques through multimedia and information technology. Some of these recommendations already are occurring in many major cities and coastal regions of China.

Thus, according to the literature, as China enters the new century, implementation of five major reforms (Li, 2003; Yang & Zhang, 2003; Shi, 2001) will be particularly challenging and require years to accomplish. First, the higher education administrative system should be reformed. The provincial government should administer postsecondary education locally, and allow individuals and organizations to invest and manage postsecondary education institutions. Second, the operational system of CTE should be reformed. Not only the government, but also industry, enterprises, and other

nongovernmental organizations, including international educational providers, should be allowed to operate CTE programs. Third, the educational and academic areas should be reformed; vocational education should integrate with economic and societal development, create relevant curriculum, and use advanced teaching methods and technology. Fourth, the human resource system should be reformed; it should train and produce a higher quality faculty team for CTE and provide employment services for CTE graduates. Fifth, a job preparation certification system should be implemented; the career qualification system should be standardized and recognized nationally.

Chinese tertiary CTE also must address geographical challenges. The Western region of China is an economically and educationally underdeveloped area with large minority populations. Tertiary CTE is underdeveloped, if not undeveloped in this region. The major barriers are (a) lack of policy to support vocational education, (b) misperception of vocational education as being for low ability students and providing a low-level of education, (c) lack of assessment standards, (d) unbalanced ability of entering students, and (e) lack of teaching facilities as well as unqualified or inexperienced teachers (Zhu, 2005).

In summary, a synthesis of the literature concerning challenges facing Chinese tertiary CTE reveals five major areas: (a) the perception of CTE, traditional versus modernized; (b) the government policy on CTE, centralized versus autonomous; (c) funding and budgets, government versus society investment; (d) curriculum, out of date versus changing technology; and (e) faculty and facilities, number versus quality (Li, 2006).

Educational Cooperation between the US and China

International cooperation and exchanges are an increasing trend in the globalization of modern education. During an interview, McKenney, then vice president of development and international programs at the American Association of Community Colleges (AACC), noted that China has been deeply interested in creating community colleges because the model has a two-year structure, lower operating costs, and an occupational focus (Bandler, 2002). Also, for training purposes, community colleges could provide up-to-date agricultural and environmental preservation techniques. Although the Chinese government has been eager to develop cooperation in CTE with foreign countries at the tertiary level, the extent of cooperation between China and the US is less than that of China and some European countries. For example, the Chinese government has received development assistance from Britain and Germany to fund CTE improvement projects (Keating et al., 2002).

Over the past decade, China has turned to several countries including Australia, Germany, Canada, and the United States for guidance. Recently, Hvistendahl (2008) reported that American postsecondary education has been providing programs and models in vocational education for China. As an example, the University of Oklahoma has established a partnership with a technology institution in Zhejiang province that aims to help make the college's students more competitive in the tight job market. According to Hvistendahl's report, one administrator in the Chinese institution said that they have learned many models, but they cannot just copy them in China. Making those models work efficiently and correctly in a different context is a challenge.

Applying the community college model in China has been considered for more than a decade. The U.S.-China Education Foundation, a nonprofit research and advocacy organization in New York City had proposed a plan for establishing community colleges in China. The short-term plan developed by this foundation included five proposed actions: (a) establish a planning committee to develop objectives, timelines, and budgets; (b) undertake exchanges with the US to share ideas; (c) conduct surveys to establish the educational needs of communities, business and industry, teachers, and students; (d) develop a few 2-year career programs within existing institutions; and (e) establish a governing board and a long-term plan for the future (Hu, Watkins, Shao, Belaief, & Kehl, 1996). Although the project design seems reasonable, no additional information could be found in the literature concerning the outcome of this initiative.

Dong (1994), a Chinese visiting scholar and later a graduate student at Georgia State University, conducted an examination of the history, characteristics, and social and economic effects of the American community college, and compared postsecondary education systems between China and the US. He used a modified Heidenheimer comparative public policy analysis methodology, and primarily gathered data through document review. While reviewing the literature, this was the only research study found that was related to the current study. Dong's findings resulted in seven recommendations for China's policy makers:

- (a) application of community college model in China for a pilot study,
- (b) open access to higher education,
- (c) less central government control of curriculum and personnel,
- (d) differentiating funding to different types of institutions in different regions,
- (e) foundation

support to rural area colleges, (f) a Chinese servicemen bill, and (g) leadership training programs. (Abstract)

Although the studies by Hu et al. (1996) and Dong (1994) offer a number of good suggestions, these do not appear to have been implemented. Moreover, there is an absence of comparative CTE studies between the US and China in the literature; therefore, one might ask, are these topics of establishing community colleges and developing CTE no longer of interest to US academe, or have the topics been rejected by Chinese educational policy makers and academe? Perhaps the lack of literature can be traced to a couple of causes. First, as was noted previously, it is not possible to simply copy another country's model, thus the American community college model cannot just be transported to China. The education system in China has unique social, political, and economic roots; it is a complex system. Second, the timing was not right when China's four-year universities and colleges were expanding more than a decade ago, but now the situation has changed significantly; a number of barriers existing at that time now are gone, such as controls on establishing a tertiary CTE institution, and limitations on investment in education by private individuals and joint-venture companies. Therefore, it is appropriate to ask two more questions: What are today's challenges in the Chinese postsecondary education system and what will the Chinese attitude be toward accepting ideas about postsecondary education from other countries, and particularly the US?

The Chinese postsecondary education system has been influenced by Western methods and practices since early in the twentieth-century. In the last two decades, China has established an incentive policy encouraging thousands of Chinese oversea students to return home. These Chinese students and exchange scholars have brought back not only new technology

and research accomplishments, but also Western ideas and methods of education, such as academic freedom and heuristic teaching methods. China's higher educational system is gradually transitioning away from the Soviet model of mono-disciplinary universities and separate research institutes (Guttek, 2006; Li, 2003).

China has a number of institutions referred to as community colleges, but they hardly resemble the US community colleges. As stated by Postiglione (2001), the American community college developed out of a particular set of socio-historical conditions that cannot be duplicated elsewhere. However, as the demand for vocational education in China rises, selected aspects of the American community college model may prove useful in meeting the development needs of diverse communities across China. The Department of International Cooperation and Exchanges (1998) reported that China has conducted some experiments for its own community college idea. For example, some universities have expanded their adult and continuing education divisions for vocational and technological education, and some private colleges also provide technology curriculum. However, there is no career and technology education in China similar to that found in the CTE programs of US community colleges.

One option for further developing vocational education in China would be establishment of joint-venture projects between US and Chinese institutions. In fact, the Chinese government has encouraged use of the joint-venture model for postsecondary education including vocational education (MOE, 2003). The essence of joint-venture would be to export and pilot suitable aspects of the American community college model in a Chinese institution, drawing from Dong's (1994) recommendations, and to strengthen the tertiary CTE programs. The basic idea of this approach is to

raise the quality of education to a higher level, and promote the advanced technology and renovation of current postsecondary education. There are many private colleges and specialized technical colleges that could be candidates for joint-venture partnerships. However, many issues and questions must be explored and addressed before pursuing a joint-venture option, including organizational structure, funding and financial support, faculty training, student recruitment, curriculum and instruction, and student services.

When considering the community college model of CTE for application in China, an issue that must be addressed is one that has often been discussed in the literature on US community colleges: “[some] commentators . . . charge that vocational programs channel low-income and minority students away from academic studies and the upward social mobility attendant thereon” (Cohen & Brawer, 2003, p. 244). Chinese people have a similar perception of vocational education as a lower status version of higher education when compared with regular four-year institutions. Another issue relates to funding and whether a proportionate share of cost for vocational education programs can be paid by industries. The current CTE budget comes from five sources: (a) central government appropriation; (b) taxation and fees from local government; (c) school service revenues; (d) organization and individual funds; and (e) tuition (Liu, Wu & Ji, 2003). With limited resources and funding, the vocational programs are developing slowly and cannot match the needs of the job market. Finding additional funding is a major challenge for CTE in China.

In summary, the Chinese government has encouraged postsecondary education institutions to develop cooperative relationships with foreign countries at the tertiary level. The US community college model, which has

a two-year structure, lower operating costs than four-year institutions, and an occupational focus, typically CTE, has been of interest to China. In recent years, US postsecondary education has started to provide programs and models in CTE for China. Although simply copying another country's model is not feasible, cooperation between the US and China could lead to quality improvement in tertiary CTE.

Globalization and CTE Programs

Importance of Globalization Theory

As stated by Reyes (2001), globalization theory is related to economics and trade primarily, but it also includes social and cultural systems. Globalization tends to promote advanced technology, research achievements, and democratic ideology. According to Levin (2001), globalization encourages adoption of a managerial and business culture even in higher education. Thus, Levin uses globalization as an analytical tool for categorizing institutional conduct and operational behaviors that explain and define organizational changes in community colleges.

One of the world's pioneers in the study of globalization, Robertson (1992), described globalization as "the compression of the world and the intensification of consciousness of the world as a whole" (p. 8). Robertson (1991) conceptualized the globalized world as having four main components: nation-state, individual self, world-system, and one humanity. Lechner and Boli (2005) explained that a globalized world is a single place but also diverse, a conception they said is shared by scholars, officials, and business executives.

Sen (2002), the 1998 Nobel Laureate in Economic Science, stated globalization is a historical process. The potentially large benefit demands fairness from the process of globalization. The critical issue is not only to

gain something from globalization, but also to have a fair opportunity. There is an urgent need for reforming institutional arrangements across the world to create a fairer distribution of opportunities.

Appadurai's (1996) cultural dimensions of globalization suggested the need to study organizations, movements, ideologies, and networks which comprise post-national social formations. When studying local needs, a researcher must be aware that the local is the global; researchers cannot view local as static or homogeneous. The world is always changing, interacting, and creating new global realities. Appadurai (1996) also stated that the nation is an unstable entity. Although nations were once formed by identity, ethnicity, and race, today the nation is an interaction of flows comprising values, cultures, and movements, facilitated by various media and technologies. Cultures and nations are always in interaction with the local and global; they are a collective of cross-cultural relations (Appadurai, 1996).

In summary, Salmi (2000) states that globalization is a complex integration of capital, technology, and information across national boundaries, and people's lives in today's world are becoming more, and more competitive in the global economy without choice.

Community Colleges as a Globalized Institution

Community colleges have made an important contribution to American society; they have increased access across socioeconomic groups and strengthened the equality of education, especially in higher education. According to Levin (2001), the community college has become a globalized institution affected by the global workforce in four domains: (a) economics, (b) culture, (c) information, and (d) politics. The American community college has become a comprehensive community college that fulfills three

essential roles: education, training, and community resources. As of 2007, 11.8 million students were enrolled in community colleges (AACC, 2010). According to an NCES (2006) report, 62% of the associate degrees and 97% of the certificates awarded during the year 2006 were in CTE. Thus community colleges career and technical education programs provide training opportunities for millions in the American workforce thereby meeting community needs. Globalization has facilitated and necessitated the flow of ideas and practices across national borders; therefore, the US community college CTE model may be useful to other countries (e.g., China) that have placed a strong priority on developing vocational and career programs in their postsecondary education systems. Perhaps the best way to build CTE programs is to develop mechanisms for sharing problems and responses among nations:

We should respond to the realities and educational challenges and opportunities of the global village...with respect for those with whom we co-operate regardless of their social, religious, and political beliefs and practices...we prepare our students to be responsible citizens in the international community. (Hinchcliff, 2000, p. 11)

Impacts of Globalization on Higher Education and CTE

Salmi (2000) said, “globalization is happening, whether one approves of it or not, whether one likes it or not, and every country in the world, every firm, every working person is affected by it” (p. 3). He also described three challenges for higher education in relation to globalization. First, radical changes in training needs are occurring because in a knowledge-driven economy, workers must have higher level skills, knowledge must be updated on a regular basis, and international recognition is essential. Second, new forms of competition are developing, including borderless delivery methods

by Internet or satellite technology, corporate universities, and educational service brokers. Third, new modes of operation are evolving, which means transformations in governance, organizational structure, and organizational behaviors.

Boli (1996) summarized the history of globalization in education as having four major dimensions: (a) revitalization and bureaucratization of the Western Church within a decentralized European system, (b) international comparisons and rivalries between countries involved in the initial construction of mass schooling, (c) development of national educational systems and growth of transnational or global organizations concerned with education, and (d) growing social scientific interest in education becoming part of the globalization process itself. Thus, the globalization process has been occurring for a long time and will continue to influence worldwide educational development for many areas.

Boli (1996) also stressed that world educational development needs research (a) emphasizing both traditional and contemporary educational institutions, especially in Asia and the Arab world; (b) paying attention to both formal structure and everyday action; and (c) studying alternative and competing models of educational systems in world culture. In this respect, globalization research would benefit by bringing the methods of in-depth comparative studies into its more highly theorized approach to global educational analysis. “The more we can appreciate our own culture and understand our own cultural perceptions, the more likely we are to appreciate the culture of others.” (Hinchcliff, 2000, p. 7)

Brown (2003) argued that increasing globalization has spotlighted a range of international approaches to CTE, such as the German dual system, the British vocational qualifications, and Australia’s CTE systems. Across

countries, CTE reflects a country's economic and social investment in education and the strategies used to enhance the skill development of workers, thus fostering their employability. The trend in international CTE is to forge connections between academic and career-technical education. Because employment opportunity has moved from the craft industry toward new organizations of the information age, this change encourages cognitive skill development (Brown, 2003). Keating et al. (2002) also argued the importance of skill development in which competency, soft skills, and basic skills are vital to the workplace, and contribute to lifelong learning. The education system provides a platform for CTE, while global change creates challenges for the CTE system, as well as the associated labor market and industrial structures and practices.

Hinchcliff (2000) summarized the impact of globalization and related challenges that CTE students face: "With changing technology, systems and structures, our graduates must be able to network, liaise, connect, plan, deal, trade, dispute and communicate with people as partners who are from diverse ethnic, cultural, ideological, geographical and religious backgrounds" (p.11). Therefore, CTE must be designed to address these challenges globally.

Internationalization of the CTE Programs

Hinchcliff (2000) explained the term internationalization as a process "that adds value to the globalization process. Instead of just accepting the realities of globalization, the process is transformed to construct positive, synergistic, and creative collegiality, thereby purposefully and strategically enhancing the human experience." (p. 4). He discussed ways to add value to globalization and construct internationalization by developing a hierarchy of values, such as respect for people, community, whole context, and history.

This hierarchy would establish principles of education that include respect for (a) student-centered learning, (b) holistic learning, (c) cooperative learning, (d) creative learning, (e) culturally sensitive (internationalized) learning, and (f) life-long learning.

In the globalized economy, Salmi (2000) asserted that a company's merchandise is not only for domestic markets but also for overseas markets. In addition, companies need to compete with foreign companies in domestic markets; therefore, the demand for internationally recognized employee qualifications is rising. Traditionally, CTE programs had no intention of internationalizing their curriculum, but now CTE students may be future employees for these international companies. CTE must build bridges across economic, geographic, and language barriers by training CTE students to possess internationally recognized qualifications that enable students to understand, appreciate, and integrate with other cultures in the world. As Hinchcliff (2000) stated, this training can facilitate "celebrating the rich diversity of perceptions and wisdom each and everyone from other cultures can bring" (p. 6). These kinds of qualifications should give CTE graduates the confidence to compete and work in the globalized marketplace regardless of whether they are in a domestic or foreign owned company.

Andringa (2001), who was president of the Council for Christian Colleges and Universities that has 156 campuses located in 19 countries but are primarily in the US, strongly promoted internationalizing education for two-and four-year institutions of higher education and advocated six goals for internationalizing programs.

1. Higher education must be infused with some degree of inter-cultural competence. Students need not only academic knowledge, but also understanding of how particular countries and geographic

regions interact with the larger world-and how local culture shapes and affects this interaction.

2. Graduates need to understand the dynamics of global systems that affect the quality of the nation's life. The citizen of the global village must understand how these international systems interact with one another to shape our world.
3. Higher education should explicitly encourage faculty and students to explore issues from a variety of disciplinary and cultural perspectives and produce graduates who are capable of thinking about a problem from many different points of view.
4. Higher education needs to make international education more democratic and universal. All undergraduates in two-year or four-year colleges need exposure to other people, language, and cultures.
5. Higher education must become truly international; an American campus in the 21st century should offer a richer and more diverse curriculum.
6. Higher education should help students make connections between their families' origins, their experiences and immigrants, and their own cultural identities; apply the lessons of international education within our own borders; foster greater understanding of different cultures abroad; and encourage greater cultural harmony at home (Andringa, 2001, pp. 11-12).

These six goals would be an excellent guideline for CTE in establishing programmatic plans, designing curriculum, developing syllabi, and training students. The CTE programs should be able to transfer a global citizen into a globally competent workforce.

Globalization, Community Colleges, and World Peace

Smith (2007), senior program officer in the United States Institute of Peace, argued that the US community college model had a positive effect in other countries:

Many people may not be aware of the huge influence that community colleges are having overseas as well. The U.S. model of the two-year college with a vocational emphasis is being exported, and foreign institutions that focus on career education in health care, law enforcement, business, and other fields are benefiting. Community-college programs led by organizations such as Community Colleges for International Development, with its emphasis on work-force and industry development, and the American Association for [sic] Community Colleges, which promotes exchange programs, are not only dealing with critical social and business needs overseas but also broadening cultural awareness and increasing global collaboration.... in this way, community colleges can make significant and lasting contributions to world peace. (p. B30)

The world is a complex and fragile place where a peaceful interdependence is crucial for everyone. Students must be educated in the meaning of international understanding, not only to trade effectively and enhance job prospects, but also to potentially avoid war (Hinchcliff, 2000). Graduates should not only be competitive in the globalized workforce, but also dependable as the world's peace makers. As Andringa (2001) succinctly stated, higher education needs to be more international in its thinking, its students, its faculty, and its curriculum. This is a long-term commitment, requires leadership at the top, and takes small steps now, followed by more

steps later. The consequences for world peace and human development are real.

In summary, globalization has an impact on major players in the world economy, such as the US and China. As trade and human capital flow around the world, higher education, along with CTE, also have become global. Understanding and applying globalization theory will provide policy makers and educators with a clearer vision and commitment, as well as insights and guidelines. The informed vision and guidelines will lead postsecondary education and CTE to exchange new ideas and transform the systems through better-equipped institutions and programs to face the global challenges and educate and train the future generation as a more globally competent workforce.

Providing higher education opportunities for everyone has become an important goal for developing countries like China. As Carnoy (2005) stated, knowledge is fundamental to globalization, and the global economy is a knowledge economy. Countries having large populations are particularly challenged by the desire to achieve massification in their educational systems. The American community college model can help to inform the efforts of other countries as they move toward massification of higher education. At the same time, the US postsecondary education system has not been quick to internationalize or globalize its curriculum and programs. Thus, globalization theory provides a helpful lens for analyzing the needs and strengths of both the US and China's CTE programs.

Career Development Theory

Importance of Career Development Theory

Career development theory was applied as a secondary theoretical framework for this research study. Frank Parsons (1909), the pioneer of

career theory, showed in his book *Choosing a Vocation* that a relationship exists between vocational choice and personality. Career development theory can help people find and maintain a meaningful career. Parsons (1909) observed that vocational choice consists of self-understanding, knowledge of occupations, and reasoning. His idea was to help people create a good match between self and occupation. Parsons' matching approach has permeated the career development field since its inception. However, many other scholars also have contributed to the career development theory (Brown, 2002). For example, Holland's theory and his Realistic, Investigative, Artistic, Social, Enterprising, Conventional (RIASEC) model suggest that matching personality type to the work environment is bi-directional, as people search for work that is compatible with their personality, and the work environment is created to attract certain types of people (Holland & Rayman, 1986). Additionally, Peterson, Sampson, Reardon, and Lenz's (2003) Cognitive Information Processing (CIP) approach, and Peterson, Sampson, and Reardon's (1991) cognitive approach to career development and services are applicable to CTE programs' placement services, pedagogy, and curriculum development.

Imel (2002) stated that traditional vocational or career guidance has focused on needs of the market and measuring individual differences or traits and then using this information to match people to occupations. This approach is used for most career and placement services in schools, although a recent tendency has emerged in career development theory to support the concept of purposeful and meaningful work. The ideal situation is that people could choose careers connected with meaning and work for satisfaction and happiness rather than other needs (Imel, 2002).

Influence of Career Development Theory on CTE programs

Career pathway and career clusters could be associated with Holland's model to more effectively assist CTE students in choosing a vocation or a career. Career pathway is a guide for secondary school students that helps them determine the best educational pathway for attaining their future career goals (Career Pathways, n.d.). Career clusters identify pathways from secondary school to two-year or four-year colleges and the workplace, so students can learn what they can do in the future (SCCI, 2008a). Career pathway and career clusters have been promoted and implemented in many industrialized countries including the US. Career pathway, by providing a broad focus, can help students' preparation for the workforce (Wonacott, 2001). When the job market has changed and requires adults in many occupations to periodically upgrade their skills, students' employment and career potential have expanded. Therefore, CTE needs to abandon the idea of providing a narrow pathway and organize programs of academic and technical studies around broad industry majors or career clusters, which provide students with the opportunity to focus their formal learning on applications of academic skills in the real world, along with broad technical training. The same holds true at the postsecondary level, particularly community colleges. Training is not for the purpose of developing a narrow base of knowledge that forces an individual into irreversible or final career choices (Keating et al., 2002).

National Career Development Guidelines, a federal project combining the efforts of several government agencies and professional associations in the US, describe competencies individuals should have to plan and manage a career. The Guidelines are based on the premise that career development is a lifelong process of learning about individuals in relation to the real world.

The Guidelines apply to three main aspects of CTE: (a) student competencies and individual growth in self-knowledge, educational and occupational exploration, and career planning; (b) institutions that support competency-based career development programs; and (c) teachers with sufficient knowledge and skills to deliver these programs effectively (Brown, 2002). Career clusters enable a learner to successfully transition from school to careers as a lifelong learner. One key approach to achieving this transition goal is to provide students with relevant contexts for learning, such as career clusters in finance, health, and manufacturing. Therefore, the career clusters concept serves as a platform to connect secondary and postsecondary education; academic and CTE programs; and education with business, workforce development, and economic development communities (SCCI, 2008b).

Zhang et al. (2002) reported that although China has a long history of providing career guidance; the education system was functionally at a beginning stage in career development and counseling. Prior to China's adoption of a socialist market oriented economic policy, students heavily depended on the government to find jobs for them and rarely was any individual choice given regarding the job assignment. Schools taught students to obey placement arrangements by convincing them they had to be placed in occupations that were needed to build a better socialist society. Zhang et al. note that in more recent years career guidance and counseling services, as a professional field, have been developing rapidly to meet the growing need of the economy and labor market in China.

With economic development and market-oriented reforms, the employment system also has undergone reform. Zhang et al (2002) explain, students are no longer guaranteed a job, but now must find a job themselves.

Schools and universities no longer take full responsibility for arranging a graduate's employment. The market-oriented economy not only brought dramatic change to the employment system, but also to the traditional family-oriented, communist social support system. Based on Chinese tradition and culture, the family unit has for centuries served as a basic resource for all types of advice. Now students have started to follow market trends for their jobs and possibly ignore the family's preference.

Zhang et al. (2002) stated that global linkages are increasingly visible to the general public through environmental issues, telecommunications networks, and international trade. The Internet provides a window for people in China to learn different perspectives on life and cultural values, which produce a critical need for career guidance programs to help the younger generation understand themselves and the world around them. International exchange has become an efficient way for Chinese educators to learn from their overseas career counselor colleagues and to cooperate together in career counseling.

It is exciting to see career counseling viewed as a valuable practice that can be imported from U.S. society. Chinese professionals are very interested in learning and implementing U.S. models into their educational institutions and urban communities to help their students and citizens to find satisfactory careers. (Zhang et al., 2002, p. 234)

However, Chinese career professionals need to pay special attention to (a) adjusting for the cultural differences between U.S. or European and Chinese value systems, (b) developing effective career counseling techniques and theories that are appropriate to Chinese society, and (c) learning the concept of gender equity to fully use student credentials and talents (Zhang et al., 2002).

In summary, career development theory helps students to obtain meaningful work and to create values for society and its economy. Economic growth, labor market change, and educational reform are major factors that contribute to the emergence of career development theory as well as the improvement of career guidance services. Career professionals are developing new concepts, new visions, and new models in career development services in response to new social demands internationally (Zhang et al., 2002). Career development theory was used as an analytical lens for this research study to understand how the US institution has applied this theoretical framework, and how the Chinese institution could use the theory in order to help the CTE graduates to enter the job market and reach their future career goals.

Research Related to CTE Programs

Background on Comparative Research and CTE

Comparative education has a long history, which started in Europe during the early years of the nineteenth century when states created a national education system. Since then, comparative education research has become more common, particularly as a result of financial support from organizations such as the World Bank and the United Nations (Phillips & Schweisfurth, 2008).

The main purpose of comparative education is to transfer educational ideas from one country to another. As Schweisfurth (2008) stated:

[Comparative studies] identify good practice elsewhere . . . that such good practice might be seen as potentially adoptable in (and adaptable to) the ‘home’ context. We might ‘learn from’ the foreign example and attempt reform that could benefit from its perceived advantages. . . . generally known as ‘borrowing.’ (p. 17)

This concept of “borrowing” has been used in data analysis for policy borrowing. Postsecondary education in the United States consists of a variety of public and private institutions. Typically, the American community college has provided postsecondary education through open admissions for traditional and nontraditional students in credit and non-credit courses, degree and certificate programs, and especially for training the workforce by offering CTE programs that meet current economic needs of the community and country (NCES, 2008).

Since China began to develop a Western-oriented university model at the end of nineteenth century and economic development began to surge in the 1980s, reforms in higher education have resulted in remarkable changes. For example, although universities and colleges are mostly owned by the central and provincial governments, some of the new institutions are owned by private groups and individuals. Tertiary CTE slowly started in the 1980s; however, at the beginning of the 21st century, CTE gained greater importance in the higher education system and has been strongly promoted by MOE. Thus, tertiary CTE has developed rapidly in the period between 2000 and 2010 (Li, 2009; MOE, n.d.).

China’s vocational education has developed in response to modernization and local economic development. Non-traditional postsecondary institutions have diversified the Chinese higher education system and contributed to the formation of higher vocational education. All of these vocational education institutions are funded by the local government and industry to offer short-term, vocational and technical certificate programs at the sub-baccalaureate level for high school graduates and adults (Ding, 2003).

Comparative Research Studies of US and Chinese Contexts

As mentioned previously, Dong (1994) conducted a research study that focused on policy to determine if the US community college model could be applied in China. He used a modified Heidenheimer comparative public policy analysis methodology, studied the US community college model by conducting a descriptive policy analysis study, and examined policy involved in governance, finance, curriculum, student enrollment, and faculty recruitment in higher education. By analyzing historical events and social environments in relation to the effects and impacts of community colleges, he made some generalizations that could serve as guidelines for China's higher education reform. This study found that the US community college model could meet many emergent needs and is a potential option for Chinese higher education reform. Therefore, Dong's study concluded that the US community college model could be applied in China.

Wu (2002), a principal researcher on CTE in Taiwan, reviewed several international comparative research project reports that described CTE in the US and Taiwan with the aim of understanding the concepts that have influenced CTE in both higher education systems. The major findings were that the US has focused on improving the quality of postsecondary technical education while Taiwan has been concerned with establishing a coherent CTE system, and the US has stressed workforce development skills while Taiwan has tried to implement a series of coherent curricula. Yet, both systems share a common goal for CTE: to train competent workers who possess the skills, flexibility, and productivity to succeed in the global economy. Moreover, both systems have used five concepts essential to developing their CTE programs: (a) recognition that knowledge of humanity is needed along with technical skills; (b) collaboration between schools and

enterprises to meet local economic needs; (c) integration across academic and vocational education, school-based and work-based learning, and secondary and postsecondary education; (d) implementation of career cluster as a useful curricular framework for establishing occupational structures, profiles, and core occupations; and (e) provision of CTE lifelong learning opportunities for all people (Wu, 2002). Although Taiwan and Mainland China have completely different political systems, the cultural background and educational traditions are the same; therefore, Wu's analysis and findings are relevant to this study.

A Gap in the Comparative Research

Dong (1994) conducted a theoretical study based on documents and literature only found in the US because there were constraints on accessibility to information in China. Although the policies Dong suggested were useful at that time, he did not specifically examine CTE, and the situation in China has changed significantly over the past 15 years. Moreover, research data in China is now more accessible. For example, China has published national education statistical data online, and some of the information is presented in English.

In 2002, Keating et al. conducted a large international comparative study of vocational education and training (VET) systems. The study is based upon a review of the literature, supplemented with fieldwork in the VET systems of several countries, and conducted in conjunction with other project activities. These activities included Australian Government funded VET projects in China, a World Bank VET project in Mexico, and a comparative study of skills formation in Japan, Singapore, and Germany. As part of the research, senior officials, notable researchers, and commentators within the VET systems of the five countries were interviewed. The study

involved collaboration with eminent researchers in the USA and the UK who could draw upon their extensive knowledge and resources relating to the VET systems of these countries.

In this research, Keating et al. (2002) focused on the national level of vocational education and training systems rather than institutional CTE programs. Nine countries from Europe, East Asia, and the Americas were selected based upon their varying economic, demographic, cultural, and ideological contexts. All of the nine systems were under pressure to change and have been subject to policy intervention.

Germany, France, and the United Kingdom, show strong contrasts in their CTE systems. Germany, along with Japan, has been most admired amongst nations for its processes of skills formation, mainly through the apprenticeship system. The German CTE system's main concern is lack of flexibility in students' skills formation. The centralized education and training system in France has been manifested in the regulation of vocational training and the labor market. However, CTE in France faces significant problems in costs and financing, credentialism, and equity (Keating et al., 2002).

The UK government has introduced vocationalism into secondary education, and proposed a number of initiatives, such as the Technical and Vocational Education Initiative, a variety of business–education links initiatives, key skills, and traineeships. A majority of the senior secondary cohort has now moved into the further education sector and the government has made a major investment in the broad General National Vocational Qualifications. The implementation of broadening vocational qualifications has included a number of significant factors: implementing competency-based training and assessment, developing approaches for a training market,

attempting to induce a training culture, identifying approaches for training unemployed youths and adults, and attempting to understand the nature of employment, work, and learning in the future. The British Government has tried to establish a more industry-led and market-based approach and emphasized lifelong learning through the appointment of a special minister and implementation of a range of programs to assist in this effort. The government also has established a University for Industry. However, the study found that questions remain regarding the UK's overall approach to skills formation and the relationship between VET and the general education system (Keating et al., 2002).

China, Japan, and Singapore have been aggressive in their growth and development over the past decades. The processes of skills formation in Singapore and Japan have been studied, and China has recently shown a considerable interest in CTE. Japan's role as the benchmark international economy in the latter part of the 20th century diminished in the final years of the century. The strength of Japan's industry-based training culture, high levels of industry-based initial and vocational training, and strong demand for the general education system appear to be weakening. Moreover, questions are now being raised about the flexibility of the training system and its graduates. Singapore has been characterized as a relatively authoritarian and paternalistic state. The high degree of state intervention in CTE and the labor market has attracted a considerable amount of international interest; however, the emphasis upon regulated conformity is now being questioned as a basis for developing a culture of risk taking and innovation (Keating et al., 2002).

Chile is arguably the richest source for comparative study in CTE with its radical innovations in education and training during the 1980s. More

than any other country, Chile has attempted the most radical innovations including a high degree of privatization and demand-side interventions such as the introduction of vouchers. Its strongly market-oriented innovations now face the further question of the role of the state in the development of advanced skills formation. Mexico exemplifies the tendency towards fragmentation in CTE and confusion about its general education system. Regular state interventions, frequently based upon imported models, have led to a confusing and disconnected system. Interventions typically have been designed to increase supply with little attention being given to the demand side. Expansion of demand and the linking of supply to demand are amongst the major challenges. The enormous strength of the US economy is in stark contrast to the overall performance of its education system, which has very high levels of educational failure and dropout associated with economic and social exclusions. The capacity of industry to generate the necessary levels of skills for a highly advanced economy has been impressive. More recently there has been an unusual degree of state intervention designed to strengthen education–industry links, but the role of CTE within the US education system is both small and uncertain (Keating et al., 2002).

However, Keating et al. (2002) have not suggested which practices in CTE among the nine countries may be best in relation to effectiveness or adaptability. The study focused on describing current approaches to CTE in a wide variety of countries facing the pressures of global economic change; it provides a broad overview of trends, directions, and issues. It shows similarities and differences at the national level of CTE systems, but in many instances the figures and numbers seem to lack Chinese data or the data are

not current. In addition, this study does not offer a direct comparison of CTE in the US and China.

In the globalized economy, countries become more and more interdependent and the impacts of globalization are felt locally; therefore, conducting comparative studies of CTE at the institutional level is of importance. As demonstrated through the discussion of prior research, there is a gap in the knowledge base and this comparative study of CTE at institutions in the US and China contributes to the body of knowledge in this area.

Significance of This Research Study

Comparative studies can assist CTE policy makers to reflect on the overall purposes, structures, and directions of their CTE programs and help them to understand some of the limitations and potential opportunities for improvement in the programs. Factors that influence the effectiveness of CTE systems can be identified, such as the system's capacity for skills formation, methods of financing, equity of access and outcomes, and demand responsiveness (Keating et al., 2002).

Although many researchers have conducted comparative studies of higher education topics, there is a gap in comparative research on CTE programs on an institutional level between the US and China. No comparative institutional research of CTE programs in the US and China was found when searching the US literature. Although, the literature search revealed that a number of recent research articles on US CTE have been written by Chinese scholars, these were not based on comparative studies. This research study intends to help fill the gap in knowledge, especially in the US literature, enable a better understanding of the CTE programs in both institutions, and result in identifying and sharing of insights and information

that may be of value to postsecondary education administrators and policy makers in both countries.

Summary

The US community colleges have been a major contributor in training the workforce to meet community needs for over a century. Since the 1980s, career and technical education in community colleges has developed rapidly, particularly in health, office automation, and technology programs; therefore, the US has been advantaged in CTE program development when compared with some other countries. According to Cohen and Brawer (2003), the CTE programs have been highly successful in the last two decades. This research study seeks to discover major forces and factors that contribute to creating successful CTE programs by examining one US community college's program in detail.

China has been considered one of the largest manufacturers and labor markets in the world for the last few decades. The country has produced a massive quantity of products and goods for the world economy. In order to sustain the booming economy, China needs to continue with its efforts to develop the skilled workforce (DICE, 1998; CICTE, 2009); therefore, the quality of the CTE programs is important to China. This study includes a detailed examination of a CTE program at one postsecondary education institution in China to gain an understanding of its context, content, and contributions.

Finally, for both the US and China, in order to keep an economic edge in advanced technology and the massive production of world factories, the CTE programs need to: (a) improve the quality of the career and technology education programs, and (b) train a large number of highly skilled and qualified workers.

CHAPTER 3

METHODOLOGY

Introduction

This chapter begins with a review of the study's purpose and research questions. It then explains the comparative qualitative case study design, sampling procedures, data collection methods, ethical considerations, and the data analysis procedures. Other components of the chapter include a discussion of techniques that address trustworthiness, reliability, transferability of the study, and research limitations.

Restatement of the Purpose and Research Questions

The purpose of this study is to explore and compare the organization and operation of Career and Technology Education (CTE) programs in a US community college and a comparable Chinese institution. The study seeks to identify transferable characteristics that could inform and enhance each of these CTE programs.

Five research questions guide the study:

1. How are the CTE programs organized and operated in a US community college and a comparable Chinese institution?
2. What administrative decision-making processes are used by the US and Chinese institutions when establishing a new CTE program?
3. How does each institution plan for a CTE program in relation to financial support, teacher preparation, and student services?
4. What strengths and challenges do the CTE programs exhibit in each institution?
5. What similarities and differences exist in the CTE programs operated by a US community college and a comparable Chinese institution?

Research Design

Qualitative Methodology

A qualitative research paradigm was used to conduct this study. Qualitative research seeks to gain an understanding of some process, issue, or phenomenon. Creswell (2007) describes several common characteristics of qualitative research: (a) the research takes place in a naturalistic setting and information is derived from multiple sources including interviews, documents, and observations; (b) the researcher is the key instrument for conducting all investigative activities; (c) the researcher uses an inductive data analysis method to build patterns, themes, and categories; (d) the research focuses on the meanings of participants; (e) the research factors in the social, cultural, historical, and political context of the participants; (f) the research process is emergent, thus all phases of the process may change during the research; and (g) the researcher may use a theoretical lens in framing the inquiry.

The research design for this study incorporates the characteristics of a qualitative approach. It focused on gaining an understanding of a specific phenomenon by first exploring how the CTE programs were organized and operated in a US community college and a comparable Chinese institution, and then comparing the findings from the analysis of these two institutions. The researcher conducted fieldwork at the institutions to gain a better understanding within the naturalistic setting of how each institution operates its CTE programs in terms of concepts, context, curriculum, and activities. Data were gathered from multiple sources including interviews, documents, website archives, and statistical descriptors of the CTE programs in both countries. The researcher, who has professional and academic experience in both socio-cultural contexts, was the key instrument for gathering the

perspectives of participants and interpreting the data. The theoretical framework comprised globalization and career development theories.

According to Willis (2007), interpretive research is socially constructed, the purpose is to seek a reflective understanding, and data analysis emphasizes comprehension within a particular context. The goal of interpretive research is to understand rather than identify laws or rules. “Interpretivists assert that all research is influenced and shaped by the preexisting theories and world views of the researchers” (Willis, 2007, p.96), thus subjective and objective research methods are accepted. One aspect of interpretivism is hermeneutics, which means understanding human action in context (Willis, 2007). A researcher cannot understand the object or phenomenon at the foci of the study without attempting to understand the context in which it is embedded (Johnson, 1995). As further clarified by Smith (1989), there are two common characteristics in hermeneutics: one is the language that one can use to express thoughts, and another one is the context, particularly the historical context, for understanding human behavior and ideas.

CTE programs are economically and socially influenced because they depend on demands of the local economy and are shaped by the local context. The researcher sought to understand the CTE programs in both countries and in each particular context, including factors in the cultural, economic, political, and philosophical spheres of influence. This understanding was accomplished through the data collection and data analysis processes, which involved comparing, contrasting, and synthesizing data from multiple sources.

Case Study Method

Creswell (2007) asserts that the case study method is a good fit when an inquirer clearly identifies the boundary and seeks to provide an in-depth understanding of the case or a comparison of several cases. Thus a case study involves an issue or phenomenon explored through one or more cases within a bounded system or setting. Yin (1994) has stated that case study is a preferred strategy when “how” and “why” questions are being posed, and the researcher has little or no control over the events. However, Creswell (2007) argues that “how” and “what” questions are most suitable for qualitative research (p. 107). This study is focused on “how” and “what” questions that direct the researcher’s attention to essential aspects related to the operation of the CTE programs in each case. Both cases are bounded by the educational institution and the CTE programs in each institution are a unit as the object of the study. This research also used a “within-case” and a “cross-case” analysis (Creswell, 2007, p. 75) to examine and compare the two bounded cases in which the CTE programs reside, one at a Midwestern community college in the United States and the other at an educational group in the northwestern region of China.

According to Merriam (1988), “a qualitative case study is an intense, holistic description and analysis of a single instance, phenomenon, or social unit” (p. 21). This research is a case study, and its approach is descriptive. A descriptive case study in education provides detailed reporting on the phenomenon of interest, particularly in areas that have not been extensively researched (Merriam, 1998). There is a lack of published research, particularly in English, comparing CTE programs in the US and China; therefore, this study makes a significant contribution by providing an in-depth description of each case and the CTE programs within the cases. As

stated by Willis (2007), “the purpose of this type of research is to provide a rich, detailed description of the case” (p. 243). In this study, the researcher sought to discover how the structures of the CTE programs were developed, organized, operated, assessed, and changed. The research entailed pursuit of accurate information to answer who, what, where, when, and how questions. In brief, the case study method was appropriate for this study because, as Stake (1995) stated, “Two principal uses of case study are to obtain the descriptions and interpretations of others” (p. 64).

Participants

Purposeful and criterion sampling were used in this study. For purposeful sampling, the researcher intentionally selects individuals and sites that provide information and insights concerning the phenomenon of the study (Creswell, 2007). According to Miles and Huberman’s (1994) typology of sampling techniques, criterion sampling is useful for ensuring the quality of the cases because they must meet some criterion. The researcher first established criteria and selected a US community college and a comparable Chinese institution for the two case studies. After the case study institutions were identified, a criterion sampling procedure was used to select the participants. For qualitative research, the participants should be able to provide insights and articulate them via the data collection methods (Creswell, 2005), and for this study the participants needed to have extensive experience in the field and understand the case study CTE programs.

Case Selections

For the research case selections, four criteria were established: (a) postsecondary institution; (b) CTE program in the institution; (c) similar in size and location within the countries; and (d) institutional leadership

supportive of providing access to the researcher. The two cases met these sampling criteria as shown in Table 3.1.

Table 3.1

Case Selection Criteria

Criteria	Case in the US	Case in China
a.	A community college	A comparable institution
b.	The CTE programs in the institution are hosted in academic divisions and the programs involved a majority of popular majors and fields, such as health, information technology, automotive technology, etc.	There is an education group within the institution that consists of CTE functional institutes similar to the divisions of the US community college, such as health science, engineering technology, and continuing education, etc.
c.	The institution is located in the Midwest region and has an enrollment of more than 10,000 students.	This institution is located in the eastern part of the northwestern region and has more than 10,000 students.
d.	The researcher is familiar with the CTE programs at this college and was provided excellent access by the leadership.	The researcher has a well-established personal relationship with the director of the education group of this university, and he was supportive of the research.

Participant Selection

For the research participant selections there were two criteria: (a) position--the director or dean responsible for CTE programs, or senior faculty members teaching in CTE programs; and (b) professional experience--had worked in the CTE programs for at least five years. At the US site, the interviewees were selected directly by the researcher; while at the Chinese site, interviewees were recommended by the director of the educational group in the institution, who served as the gatekeeper.

Table 3.2

Qualifications of the Participants

Case in the US		Case in China	
Code	Participant (years of experience)	Code	Participant (years of experience)
A1	Associate Dean of CTE (over 30)	C1	Executive Associate Dean of CTE (11-15)
A2	Associate Dean of Technology (over 30)	C2	Associate Dean of CTE (5-10)
A3	Senior faculty member (26-30)	C3	Director of the educational group (26-30)

Table 3.2 shows the position and work experience qualifications of the three participants at each site. The range of years, derived from choices provided on the pre-interview questionnaire (see Appendix C), evidences that the participants have extensive experience in the field. The Code column in Table 3.2 shows the alias that the researcher assigned to each participant as a means for maintaining confidentiality.

Instrumentation

As Patton (2002) has specifically stated regarding qualitative research, “the researcher is the instrument” (p. 14). Guba and Lincoln (1981) discussed that the naturalistic inquirer as the instrument would be the administrator, data collector, data analyst, and data interpreter. They also said that the human being as an instrument should be responsive, flexible, holistic, knowledgeable, and specialized in a field. In order to facilitate, control, and implement the data collection procedures, and ultimately to accomplish the goal of data collection and fieldwork in this study, the researcher served as the principle instrument.

The researcher has several qualifications that were particularly useful in pursuing this study. He received his primary, secondary, and higher education in China; worked in a Chinese university as a student advisor and administrator for seven years; is very familiar with the Chinese higher education system; and is proficient in the language—Chinese. The researcher also has earned two master degrees at US universities, and taught in a US community college and in a private vocational school for number of years, and as an adjunct in a university for many years. He has observed and participated in the postsecondary education CTE programs of both countries for a total of more than 25 years.

Since the researcher left China more than 20 years ago, many elements and characteristics have changed or no longer exist in Chinese universities. Also, the researcher has had various types of experiences in US higher education. Thus bias could potentially arise from two influences: (a) perceptions based on the researcher's previous work experience in China (old memories) and (b) preexisting positive or negative perceptions of higher education and CTE programs in the US and China that could be unrecognized by the researcher. However, the researcher's aim and interest is in discovering what currently exists and what can be learned from the case studies that would benefit CTE programs in both institutions and countries; therefore, the potential for bias is minimal. Also, the researcher continuously practiced reflexivity in guarding against bias.

Data Collection Methods

The data for this research study was drawn from document reviews, interviews, a demographic questionnaire, and field notes. These methods were selected based on feasibility and their potential for providing rich descriptions of the CTE programs' operational methods and practices, curriculum processes and content, policy-making factors, and systemic norms. These methods also are consistent with typical data gathering methods used in qualitative research, which include sources that are commonly in the format of words and images (Creswell, 2007; Johnson & Christensen, 2004; Merriam, 1998). Moreover, using multiple methods of data collection allows for triangulation of different data sources (Creswell, 2007).

Documents

The researcher requested and collected printed documents (e.g., program descriptions, brochures, and flyers) from both institutions. Each

institution's website has published and displayed useful information in various formats, such as text, figures, tables, diagrams, and photos. However, in some instances documents were not readily available. For example, accessing internal documents, such as those issued by the Communist Party, the budget and financial reports, and personnel appointment files was difficult. Yin (1994) stressed, documents are important for corroboration and argumentation of evidence, but the researcher needs to understand that the document was written for some special purpose. Yin (1994) mentioned three advantages of using documents: (a) verifying the titles or names of organizations, (b) providing specific details to corroborate information from other sources, and (c) making inferences.

Interviews

Interviews are a primary method of data collection in qualitative research and, as stated by Yin (1994), they are an important data source to show participant perspectives in case studies:

Interviews are an essential source of case study evidence because most case studies are about human affairs. These human affairs should be reported and interpreted through the eyes of specific interviewees, and well-informed respondents can provide important insights into a situation. (p. 85)

Bogden and Biklen (2007) further stated that an interview is a purposeful conversation. A good interview can produce rich data and communicate personal interest, but it is not easy to gain quality data from all interviews because not all people are equally articulate. In order to conduct good interviews and elicit the interviewee's thoughts, beliefs, and knowledge

about the CTE program, the researcher ensured that he was well prepared prior to the interviews.

A set of open-ended interview questions was designed to serve as a guide, and to ensure answers for addressing the study's five research questions. Patton (1987) explained that by using open-ended questions in this way, the respondents answer the same questions for increasing comparability, and yet they are free to address the topic based on their perspectives; this also helps to minimize interviewer bias. The format of the interviews was semi-structured. As Bogden and Biklen (2007) stated, with semi-structured interviews, the interviewer can obtain comparable data across subjects, yet the researcher can probe further into specific responses of interest that go beyond the set interview questions. These interview questions (Appendix A) and the semi-structured interview technique were consistently used for each participant to ensure that comparable data was gathered; however, English was used for the US site, and Chinese was used for the institution in China. A standard interview protocol also was followed for each interview, although there was a minor technical difference on the protocol for the site in China. The detailed interview procedure and protocol are further explained in the data collection procedures section of this chapter.

Demographical Questionnaire

The demographic questionnaire (Appendix C) was used to collect personal background information from each interviewee; however, in the Chinese language version, the term "institution" replaced "community college." This questionnaire provided supplemental data that was valuable in understanding the interviewee's personal experiences with working in the CTE field and helped to gain insights into some of their perspectives.

Field Notes

Field notes are supplemental materials that enhance and support the interview records. As Johnson and Christensen (2004) stated, the researcher should take notes regarding whatever was important during the interview and the field visit, and make corrections and additions as soon as possible after the visit. The field notes helped the researcher to gain a sense for the environment of the sites. According to Yin (1994), regardless of whether formal or casual field notes are recorded, the evidence is often useful in providing additional information for understanding the context of the topic being studied. The advantage of field notes is that the researcher can record thoughts, impressions, and lessons learned regarding interviews, observations, and reflections as the research unfolds. During visits to the Chinese site in 2007-2009, the researcher was able to tour the two institutions' campuses and CTE program facilities. Observations and impressions were written in field notes after the tour. In addition, field notes were used to supplement the digitally recorded interviews by describing the researcher's observations and reflections.

Data Collection Procedures

The researcher began collecting data by searching for information on the institution's website primarily, but also on other relevant websites, such as the China Education and Research Network's site. Data related to CTE programs, such as laws, regulations, and policies were selected and then saved, as well as printed. The data were then organized into folders for more detailed review during the data analysis process.

In preparing for interviews, the researcher started by developing a specific set of questions (Appendix A) in order to gather required information to answer the research questions and address the purpose of the

study. Open-ended questions were used to elicit detailed explanations of the participants' views. The interview procedure and protocol were then designed (Table 3.3) to ensure that each interview was carried out consistently. For contacting the participants, there was a slight difference in procedure at the two sites. At the US site, the researcher personally requested permission from the participant for an interview. At the Chinese site, the researcher gained permission to interview through the contact person (gatekeeper), and then asked him to arrange the interview schedule by email and phone before the visit. During all of the interviews, the researcher followed the interview protocol and questions, and the entire interview was recorded on two digital recording devices as a precaution in the event of equipment problems. Field notes were written soon after the interview.

Table 3.3

Interview Procedure and Protocol

Step	At the US site	At the Chinese site
1	At least one month before the interview, contacted the participant by Email or in person to request their consent to be interviewed.	At least one month before the interview, contacted the gatekeeper either by phone or Email to request participants.
2	At least two weeks before the interview, contacted the participant by Email to request	At least two weeks before the interviews, contacted the gatekeeper by Email to notify him

the interview date, and send the of visit dates and send the three three documents for a preview: documents to him for a preview:

- a Demographic Questionnaire,
- b Participant Informed Consent,
- c Participant Interview questions.

3 At least one week before the After the researcher arrived in interview, contacted the China, a few days before the participant by Email or phone interview, contacted the to confirm or change the date gatekeeper by phone to confirm a and time for an interview. date for interviews.

4 Interview protocol:

-
- a At the beginning, briefly introduce the purpose of the research study.
 - b Explain the procedure for the interview, and that it would last about one hour.
 - c Sign the participant informed consent forms for both interviewer and interviewee.
 - d Collect the demographic Fill out and collect the questionnaire before questionnaire before starting or starting the interview. after the interview.
 - e Start the interview and recording.
 - f At the end of the interview, remind the interviewee that a possible follow up interview might be conducted at a later

date and thank the interviewee.

- 5 Complete field notes as soon as possible after the interview.
-

A demographical survey (Appendix C) was sent as an Email attachment to each interviewee or the gatekeeper prior to the interview. The survey was collected in person before the interview formally started at the US site. However, in China, the survey was filled out by the participant and collected at the site by the researcher during the interview. The researcher also wrote field notes to record observations and reflections throughout the visit. The notes were added to and edited soon after the site visits.

The fieldwork at the US site was conducted during the Fall semester of 2008. The fieldwork at the Chinese site involved three international trips. The first visit was in the summer of 2007 when the researcher met with the gatekeeper and discussed general information about the CTE programs in China. At this point, the researcher had tentatively chosen the research site as the case study where the gatekeeper has been the director in charge of the CTE programs in the education group for several years. The second visit was in the summer of 2008 when the researcher formally met the dean and associate deans of the education group that is responsible for the CTE programs and established a connection with the education group. At the end of this meeting, the researcher requested personal interviews with the deans during the next visit. The researcher also visited the campus and facilities of the university. The third visit was on January 4th and 5th of 2009. The researcher interviewed three associate deans and a director at their individual offices, and visited another campus of the university.

In summary, all interview data was saved electronically, transcribed, and printed in hard copy; the data collected from questionnaires, field notes, and printed publications were stored in sorted folders; and the Internet materials were documented with links and printed copies.

Ethical Considerations

A qualitative research study faces many ethical issues because data is collected from human participants. Bogden and Biklen (2007) stated “while the word conjures up images of a supreme authority and absolutes, ethics in research are the principles of right and wrong that a particular group accepts at a particular time” (p. 42). The main issues of ethics in research are to insure that participants (a) understand the nature of the research, and enter the research voluntarily; and (b) are not exposed to risks that are greater than the gains from this research.

This research study has established “ethical acceptability” in preventing any ethical code violations: (a) the study proposal was approved by the institutional research review board, (b) the informed consent form provided to each participant explained the nature of the research, freedom to withdraw from the study, and protection of the participant’s identity; (c) the participants were not exposed to any danger or discomfort from the research procedures, and (d) the identities of participants involved with this research have not be disclosed (Johnson & Christensen, 2004, p. 102). The names of interviewees were replaced by a special code shown in Table 3.2 to preserve confidentiality.

Data Analysis Procedures

Qualitative data is often considered to be subjective and socially constructed (Johnson & Christensen, 2004). It needs to be analyzed and interpreted by the researcher, who should avoid forming preconceived

opinions that could bias the research. As Merriam (2001) stated, data analysis aims to make sense out of documents, interviews, and other supplemental materials. This process involves consolidating, reducing, and interpreting what people said and what the researcher read. It is a complex process that involves concrete data and abstract concepts, description and interpretation, and inductive and deductive reasoning. As recommended by Yin (2004) and Creswell (2007), the researcher initially analyzed each case thoroughly as a separate and distinct case study, thus a “within-case” analysis, and then conducted a comparative “cross-case” analysis in which the two cases were compared for similarities and differences.

Data analysis in case study is an intensive, holistic description and analysis of a single, bounded unit (Merriam, 2001). Five general procedures described by Creswell (2007) and Johnson and Christensen (2004) were applied for each case in this study: (a) create, organize, and store files of data; (b) read, segment, and code the data to develop patterns, themes, and hierarchies; (c) describe, identify, and interpret the patterns, themes, and hierarchies; (d) construct, develop, and establish the diagrams, tables, and graphs; and (e) validate, corroborate, and present the results.

Coding into Categories and Themes

Creswell (2007) summarized three common steps in coding:

Coding the data (reducing the data into meaningful segments and assigning names for the segments), combining the codes into broader categories or themes, and displaying and making comparisons in the data graphs, tables, and charts. These are the core elements of qualitative data analysis. (p. 148)

Merriam (2001) further discussed that moving beyond basic description to the next level of data analysis is to construct categories or

themes, which are concepts indicated by the data. She also described a step-by-step data analysis process: (a) read the first interview transcript and field notes, or the first document collected in the study, and annotate notes and comments that are potentially relevant, or important to the study; (b) review again the entire set of data and group the notes and comments together to form a list; (c) repeat this step for the second set of data, create the second list, and then merge the two lists into one master list of concepts; and (d) name the categories that are derived from the master list. These steps are repeated until all of the data sets have been analyzed.

The researcher followed Merriam's (2001) data analysis steps, initially using the research questions as guidelines to code the documents, transcriptions, and field notes into the categories and themes. Additional categories, themes, and subthemes emerged from further data analysis; however, as cautioned by Merriam, the number of categories was kept within a manageable range so as not to produce overly fragmented findings.

Within-Case Analysis

The coding process was conducted in each case separately. For within-case analysis, as Merriam (2001) mentioned, each case is treated as a comprehensive case in and of itself, and the researcher seeks to learn as much contextual information as possible bearing on that case. One of the data analytic techniques used in the research was the unit of data. "A unit of data is any meaningful (or potentially meaningful) segment of data" (Merriam, 2001, p. 179). The researcher employed the scientific method of inductive reasoning, using wide-angle and deep-angle lenses to examine the unit of data from the parts and the whole of the CTE programs in each case. This approach required consciously working back and forth between the parts and the whole during fieldwork (Johnson & Christensen, 2004), to

search for advantages and uniqueness of the characteristics of the CTE programs from each case. For documents, “The process involves the simultaneous coding of raw data and the construction of categories that capture relevant characteristics of the document’s content” (Merriam, 2001, p.160).

Cross-Case Analysis

Using the cross-case analytic method, the researcher compared and contrasted the two cases to identify and analyze the similarities and differences. Based on this analysis, potential transferability, sometimes called borrowing, could be examined. Phillips and Schweisfurth (2007) offer a framework that was adapted for use in this study. Although they suggest regarding the country as a basic unit of analysis and comparison, in this study the country contexts, the institutions, and the programs are the most appropriate units for conducting the comparison. Phillips and Schweisfurth’s (2007) framework for analysis of policy borrowing in education involves four processes: (a) cross-nation attraction, including philosophy, goals, and strategies; (b) decision-making, including “theoretical” (p. 97), quick fix, and practical; (c) implementation, including adaptation, support, and resistance; and (d) internalization, including impact on the existing system, absorption, and evaluation. They also suggest establishing relational equivalences in contextual, structural, and functional areas when comparisons are conducted on the basis of equivalences. The researcher used the concept of equivalence to establish the similarities of the CTE programs in each case, such as organization, curriculum, student, faculty, and finance, and then started to identify the differences, in terms of the typical advantages and unique characteristics evidenced in each case.

These advantages and unique characteristics were then analyzed using the borrowing framework and globalization theory. Moreover, the researcher conducted a comparative analysis by examining the contextual differences between the two cases in five specific areas:

1. Philosophical – Confucian versus Western
2. Cultural – Chinese versus American
3. Economic – socialist market versus free style market
4. Political – one party rule versus democratic
5. Functional – centralized system versus decentralized system

Through the comparison of these two cases, the researcher sought characteristics in the CTE programs that exhibit a certain degree of transferability, and could be adopted or adapted by either institution to potentially benefit practice in the postsecondary educational systems of both countries.

Trustworthiness, Reliability, and Transferability

It is important to establish the “trustworthiness” of the study, which means that the research design has incorporated validation techniques. Creswell (2007) discussed eight strategies to enhance the trustworthiness and establish the creditability of the research: (a) triangulation, (b) peer review, (c) refining working hypotheses, (d) clarifying researcher bias, (e) member checking, (f) rich description, (g) external audits, and (i) prolonged engagement and persistent observation.

The researcher adopted six of these strategies for this study: (a) used multiple methods of data collection including document review, interviews, and field notes, which enabled triangulation of the data; (b) discussed and consulted with Chinese and US experts and peers in the field; (c) used reflexivity to guard against researcher bias and allowed the reader to

understand the researcher's position; (d) provided a rich thick description of the institutions and programs in enough detail that the reader can understand the comparison; (e) maintained a relationship with the Chinese site by visiting, continuing to learn the contextual cultures, and gaining familiarity with the research participants; and (f) viewed the US site through a new set of eyes and the thinking processes of a researcher.

Reliability refers to the reproducibility of research findings. Merriam (2001) stated that for a qualitative case study to achieve reliability in the traditional sense is impossible, as each study will not yield the same results. Moreover, Stake (1995) argues that the quality and utility of the research is not based on its reproducibility; quality is related to the meanings of the research findings that are valued by the researcher or reader. Although findings in the study cannot be reproduced, the study procedures should be replicable. Thus, the researcher has described the research procedures in detail and recorded all steps to make the study auditable.

Transfer of educational ideas from one country to another is of considerable interest to comparative researchers. The essence of transferability is aiming to learn lessons from the experience elsewhere, or in a positive tone of policy borrowing that involves complex processes of adoption and adaptation (Phillips & Schweisfurth, 2007). However, transferability of the research in this sense may be limited, as the two contexts are quite different. Yet, transferability in the qualitative research sense can be accomplished by the reader. The researcher has provided rich descriptions from each case and the selected case study institutions have a certain degree of similarity with other institutions in their respective countries. The US case study findings may be more transferable by readers in the US, and the Chinese case study findings are possibly more

transferable by readers in China; the readers will make their own decisions. As stated by Greene (1990), when the researcher provides sufficient description of the particular context of the study, others can adequately judge the applicability to their own context.

Limitations

This study has a few limitations. First, there were limitations on the time and financial resources available for conducting two case studies in two countries. Second, the results of the two case studies, each in a large country and a complex postsecondary education system, cannot be generalized. However, reader transferability was enabled through detailed descriptions of the institutions and findings. Third, bias is a concern in qualitative research, both from the participants' perspectives and the researcher's interpretations. Triangulation was used to check the participant data and reflexivity enabled the researcher to guard against interpretational biases.

Summary

This research study used a qualitative case study design that involved typical within-case and cross-case studies. Two cases were selected, one US community college and a comparable Chinese institution. The data collection involved document reviews, interviews, demographic surveys, and field notes. Using multiple methods for data collection enhanced the trustworthiness of the study. Data analysis was conducted by within-case and cross-case methods. Because China does not have US-like community colleges, comparison of the two cases was based on the criteria of equivalences. Contrasts between the two cases were primarily based on systemic factors including philosophical, cultural, economic, and political differences. The findings that emerged from the data analysis for the two case studies are presented in the next two chapters.

CHAPTER 4

CASE ANALYSIS: CTE AT A US COMMUNITY COLLEGE

This chapter begins with a description of the US community college and its CTE programs (e.g., demographic information, mission, and organizational structure), thus answering Research Question 1. The next two sections answer Research Questions 2 and 3 by first addressing the decision-making process for establishing new programs and then describing elements in the planning of a new CTE program including financial support, teacher preparation, student services, teaching methods, and curriculum development. The last section discusses the strengths and challenges of CTE programs at the US community college, thereby answering Research Question 4. Research Question 5, which addresses the commonalities and differences in CTE programs at the two case institutions, is discussed in Chapter 6.

Restatement of the Research Questions

Five research questions guide the study:

1. How are the CTE programs organized and operated in a US community college and a comparable Chinese institution?
2. What administrative decision-making processes are used by the US and Chinese institutions when establishing a new CTE program?
3. How does each institution plan for a CTE program in relation to financial support, teacher preparation, and student services?
4. What strengths and challenges do the CTE programs exhibit in each institution?
5. What similarities and differences exist in the CTE programs operated by a US community college and a comparable Chinese institution?

Organization and Operation of the CTE Programs

Case Institution Background

The US Community College (USCC) in this case study is a relatively large community college located in the Midwest region of the country. It was established in the 1960s and is a fully accredited institution of higher education that offers more than 90 certificate programs, approximately 60 occupational degrees and more than 40 transfer pre-baccalaureate programs. The courses are provided in a variety of formats including traditional classroom, online, independent learning, honors classes, and study abroad.

Of the over 15,000 students, 45% are male, 55% are female, and two thirds are part time. Nearly 25% of all new graduates from high schools in the district attend USCC, yet the average age of students is 30 years, and the median age is 23 years. Thus, in addition to offering higher education for traditional students, the USCC also provides opportunities for citizens in the community to learn new technological skills that enable workforce reentry, or career advancement. These students can take classes to achieve a variety of purposes, such as improve their business through customized solutions, gain basic skills, study for their General Educational Development (GED) test (a certification of equivalence for US high school-level academic skills), or enjoy lifelong learning. Moreover, community members can enroll their children in non-credit youth education classes offered through Continuing Education. In brief, students come from a cross section of the community and have a variety of educational objectives; 91% of the students take credit classes and 9% take only non-credit classes.

In the 2007-2008 academic year, the USCC's revenue primarily came from four sources: local government (48%), state government (10%), tuition and fees (39%), and investment and other (3%). The operating expenditures

were categorized under seven areas: instruction (49%); academic support (6%); student services (9%); plant operations and maintenance (11%); general administration (8%); general institutional (11%); scholarships, student grants, and waivers (5%); and public service (1%).

The USCC currently has several thousand employees, including about 300 full-time and more than 1000 part-time instructors. The facilities comprise more than 20 buildings, and the College has a number of general purpose and specialized computer labs, as well as more than 4000 computers for use by students, faculty, and staff.

Organization Structure of the Institution

The current USCC organizational structure can be divided into four major areas: the Board of Trustees, the President's Cabinet, Student Affairs, and Academic Affairs. Because the organization is complex, the focus in this section is on relevance to the CTE programs; therefore, not all disciplines and functional units that provide support and services are shown.

The College Board of Trustees is charged with establishing policy for the financing, governance, operation, and administration of the college. Seven voting members are elected from the district and a non-voting student member is elected annually by the student body. The Board (Figure 4.1) meets every month and meetings are open to the public.

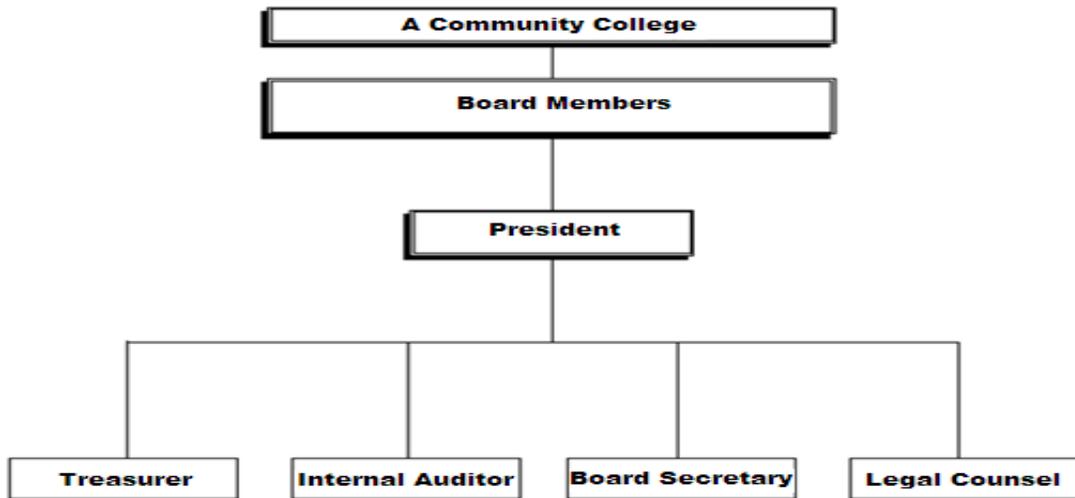


Figure 4.1. The College Board of Trustees. Adapted from the USCC Website.

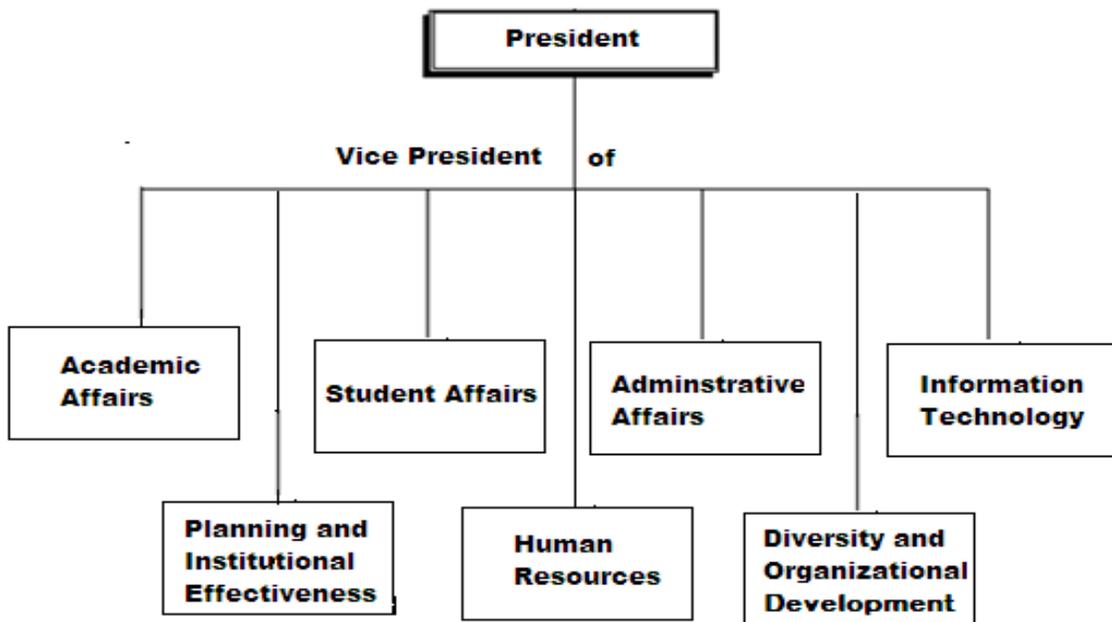


Figure 4.2. The President's Cabinet. Adapted from the USCC Website.

The president of the college is responsible to the Board for carrying out (a) the Board's policies and (b) the daily operations of the college. The President's Cabinet members (Figure 4.2) work under the leadership of the

President and they report to the President. The number of Associate Vice Presidents has varied with each new president's term.

Student Affairs (Figure 4.3) is one of the most important support functions in the college, as it recruits students; provides financial support, academic advising, and career services; and organizes student extracurricular activities.

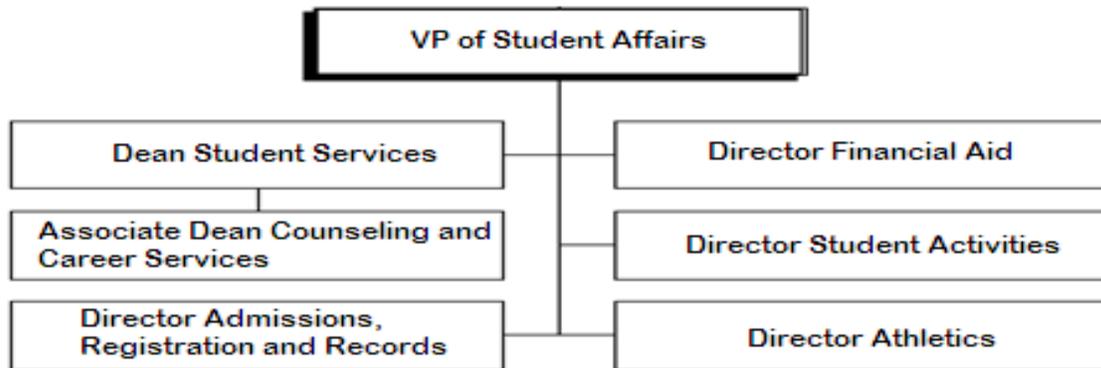


Figure 4.3. Student Affairs. Adapted from the USCC Website.

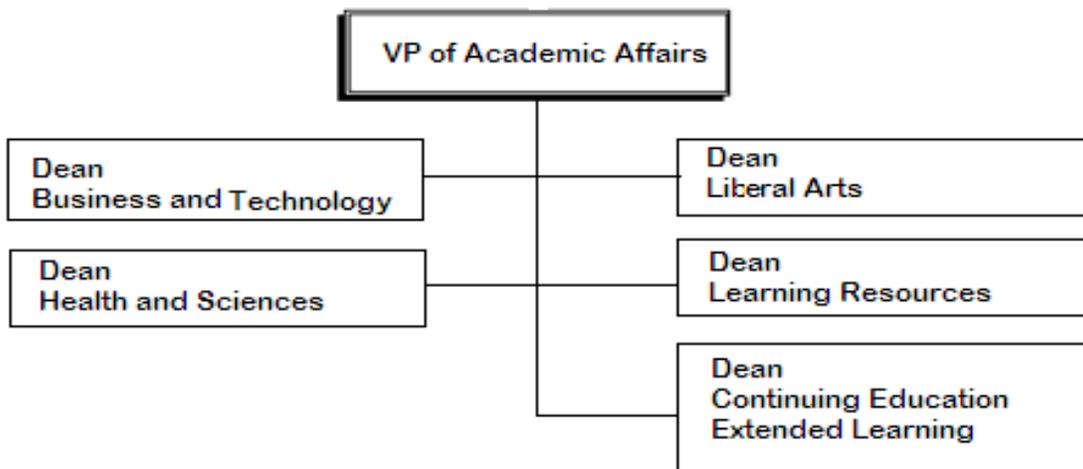


Figure 4.4. Academic Affairs. Adapted from the USCC Website.

Academic Affairs (Figure 4.4) is the essential operational function of the college. The CTE programs are under two major divisions: (a) Business and Technology and (b) Health and Science. Students in Liberal Arts

traditionally intend to transfer into four-year institutions after graduating from the community college. Learning Resources provides primary services such as library and teaching support. Students in Continuing Education and Extended Learning are generally adult students, who may take non-credit courses that fulfill personal interests. Not shown in Figure 4 is an important unofficial unit of the organizational structure—a discipline advisory committee, which will be discussed in a later section.

The five categories of CTE programs that comprise more than 50 discipline areas. All of these programs offer degrees, certificates, and courses that are designed to meet students’ specific needs such as personal interests, change of jobs, and career advancement. Table 4.1 shows examples of the CTE programs in the USCC; these are typical programs that meet local economic needs.

Table 4.1

Examples of CTE Programs Offered at the USCC

Applied Science	Technology	Business	Career and Workforce Development	Health
Electro-Mechanical Technology	Computer Information Systems	Accounting	Architecture	Dental Hygiene
Electronics Technology	Computer & Internetworking Technologies	Business Law	Automotive Service Technology	Diagnostic Medical Imaging
Engineering		Cosmetology	Fashion	

Integrated Engineering Technology	Library & Information Technology	Facility Management	Merchandis- ing & Design	Nursing
Manufactur- ing Technology	Office Technology Information	Marketing	Food Service Administration	Radiogra- phy
Welding	Paralegal Studies	Real Estate	Office Hotel/Motel Management	Pharmacy Technician
	Advertising Design & Illustration Arts	Travel and Tourism	Heating, Air Conditioning & Refrigeration	Physical Therapist Assistant Vascular Radiation Therapy
	Graphic Arts Technology		Horticulture	Speech- Language Pathology
	Digital Photography		Vocational Skills	Health Information Technology Assistant
			Woodworking	Therapeutic Massage

Mission of the College

According to the USCC mission statement, the College is to be at the forefront of higher education, serving the needs of the community. The College will be the first place community residents turn to for the highest quality education and cultural opportunities, and the USCC will serve as a model of distinction for community college education. The College has five major tasks to accomplish in pursuing these mission related goals:

1. Develop excellence in both learning and teaching, and maintain a dynamic curriculum, along with a varied delivery system;
2. Improve the quality of education, welcome innovation, prepare students to qualify for and succeed in further educational endeavors, and promote critical and creative thinking and academic honesty;
3. Provide career and technical education that prepares students to prosper in the world of work, and respond to the lifelong learning needs of residents and business;
4. Broaden learning opportunities in a multicultural and global society, prepare students to work successfully in an international environment, promote environmental stewardship, and educate students for responsible citizenship;
5. Provide strong student support services and a culture center for the community (USCC Website).

According to the USCC mission statement, the College will meet the challenges of a dynamic community and maintain standards of excellence by continually adopting new technologies, learning theories, and teaching methods. The College will respond to the needs of its community by

providing quality education, training, information, and cultural opportunities.

Mission of the CTE Programs

The CTE programs' mission is part of the College's mission and goals, especially in preparing students for entry into the job market, and giving them a firm academic base for continuing their education at a four-year college or university. CTE administrator A1 confirmed the CTE mission: "We're preparing students for careers, and working with high school students on career exploration. We provide the needs for the community and a lot of students want to go on to get their Baccalaureate degrees." As noted in Chapter 3, Table 3.2, participants have been assigned codes (A1, A2, and A3) in place of names to ensure confidentiality.

The division Associate Dean A2 emphasized three focuses for the CTE programs: (a) enabling students to obtain a job upon graduation, (b) providing advanced skills that prepare them for future developments in the field of technology, and (c) providing them with the skills and mindset to pursue life-long learning. As stated by A2,

The main purpose is the fact of getting people jobs. When people build CTE programs they think that those are the skill sets that people need and I think our main focus has been making sure that this is what industry wants so when our students get out they're employable. The second part of the program is to make sure that the work force is strong enough not just in training but to adjust to new changes in the field. Students shouldn't have to come back for Version 2. You should be able to apply those skills yourself. [In addition, the third part of the program,] lifelong learning is the other thing that I think our program brings.

Senior faculty member A3 was passionate about education and emphasized the role of the community college as a leader for economic and social development in the community:

The college has a role in our community and that role is economic, social, and looking at the county as really a champion for our state and our country. That's where I believe the national and regional role comes in also, as an educational institution but also an educational institution that has broader goals, and those broad goals are to become part of the society of this district. I would think that our goals for career and technology education are to take academic subject matter and teach it with some greater relevance than you might find in other institutions, relevance to the real world, to the business world, to the world that our county is part of. I see it as increasing the employable skill sets of our diverse population in this county and that means what we're going to do is we should be teaching jobs skills which relate to jobs which are now in the county and will be in the county in the future.

A3 also thinks that CTE should serve as a pathway for the students who just graduated from high school, and a resource in the community for the students who are already in the workforce, but want to change their career.

I believe the career and technology education program, at least as we view it here at the college, also should act as a pathway for students who are in their secondary education, in high school, and are looking for, maybe not going to college and going directly into the workforce; to take the students to show them a career path and help them to find a

place in the workforce and also give them skills to better equip them to deal with society. We're also there as a resource to those people in the workforce that are going to be affected adversely by either technology or by just changing consumer tastes and who are now looking to move into another career. So I see us as being a resource to update current skills and to teach new skills that are retooling.

In summary, the mission of the USCC CTE programs is to (a) provide a career path for graduating high school students into the job market; (b) update the members of the community thus ensuring that they are knowledgeable, skillful, and current in the technology of their chosen field; and (c) retrain members of the community who are unemployed or want to change their career.

Decision-Making Processes for a New Program

The USCC has provided CTE programs for decades, with new programs being continuously created and established. Although proposals for new programs must be initiated by faculty members, the suggestions and ideas can come from many sources. The discipline advisory committee has been the major source of suggestions for new programs. An advisory committee is created by each academic discipline area, and the members are selected and recommended from the corresponding industry; the members generally are experts in their field. Suggestions and ideas for new programs are generally acquired by faculty through a regular semester meeting, or an online discussion board. Regardless of the source, the advisory committee's recommendation is required as part of by the USCC curriculum procedure to demonstrate support for a new program proposal.

Associate Dean A2 emphasized the importance of an advisory committee for new programs, but said the committees are difficult to sustain:

“We rely heavily on advisory boards but what’s been happening in the past is that it takes so much time and energy to maintain a good advisory board.” In addition, A2 cautioned against administrators becoming too involved in creating a new program initiative.

It’s not something that an administrator should [do], they should administer programs not create programs. The administrator can help with the budget. . . . However, the whole concept of generating a new program is all based on faculty’s expertise. That’s what’s important.

CTE administrator A1 explained other sources of ideas that may influence the creation of a new program. First, the USCC Board of Trustees could provide a policy, a regulation, or a guideline to the college for a CTE program, which may be suitable for the college and local economy. In addition, the college president could bring ideas to division deans and faculty. A second source is the county Workforce Board, which is a business-led policy and decision-making body created under a federal law called the Workforce Investment Act (WIA). According to the county’s Workforce Board Website, this Act requires each county to create a workforce development system that meets the needs of employers for qualified workers and provides employment opportunities for residents. The Board could indicate a new trend is emerging in workforce demand and needs of the local job market. A1, who has been a board member, said, “I really pass on a lot [of ideas] to my faculty.” The third source is the USCC Grant Office, which could advise faculty on the types of grants that are available, such as federal community based job training grants, and Department of Labor grants for the health fields. The faculty member would need to take the lead in applying for a grant. A fourth source of ideas comes directly to faculty from their contacts in industries. A1 mentioned, “What

happens is that the people in the industry obviously work very, very close with the community college, we have many of our programs that obviously are credentialed.”

A new program, consisting of existing courses and new courses, is proposed by a faculty member after conducting a market needs (external) and resource availability (internal) assessment. Market demands, community needs, and discipline faculty support are essential for initiating a new program. The new program proposal must go through the college curriculum development procedure from the division to the college curriculum committees and to each corresponding administrator. Final approval for implementing a new program comes from the state Community College Board.

Planning a CTE Program

Financial Support

In planning a new CTE program, funding availability is an essential factor; therefore, understanding the institution’s funding sources is important. The USCC Website shows that the college’s educational funding streams come from local and state taxes; federal, state, and local grants; private donations; and student tuition and fees. As stated by A1:

We get tuition. We got a fee. We get state apportionment for students and there’s a rate that we get for CTE students, we get state apportionment for that. We also have grants that we apply for. We do get some corporate donations in the way of equipment.

A2 emphasized, “The biggest thing that we’ve got is tuition and lab fees, [which] not only paid for those kind of things, but they pay for the electricity, the maintenance, and the cleaning services.”

A2 specifically discussed donations as a potential, but not particularly viable source of funding to create a new program: “In the past we’ve done donations, I think it’s very difficult in today’s economy to get anyone to donate, although we did just get software donated for being an educational partner.” Generally, donations are a minor potential funding stream and may not be sufficient for new program sustainability.

During the years 2006 to 2010, the College has increased tuition from \$96 to \$129 per credit hour; this 34% increase was needed to offset the decline in state funding. However, from senior faculty member A3’s view, in addition to increasing the tuition (revenue), the College also increased the teaching loads to decrease costs: “I firmly believe what our college is doing is they’re looking at ways to increase the revenue stream, or extend the revenue stream by increasing the workload.”

CTE programs are generally funded from the college budget, and a new program proposal must include a budget that identifies the costs and revenue sources. In some cases programs are eligible for special federal funding, such as Perkins Grants, which support CTE programs in colleges and K-12 schools. A Perkins Grant can pay for some materials, conference attendance, and faculty support.

Administrator A1 explained the process of allocating college funding for planning a new program:

What we do is that we start a new program, for instance the cosmetology program; they hired a consultant to come in to set up the program, to have a budget proposal. We have to look at the cost. How much it’s going to cost us? How we’re going to recoup the money? How long? [We have to look at how long it will take.] So there are a lot of different things we apply business practices to, so we would

look at that and once again after the Associate Dean can work on that with the Dean and then after that, it's got to go to the Vice President and up the chain. CTE programs also have added funding [that] comes from Perkins funding.

A1 continued by discussing the budget cuts experienced in recent years, and managing the cuts by convincing the College budget officer to increase funding and finding alternative funding such as WIA, NSF grants, and other special grants for faculty:

Each year we'll get a new budget. This year the budget was cut a little bit, we have to manage those budgets working with our faculty coordinators and projecting out to say what are the [costs that have] increased. We have the data [the costs we] researched. We talk to the Dean and then the Dean could talk to the Vice President [to] see if there's any way those budgets can be increased. Any faculty can work on trying to apply for a grant. We also have something called the WIA dollars. I know in the area of electronics, I know we have some National Science Foundation (NSF) grants they (faculty) applied for. They're for faculty travel. Sometimes they [faculty] apply for a grant to purchase something or to provide training to high school teachers in CTE programs.

Tuition is the main funding source for CTE programs that the College may be able to adjust. For a small number of special programs such as health care, the tuition could be higher than other programs based on the high cost of equipment and materials. For most CTE programs, only fees could be adjusted based upon the consumable costs of each program. For a new program, the initial funding could come from the College's general fund; however, the money in this fund is limited. A new program needs a

justification for the internal transfer of funding, which means the funds would be transferred from the general fund to a program line item. Also, competitive external grants, to be discussed later, must be aggressively pursued by the faculty.

Teacher Preparation

The quality of a college's programs depends to a great extent on the faculty members and support staff. Thus, finding ways to recruit a quality faculty member and prepare an instructor to teach in a new program are important issues. Each additional faculty position must be justified based on the number of students and the number of sections of the class. Administrator A1 explained, "If the program really increases by numbers, then. . . . The Dean has the opportunity to go to the upper administrator and request a faculty member and the faculty position."

Alternatively, when a department needs more faculty members but additional positions are not approved, the Dean and Associate Dean can decide to move a faculty position from one department to another department that is showing growth, as long as the total faculty positions stay the same within the division. As stated by A1, "If you had 10 faculty members in your division and you said okay fashion didn't need two but interior design needed three people, you could change it."

At USCC, part-time faculty members comprise about 80% of the entire faculty. In CTE programs, part-time faculty load during 2008-2009 constituted close to 60% of the entire teaching load, according to data on the USCC Website. Although the ratio of part-time to full-time has varied from year to year, the extensive use of part-time faculty has been standard practice. A1 explained the major reasons for hiring part-time instructors in CTE programs: "Community colleges hire a lot of part-time faculty for the

reason that we like the industry experience and to find people that could teach here in the evenings. So we do use a lot of part-time faculty in the career and technical areas.”

A2 suggested that a good balanced ratio would be 50:50 full-time to part-time faculty load. However, the CTE programs are currently below optimum in the number of full-time faculty.

We’ve tried [to ensure] that the student should see no more than 50% adjunct faculty members versus full-time faculty. So full-time faculty’s load is 4 classes, and so that’s kind of deceptive when you look at it. So I could have 4 part-timers and 1 full-timer and that’s considered 50:50. If it is so, that’s really a good balance for the college.

In planning a new program, the full-time faculty members are the primary instructional core. However, these faculty members are normally already loaded fully with the demands of existing programs and new faculty are needed to offer a new program. A1 explained that when recruiting an instructor, whether full-time or part-time, qualifications are the most important requirement:

All part-time faculty members have to meet the hiring guidelines for the courses they’re going to be teaching. For [hiring] full-time faculty members, what we do is [that] we sit down with the department. Obviously, we look at the hiring qualification for that particular person as a full-time faculty member.

The educational and work experience qualifications required for a position differ depending on the needs of the program, A1 explained, “Some programs require Master’s; some programs require a Bachelor’s degree. One

program I know of requires that they have to have their industry experience and they have [at least] an Associate's degree."

The College generally requires a Master's degree for new hire faculty. However, A1 mentioned there are some exceptions: "There are a few anomalies. We look for a Baccalaureate degree in the occupational programs. We also look for industry experiences and certifications." Associate Dean A2 also said that, "[the] CTE program is unique because normally at any community college it's a Master's degree and that's a minimum." Senior faculty member A3 stressed that ability is much more important than the degree.

A degree is not half as important as it is on the other side of the college [the Liberal Arts]. On the career side, it's really the ability, it's the knowledge of the technology, and it's the ability to interface with other people so you can transfer that knowledge and then you get into the degrees.

To provide an example of a CTE instructor qualification, A1 used the National Automotive Technicians Education Foundation (NATEF) certification that trains people to be an automotive service technician.

In the automotive program, they [the instructors] have to produce their certifications and their NATEF certifications. They have to show that they have certifications to teach certain courses. So we really try to help to make sure the faculty members get the training that they need in their particular area. So the automotive faculty will go to a lot of specialty conferences or training aimed at the automotive area.

A2 emphasized that training is crucial. In certain programs, the faculty members must be certified, and they have to take 20 hours of training a year to maintain the certification. For example, when the Environmental

Protection Agency (EPA) publishes a new standard, if someone is not certified, that person should not be teaching the EPA courses. A2 continued to explain the requirements of hiring and the reason that experience is so important in CTE programs:

What happens in a CTE program is a person has to have a Bachelor's degree for the educational component, but certainly, that person has to be working in that field, could have a lot of work experience, and could carry it over. As we go into it, you wouldn't want somebody teaching a Microsoft Certified System Engineer (MCSE) course that's not MCSE certified, so those are the kind of things we look for in adjunct faculty. So what we try and do is to encourage them to try and get a Master's degree as soon as they can. Although the minimum requirement is a Bachelor's for our CTE program and a Master's for everyone else, our goal is still to make sure that person, if they're going to continue here, has their Master's degree.

How does a college find the right person to hire? According to the hiring procedure of the USCC, the College can run advertisements on the internal network first, then if needed, in the local newspaper. However, networking appears to be a common way of attracting part-time faculty, as described by A1:

We also ask our faculty to go to their professional associations, and a lot of the times they will get people that they know from the industry. Sometimes it might be an advisory board member that would like to teach for us. So . . . [it is] the coordinators who do a lot of the recruitment.

Senior faculty member A3 said “most of the recruiting I would say is really done on the faculty side internally and a great source of [new full-time] faculty members are the adjunct faculty.”

Hiring procedures at the USCC are standardized into seven basic steps. The first five steps relate to the search committee: (a) form a search committee, (b) select a chair, (c) interview the candidates, (d) do a reference check, and (e) recommend a final list of candidates to the administrator responsible for the hiring. For the final two steps, the administrator interviews the recommended candidates and decides on the person to hire, and the Board of Trustees approves the hiring decision. A3 described the process:

We form a committee. The committees are put together and they represent the constituencies that would be involved with this person. For faculty you’ll see an administrator, you’ll see other faculty members, and you’ll see a flavoring of faculty members from other disciplines. The committee gets together. A chair is elected, and it could be an administrator, or it could be faculty. It’s generally who is the strongest one in the room will take over as chair. The chair will set up the process that the committee will use to interview candidates. There are certain cutoffs that the committee decides they’ll accept or not. For instance, if you’re going to entertain people with less than a Master’s degree, there has to be some clear need which has been pointed out by the receiving department. The committee comes up with a group of candidates; generally, it’s two or three, which they will present to the administrator, the hiring administrator. And it’s either the hiring administrator in concert with her or his boss that makes the final decision of that group, although they could reject the

entire group. So I think it's a pretty fair process. With a good facilitator, a good leader with the group, it works well.

Regarding diversity, although the USCC has a policy that supports the hiring of minority faculty members, Associate Dean A2 said that attracting minority applicants is difficult because the college pay scale is not competitive with salaries offered by industry:

Typically, we try to look at the demographics of the school and to match them. So as we look at an Asian population or an African American population, we kind of look at those percentages and say 'it would be ideal to have that kind of draw'. In reality, we try to get people to come in. Surprisingly, a lot of people that are in that minority category can get jobs that are higher pay somewhere else. It usually comes down to when we tell them the salary that it's not good enough. We've just gone through this now with two candidates in our division, and they both turned down the jobs because of the money. They were excellent candidates; they would've been good teachers but they're getting offers from other places that are higher. So although we have a plan that we're still trying to recruit people, the reality is that some of the higher demand minorities are really difficult to draw in.

Because recruitment of qualified faculty can be difficult, retaining and training existing faculty takes on even greater importance. . However, keeping the current faculty members updated with new technology also is a major challenge at the USCC. A2 said, "That is the hardest challenge and you're well aware of it too if you go through [the experience of being faculty here]." A2 indicated some frustration in that he had been unable to get any release-time for training when he was a faculty member. When providing his

perspective concerning the importance of release time from teaching, A2 said:

To me the release-time [to attend updated training] is so important, because it gives the faculty member the opportunity to go to industry and refresh their own skill set, and it also brings in [new] concepts and it's great for the college.

A2 also explained that the high cost for training is another barrier to keeping the faculty updated in state-of-the-art technology:

I encourage all faculty members in the CTE area to take a term off, so you can get back and find out what's going on. I think the other thing is we have to look at it realistically and start budgeting more training money. Money for our program is a lot different than somebody that's going in and saying I want to teach a different English course. A lot of times, those English seminars might cost 200-300 dollars. Ours are going to cost 2000-3000 dollars because we're competing with industry and those people, the businesses are paying full fare; and so even if we get an educational discount to go to a seminar or whatever, it's still very expensive. So we have to look at allocating more resources to training in the CTE area than anywhere else. Some of that's mandated.

Senior faculty member A3 felt frustration about faculty training in general:

I think it's terrible because there's very little formal direction which we get. That in a way is a blessing because you can say, 'Well, we can set our own destinies.' On the other hand, I think we need an overall direction.

For instance, the College reserves a couple of non-teaching days each semester, called in-service days, for faculty training. According to A3, “that should really be improved or we should just realize that in-service day is going to be communication or it’s going to be for something that we all have to get together on.” However, A3 mentioned one positive College-sponsored experience related to training in techniques of teaching-- the teacher’s retreat. Each Fall the College provides a training camp in a resort area. A3 said, “We have some nice stuff in place. The great teacher’s conference, which is held once every year, that’s an incredible resource, you could go every year, it’s wonderful. That’s one. Other than that, we’re really on our own.”

In brief, the USCC has clearly established procedures for recruiting and hiring faculty, and some effort is made to provide training updates for faculty in the CTE area. However, most faculty members must use personal initiative and resources to refresh their technology knowledge and skills.

Curriculum Development

Faculty is responsible for developing programs and course curriculum. The College has established a curriculum guideline and clear set of procedures. All procedures in the curriculum development and approval process are accomplished through an online curriculum management program. The Teaching and Learning Center (TLC) provides technical support for faculty members and administrators who use the program.

According to the USCC Website, the process that ensures alignment of learning and teaching begins with the curriculum development and approval process whereby measurable student learning objectives are clearly articulated along with methods of assessment. As part of a course's active course file, the objective and assessment information is evaluated first in the

proposal stage by the course initiator in concert with discipline faculty members and the Associate Dean. Then the proposal goes through a series of steps in which the proposal is reviewed, supported, or approved by faculty and administrators. An important consideration is to ensure the course proposal is consistent with the College's mission statement. The active course file for each approved course is subsequently reviewed and revised, or deleted following this same process during the Program Review cycle.

Thus program or course curriculum development goes through three stages. The first stage is when the program or course is developed and established. The second stage involves program or course revisions after the students and faculty are recruited and the program has been running for a period of time. The third stage is when an out-dated program or course is cancelled and deleted. A program or a course deletion is common in CTE programs. Faculty is responsible for initiating action for each of the three phases of the process.

The key issue in developing new curriculum is how to best meet the special needs of the community. A1 explained the general process: "I'll meet with my coordinators or faculty; they might come up with an idea for new course curriculum, or other colleges in the area are offering [a new course] in their curriculum." Faculty members and administrators also do a needs assessment. A1 provided examples of questions that might be asked when considering a new course: "Is there a need for this? What is the average wage? What are the trends?" These questions ensure that administrators see some quantitative, as well as qualitative data before making a decision. A1 emphasized the importance of research for curriculum development: "Regarding occupational area, career, and technical education area, they're

high cost; we really have to do the research before putting a program in here.”

As noted previously, the idea for a new course can come from advisory committees that provide recommendations for improving the CTE programs. A1 has been a member of the National Council of Workforce Education, the state Career and Technical Educators Association, the National Career and Technical Educators Association, and the National Association for Workforce Professionals. When discussing research for a new course, A1 said:

I do a lot of my research. As far as trends, it really helps me to see the research and read the newsletters. I get a lot of online information and also from the local news. We work with the industry and their business partners. I really pass on a lot to my faculty. Sometimes the idea could come from higher, possibly, a presidential level or vice-presidential level or Dean’s level saying maybe we should look at one of these programs.

A2 mentioned another strategy that involves the employment service representative, sometimes referred to as a “headhunter,” on the advisory board. The headhunter is hired by companies to find qualified applicants for vacant or new positions; consequently, the headhunter knows the type of skills that industry is seeking.

I’ve got headhunters on the advisory board. The advantage to me for that was the fact that they not only know what employers are looking for, they know who they’re placing. The second part of that is to say okay now it’s great to know when C# [a computer programming language] is needed. What skill set in C# do they need and how deep

do they need to go. If we can prove there's a need, we can bring up a pilot.

Once an idea is introduced and researched, a faculty member could offer a pilot course as a special topic and test it to determine if the topic is useful and draws students. A2 explained how the pilot works:

We can offer special topics for three times, before it has to become a course. As long as it's a special topic it doesn't have to go through [the] curriculum process; it is approved by the coordinator and the Associate Dean, that's the way to do things. If the pilot succeeds, the faculty member can initiate a new course [proposal]. We did not utilize this approach enough.

Senior faculty A3 agreed with A1 and A2 regarding the role of the advisory committee and also mentioned feedback from students:

We meet with the outside advisory group and we gain some ideas. Then we go back to departmental discussions and people just sort of bring up ideas during discussions and someone who is interested in something has the ability to run with it. I mean feedback from the students. But generally, that comes to us through one of the teachers sitting in the department meeting working on curriculum so we all act as agents, I think, and we do it well. And we've come back and all of us have developed new courses which I think have worked out pretty well. The faculty develops curriculum, which is wonderful. But when you look at some of the things we do here, some of the things which are very, very technical, I think it makes sense that we should procure curriculum in some cases.

Selecting a textbook is another important process during curriculum development. Faculty A3 explained two ways of selecting a textbook: one is to look at numerous publishers' Websites and the other involves faculty members creating the materials internally. A3 also emphasized the textbook needs to meet course objectives:

When we select a textbook that has to meet the objectives that we've set down for this course and that is how we get the course certified through the state. So if the textbook doesn't support the objectives of the course it shouldn't be selected.

A2, who has taught for more than 30 years, commented on textbook selection and the importance of supplemental materials. He believes that a faculty member's ability to select supplemental materials for their course represents academic freedom. It enables the faculty to individually tailor the instruction even when a common textbook is agreed upon for all sections of the course.

There are a lot of reasons that one picks a textbook. One could say that it's got a lot of supplemental material for the students; maybe a great example. But it doesn't cover all the things you want. So you enhance your lectures to cover the things that the book doesn't do. That's to me the academic freedom. That's really, where I think it should reside. If we have a course and we have five people who teach it then those five people should get together and pick the book and that way when somebody takes this course or that course they're going to get the same textbook.

A2 also commented on how alternating a textbook regularly may or may not be a good idea from a student point of view:

I don't think that there's any advantage or disadvantage for the faculty to stick with one [textbook]. The problem becomes, as you keep switching every term, the buybacks. The college bookstores typically won't buy back a book that's not currently in use. And so the students get penalized by that. We would keep a book for a two year cycle. That may be good or bad. I don't know. I think in technology it's really hard because things change so quickly.

To summarize, curriculum development is a routine activity for faculty, and USCC has a well-established procedure supported by the TLC and Information Technology Services. New demand in the community is the key factor for initiating a new course; therefore, needs assessment research must be conducted to verify the demand. The advisory committee is a rich resource of new ideas and suggestions for courses, and selecting a good textbook enhances the curriculum.

Teaching Methods

CTE by nature requires specific equipment and teaching techniques. Associate Dean A2 described the importance of teaching methods: "Teaching is that you're a facilitator. . . . When we go through that process, those students at the end have to feel like they've learned something so that's really subjective." For a new faculty member, the TLC is a particularly useful College resource; the Center provides individual training, workshops, and classes to employees of the USCC. Administrator A1 recommends and encourages new faculty members to participate in professional development training at the TLC: "If I have new faculty that come on that have never taught, I encourage them to go to the TLC to take a course and to look at different types of teaching methodology."

A1 also explained that teamwork is an important interpersonal skill required by many organizations and corporations therefore group work should be factored into the teaching methods. As A1 stated, “I also like to see where they [teachers] are using some type of teamwork approach, so students really can learn their critical thinking skills and work in a team.” A1 particularly emphasized the importance of teaching students critical thinking skills. A1 also discussed the importance of discipline:

I think one of the things is important for us to make sure that our students get to class on time, that they get their papers in on time, that they have to realize that when they’re going to work that’s what’s going to be expected of them.

In the CTE area, faculty members frequently use demonstrations. A2 stated, “Most CTE programs . . . should be lab/lecture based.” A2 further explained that the College’s labs and equipment are impressive, and provide students with the opportunity to learn through practice: “The more we can make it real life and the more realistic, the more useful it’s going to be.” Moreover, A1 mentioned the importance of understanding learning styles and the increasing trend in doing school work online:

I really like the faculty to address all the different learning styles of the students. One of the things that we’re looking at now is doing some type of hybrid courses maybe a part online, part in the classroom.... That’s a movement with the younger students. The students can do online, they can do the chapters online, they can do the assignments online and go through the chapters, but they have to be in the laboratory, and to do a lot of the hands-on in the laboratories.

A2 cautiously pointed out some concerns about online delivery methods: “Along with information technology’s rapid development, online

teaching as one of the new delivery methods has gained more attention that should not be a majority.” A2 implied that blended courses are feasible but the online part for CTE programs should not constitute the majority of instruction. A2 used China as a comparison to explain this concern:

If you’ve got such a large population trying to get to a location, it’s just not feasible. So using online teaching methods, those are valid reasons. However, looking at our district, there are five colleges within two miles. There’s no reason that people can’t come to a classroom.

A2 further discussed reasons online courses may not be suitable for many students:

We have moved some programs to totally online. We’re missing students by doing that, because what’s going to happen if that student can’t excel at an online class. It’s just like the student that can pick up the book and read it and understand it. I’m questioning why they’re in my class, because they really don’t need me. And that online population is a different population. It’s not for everyone. A lot of times, we’re reinventing the wheel. And I’ve been in education long enough that a lot of things are cyclic. So it goes through and it says well we used to do this, we don’t do it anymore, now we’re doing it again. So a lot of the trends and the uniqueness are exceptions and they’re not the rule. The rule is that most students learn faster in the classroom and they learn faster with a guided instructor. So to me that’s where we should put most of our emphasis is in the classroom.

As confirmed by the USCC Website, more emphasis is placed on classroom instruction than online teaching for the CTE courses. The Website also shows two additional teaching methods used at the USCC. The first

method is Independent Study, also called “Flexible Learning,” which comprises self-directed courses offered in many subjects. Students can complete assignments, meet with their instructors, use course resources, or take tests on campus or at an Off-campus Center nearby them, based on their individualized course plan for the term.

The second alternative teaching method is Service Learning, mentioned previously, which combines community service with academic instruction. Students are involved in organized service projects that address the needs of community organizations. This “win-win” method of instruction develops students’ academic skills in the classroom, as well as a sense of civic responsibility and commitment to their community. The three components of Service Learning are preparation, action, and reflection, which fuse together classroom and hands-on learning in such a way that students can simultaneously gain knowledge and real world experiences.

Academic freedom, a topic often mentioned on campus, is relevant to teaching methods. A3 expressed that “academic freedom is the ability of the educator to explore different topics within the classroom and to utilize different tools, whether those be educational tools, whether those be facilitation tools, but to utilize tools to inspire the group.” A3 provided an example of how to apply the principle of academic freedom in teaching students to practice critical thinking.

I bring some current topics into my classes and there’ll be some people who say, ‘My goodness, how could you have current topics in a technical class? Shouldn’t you just be teaching technology?’ ... The idea is in some of these classes you’re trying to inspire the student to think. Because once you get them to open up and think, they’ll start thinking about the technologies also and I believe our jobs here are

not just to teach the tool. You go beyond the tool as to how that tool can be utilized in a work environment. So we're not just teaching Excel, we're teaching Excel so that the person can employ Excel in the workplace and get some advantage for themselves.

In summary, most teaching for CTE programs occurs in the classroom and laboratory, as practice is needed for skills development. Although online teaching is being used more in some disciplines, the traditional classroom teaching method is essential for CTE programs. However, there are alternative teaching and learning methods that faculty members need to be aware of in order to meet the special needs of students. In addition, regardless of the delivery method, academic freedom is an important principle because it gives each instructor the flexibility to apply various teaching methods and address students' different learning styles.

Student Recruitment and Services

The USCC, like all U.S. public community colleges, has a general "Open Access" policy. Any student, who is 18 years old, or a high school graduate, or has earned a GED, can enroll in a CTE course at the College. However, Associate Dean A2 offered a different perspective by saying that only those students who are prepared for college level work will persist in a program:

I think the open enrollment is that there's a natural process of people being self-selective. They take a course and they find out that they really don't have the skill set to continue on and they just don't go anymore. While I think the open access is a good idea, it certainly has some constraints. You have to be able to perform at a college level to be able to continue in the process.

One concern has been that the enrollment in some CTE programs could decline. For example, A1 explained that a poor economic situation, increased outsourcing, and layoffs from the computer industry could result in a low demand for IT workers. Therefore, the number of students majoring in the computer field would decline, and a more active recruitment effort would be necessary in anticipation of economic recovery and as CTE makes changes in the IT related curriculum to address evolving workforce requirements. Currently, the College's Admissions Office recruits high school graduates, holds many open house sessions at the College, and posts advertisements in local papers. A1 mentioned other recruitment efforts in the CTE area such as Career Exploration Day, in which faculty members show the prospective students the laboratories, conduct a seminar, and display an exhibit and video.

One of the things is that many high school students aren't exactly sure what they want to do, so we do a lot with career exploration through grants such as Partnership for College and Career Success grant. We try to do a lot of things for career exploration for CTE teachers and the counselors of high schools. We have A Technology Day, A Health Care Day, and A Business Day event, in which high schools and our faculty worked on the career pathways and trying to look at...showing the counselors what the cluster areas [career type] are and so forth. So we try to educate the counselors. We also developed a site called the parent resource, I believe, and it's a resource where parents can go to find out about careers for students. We have advertising in the local newspaper. We just are running something for the students, for the general population, whether they're older students or younger students.

In summarizing, A1 said, “To recruit students, it is really important for us to show the students what the programs’ all about [and] that’s why we do a lot of hands-on things with high school students.”

Once students have enrolled in the CTE programs, they receive extensive teaching and learning services from two centers and faculty members. The Academic Support Center provides tutoring in math, writing and reading, and speech communication services. The College Counseling and Advising Center provides general advising and counseling services, while the faculty provide specific advising in academic discipline areas.

After students finish their programs, the most important goal is to help them find a job. The placement service is a basic function of Student Services. According to the College Website, a special Career Service Center has been established to help students navigate career opportunities. The Center provides four services: (a) job search training and employment assistance; (b) cooperative education and internships, which give students an opportunity to gain on-the-job experience related to academic and career goals; (c) service learning, which blends classroom learning with community involvement; and (d) access to College Central Network, which is the electronic job board. Associate Dean A2 stressed the importance of job placement for students: “If they go through, in terms of finishing their degree with us, what’s the guarantee of a job? I think we really need to ramp up the job placement area and get more industry connections.”

Administrator A1 described how to help students find jobs through internships, which is one of the most effective paths:

All of our programs have internships. Most of the students, I’d say large amounts of students in the occupational area are working but we also have internship opportunities that we provide. There are advisory

committees. We have a lot of industry advisory committees. Also we look at the faculty who know people in industry and we establish internships working with the internship office here. And a lot of the students are already working so sometimes they can ask their employer to do this as an internship for credit.

A2 also discussed internships and pointed out that students who work and go to school seldom can find the time to participate in an internship:

We're getting much better at that, getting internships. The problem is that a lot of our students are working and they don't have the time to do it and the balance. So I think that's going to be the challenge, is to try and get them to have some real life work experience. So the internships are going to be a real important part of CTE programs of the future.

Senior faculty A3 thought the college could make a greater effort to provide internships to students: "There are a number of internships. I don't think there's as many as we could have."

A1 also said the advisory committee and guest speakers can provide job information to students. In addition, the CTE program coordinators can have job information faxed to their offices by employers and the coordinators post job announcements on the bulletin board. The College provides numerous field trips to visit the job sites, and encourages students to look at many the different career Websites including those maintained by the state and the county.

In summary, recruiting students into CTE is important, but sending them into the right workplace also is a critical aspect of the programs. The Career Services Center supports job placement functions, but the faculty members also help to serve as a bridge with industry. Job placement is

needed by students and helps to fulfill the CTE mission by building a pathway from the school to the job, to the student's career, and to their future.

Strengths and Challenges of the CTE programs

Strengths of the CTE Programs

The USCC reorganized its academic structure following a recent change in the presidency. The new president wants to improve the efficiency of administration, provide more programs to meet the needs of an increasingly diverse population, and address demands for a more high tech and skillful workforce. The reorganization has reduced the number of administrators and streamlined the decision-making process. CTE, as an organizational subdivision, has a strong team of faculty and staff members with a variety of expertise and extensive experience. The subdivision also has excellent information technology and state-of-the-art computer laboratories and equipment.

Administrator A1 believes that the strength of CTE programs at the USCC is in their reputation. The College's various and strong career and technical education programs are well respected. Many of the students in the USCC CTE programs transfer to four-year institutions to pursue advanced degrees. Associate Dean A2 thought two strengths of the CTE programs are the faculty, which have a variety of valuable work experiences, and the variety of curricula.

A1 proudly stated the College has support from the community:

We've also had the support of the College to build our new building for the health area and for the technical education center. I think that our community has supported us through the referendum that they want us to obviously be one of the leaders. By supporting the

referendum, and the community [indicated] they really value the College and they also see that we need to have obviously the latest equipment and so forth.

A2 said another strength is the small class sizes, making it easier for teachers to interact with students, get to know them, and teach soft skills.

That's where a lot of CTE programs need to be, because the other part to the process is dealing with people. And if you're in a service organization whether it's being a mechanic, whether it's a network repair person, you're dealing with people all the time.

In summary, strengths of the USCC's CTE programs are effective leadership in administration and the faculty, a variety of programs, faculty with extensive professional experience, state-of-the-art facilities, and small class sizes with direct interaction between teachers and students. According to the participants, USCC has the most reputable CTE programs in the region.

Impact of Globalization on CTE

The USCC is a large-scale community college, and the population of the community has been growing in recent decades. A variety of CTE programs have been offered and CTE has collaborated with other divisions and disciplines in the College; for example, an English reading course with technology content for CTE, and a computer spreadsheet Application course integrated with an accounting program. The College has provided training and education for people in the community to meet the needs of the information age, and the College must continue to develop new options and choices of programs to keep pace with the evolving globalized knowledge economy. A3 said globalization has an impact on the local community,

county, region, and country resulting in related changes to job market demands, workforce skills, and demographics that affect the CTE programs.

Our primary goal is the populous we serve and that is the county. So primarily, we are local, but the county doesn't exist in a vacuum, and that's where we see the tie-in to regional and national which means that we have to tie in to other organizations that are providing similar services to other regions and other counties. We're seeing a more diverse population now.

A2 commented on the affect of globalization, in terms of changed job market demand.

The Web design is a good example. India right now has the strongest population of designers because as a company I can say, 'Here's my specification.' They can write the webpage, drop it across the Internet, and I'm done. I think some of the things that are going to be changing and what we need to focus on is security and hardware that requires a physical presence because those jobs will never be globalized. So we need to look at how we present more programs at the service orientation.

Senior faculty A3 has an interesting analog about the impact of globalization on the college's enrollment:

As the global economy's going up, our constituencies get richer. As our constituencies get richer, they are less inclined to come to this school. As the global economy goes down, our constituencies get poorer and like the old paradox of the potato famine, the potatoes will increase in value. The 100 dollars or 118 dollars that they're paying here, whatever they're paying now, I think it's going to be a 124 next

year....Whatever they're paying here now looks a lot better than what they would pay at any of the other private colleges.

The USCC is local in its orientation, and the administrators primarily look at the local, not the global. A number of administrators in the CTE area have been unaware of globalization. As administrator A1 indicates, there currently is no direct evidence that globalization has an impact on the CTE programs. However, A1 thinks the CTE programs must respond to local market trends in retooling students with new skills, and the local market may be responding to the impacts of globalization. As an example, increased attention to the “green” factor needs to be integrated into CTE programs and environmental concerns are global.

In summary, the impacts of globalization, in terms of job market demands, workforce skill sets, and outsourcing, is more apparent in industries than in CTE at the beginning of the century. As Friedman (2005) said, globalization 1.0 (before 1800) empowered countries, globalization 2.0 (between 1800 and 2000) empowered companies, and globalization 3.0 (the twenty-first century) will empower individuals. Therefore, globalization will eventually affect CTE programs in the US, particularly in high tech areas. Currently, the troubled global economy has resulted in increased enrollment, as tuition and fees are much higher at private colleges than at USCC. The demand for service-oriented programs, such as healthcare, desktop support, and automotive service has increased, and the global green factor should be integrated into CTE programs.

Challenges of the CTE Programs

Unsuitability of the semester format. The USCC converted its calendar from a quarter to a semester system thus making each term longer; this is disadvantageous for career technology programs. The majority of

technology students are working adults who prefer short-term programs, as was shown by a decline in the CTE subdivision's enrollment since the semester system was implemented. Associate Dean A2 stated the problem:

Semesters are just not a good format for a CTE program. A quarter was a much better system to deliver classes to a business environment. It allowed us to have 4 different times when people could come in and start, stop, and move around.

Tuition stability and affordability. The recent economic crisis led to state budget cuts, which forced the USCC to increase tuition and fees, and implement a hiring freeze. A3 stated, "Every time we increase tuition, we are cutting down on the number of people that can come here. That's the bad. The good is that if a person really wants that higher education, we are still a good deal." The USCC is providing not only higher education, but also financial aid for students through federal funding, grants, and loans. However, technology also presents a cost challenge; the technology is changing so quickly that to keep up with the changes of equipment and related lab supplies is difficult, particularly when USCC is faced with declining state appropriations. . A2 indicated, "We don't want to increase the lab fees too much to affect the students. We want to make sure that it's still affordable for the students that come to school here."

Meeting the changing needs of industry. As noted previously, globalization has a direct impact on industry; therefore, globalization has an indirect effect on the College CTE Programs and changes are needed to align the curriculum with the local job market. Changing the curriculum affects the skill sets taught and the lab equipment used at the College. This impact has been demonstrated as manufacturing moves out of the US and the IT industry increasingly favors outsourcing. As stated by A2:

The CTE programs face the big challenge that is keeping up with industry. The College had made this tremendous investment in all the hardware and shortly we had to virtually throw it away because of the fact that the industry was changing.

However, the service-oriented programs, such as healthcare, office technology support, and automobile service, need to be extended with more programs to meet local community needs.

Curriculum that stresses student performance. A2 said, “The programs need to be strong not just to train the workforce enough, but also to adjust the programs to meet the new changes in the field. Our curricula need to be evolved.” Moreover, Associate Dean A2 explained why CTE programs need to focus on student performance. CTE has to emphasize training students on how to perform and have the right skill-set needed for the job, rather than just pull students through to get a degree or a certificate. Otherwise, as A2 warned, there will be an educational crisis very shortly.

What’s happening is that test scores are dropping; the students aren’t performing as well. We have a lot of mandates from the federal government that aren’t funded so that we’re being pulled in different directions. I think that at this level we have to be very cautious to make sure that the students aren’t just pushed through the program. They really have to be able to perform because they’re livelihood is going to demand it. If they get a job and they lose that job after 6 months because they can’t do it. That’s a real tragedy because in a technical field, you have to know what you’re doing.

CTE programs at the USCC have varied curricula, but some of the courses have not been changed and updated for a period. Also, some of the new course curricula need to be developed sooner. One reason for this

challenge in updating existing courses and preparing new curriculum is the lack of support from technical services. There is limited expertise at the College for requisite steps such as an initial computer program setup and equipment testing. These tasks require a great deal of time and expertise. Another reason for the curriculum challenges is the funding shortage, which has limited the use of contracted consultants to do the program setup and troubleshooting.

Faculty upgrades for new program demands. A2 specifically mentions, “It is difficult to find qualified faculty part-time and full-time. We want to make sure that people not only have the expertise, but also would be fit to teach in the classroom.” A1 points out that “the society needs more nursing, more healthcare programs, but we don’t have enough Master’s degree nursing instructors.” The green sector jobs at the current time are part of a growth industry and it is difficult for the USCC to hire qualified faculty because teaching salaries are not competitive with industry employment. For the College CTE programs, how to train the current faculty, how to find qualified faculty to integrate the greener idea into the curricula, and how to create greener programs are challenges.

Marketing strategy for student recruitment. The challenge is to develop and implement marketing strategies for the CTE programs. A2 explained a strategy for developing specialized programs to attract certain student groups:

We neglected to look at the needs of the other smaller companies that are still viable and still need us. As Lucent and Motorola are getting smaller and smaller that need for smaller companies to have that support is still there, so those are the kind of programs we’re going to see growing.

Regarding online programs, A2 questioned whether the College would be able to provide enough online courses to meet the demand: “More and more people want online courses, because they don’t want to travel back and forth and save the cost. So are we providing the online courses for the students, when they need them and where they need them?” Since the semester conversion, CTE programs have been offered in many different terms including semester, quarter, and even in eight weeks. A2 said, “Although we offer courses in different terms, the information is not spread out very well.”

Articulation agreements with four-year institutions. There are five institutions within the area of the USCC that are offering CTE programs. Rather than competing with those four-year institutions, which is a challenge, A2 hoped to implement active articulation agreements between the College and four-year institutions. The articulation agreement allows students to study at the College for two or three years and then transfer to the 4 year institutions to finish a Bachelor’s degree.

We’re no longer that face-to-face very inexpensive kind of approach. Besides, the four-year institutions don’t have to worry about articulation, all their students stay there four years and they have a degree. We can’t offer them a 4 year degree, [we are a two-year college]. I would see [that we] can make better 2+2s, 3+1s, make agreements with these institutions that would allow our students to seamlessly transition to their area.

Communication with other community colleges. Community colleges do not routinely communicate with each other, but when budgets are tight across the state, collaboration may help in solving some issues. More and better communication with other community colleges to share best practices

and ideas is needed. A2 said, “What are other community colleges doing there that we’re doing here? We just don’t communicate enough to exchange views and learn from one another.” A2 mentioned there was a conference for information exchanges and sharing years ago between local colleges; however, it was discontinued.

Summary

The USCC is a large community college in the Midwest region and has provided higher education and career and technical education to its communities for more than 40 years. Recently USCC has restructured in order to service the community more effectively. The variety and well-reputed CTE programs with their state-of-the-art facilities are a source of pride for the College. The experienced faculty, support staff members, and administrators are valued assets in maintaining the quality of the CTE programs.

The impact of globalization on the College seems slight at the current time; however, globalization will likely influence the direction of CTE programs in the future. There are major challenges ahead that the CTE programs and the College must face including the need for: (a) funding to offset declining appropriations and stem rising tuition; (b) innovation to address changes in industry; (c) curriculum development on student performance, (d) faculty enhancements through hiring, retention, and training to meet new course and program demands; (e) marketing strategies for student recruitment; (f) articulation agreements to facilitate transfer between the College and four-year institutions; and (g) communication of best practices between community colleges.

CHAPTER 5

CASE ANALYSIS: CTE AT THE COMPARABLE CHINESE INSTITUTION

This chapter is structured in the same manner as Chapter 4. It begins by introducing organizational and operational characteristics of the Comparable Chinese Institution (CCI) and its CTE programs, thus addressing Research Question 1. The next two sections answer Research Questions 2 and 3 by first describing the decision-making process for establishing programs, and then explaining the elements of planning for a new CTE program. The last section answers Research Question 4 by discussing the strengths and challenges of CTE programs at the CCI. As noted in the previous chapter, Research Question 5, which addresses the commonalities and differences of CTE programs in the two case studies, is discussed in Chapter 6.

Organization and Operation of the CTE Programs

Case Institution Background

The Comparable Chinese Institution for this case study is an educational group that resides as an autonomous unit within a large comprehensive university located in the Northwest region of the country. Supported by the University's substantial resources, the CCI is able to offer many programs under its five institutes and one school: the Vocational and Technical Education Institute, Vocational Training Institute, Continuous Education Institute, Internet Education Institute, Technology Institute, and Sanitary [Nursing] School.

The University has over 2000 full-time faculty members and offers 200 academic subjects belonging to more than 50 specialties at both the undergraduate and graduate levels. These specialties are grouped into major

academic branches such as Natural Science, Engineering, Medicine, Economics, Management, Liberal Arts, and Law. Also, the University has been offering adult education for about 50 years.

The CCI utilizes the University's educational resources to support its operation with faculty, facilities, and management systems. For many years, the CCI has provided vocational and technical education, adult education, continuing education, self-taught examinations of advanced education, Internet education, and a variety of training programs. At present, the CCI has more than 1200 full-time and part-time faculty and staff members, of which 90% are part-time instructors responsible for more than 90% of the teaching load. Although most of the part-time instructors are from the University, about 20% are hired from outside of the University including a few from industry. The CCI has over 10,000 students in the tertiary CTE and nursing programs, and about 20,000 online students who are located all over the country, although most are in the Northwest provinces. The CCI also has its own facilities, including a number of computer centers equipped with several hundred computers, a number of language laboratories, multimedia classrooms, a library, and a number of practice areas. In addition, the CCI has access to the teaching facilities, laboratories, and main library of the University.

The CCI offers courses in more than 40 specialties, including Computer Science and Technology, Mechanical Engineering and Automation, International Economics and Trade, Clinical Medicine, Law, International Enterprise Management, Tour Management, Architecture, and Finance and Accounting. Course levels include graduate, undergraduate, and specific professional training. A unique self-taught examination is offered, which prepares students to pass a series of national higher education

examinations in diverse subject areas. If a student has passed a certain number of examinations and met mandated requirements, the student can receive the equivalent of a bachelor's degree from a designated university such as the University. All courses at the CCI are offered in flexible formats including full-time, part-time, night school, by correspondence and through the Internet (online).

CCI Structure

Parts of the CCI organizational structure relevant to this study are shown in four figures: the University, the Presidential Meeting of the University, the Educational Group, and the Student Services. Due to the complexity of the organization, this section focuses on the phenomenon of interest (CTE programs); therefore, not all disciplines and functional units that provide support and services are shown.

The university organizational structure (see Figure 5.1) shows that China's Ministry of Education has certain controls over the University such as major policy making, funding, and enrollment; however, the Ministry is not involved in detailed aspects of university operations. The Communist Party Committee of the University is the central controlling policy body of the University, and acts as a steering committee that makes major decisions on human resources, finance, and management. Party members of the University elect the committee members, who then elect the Secretary of the Committee. Both the Committee members and the Secretary must be approved by an upper-level committee in the Ministry of Education, or a provincial committee. On some occasions, the upper-level committee may directly appoint the Secretary of the Committee. The President of the University is normally a member of the Party Committee and works under the Committee's guidance. The party system consists of three levels: at the

top is the University Committee; in the middle is the Division or Institute Committee; and at the bottom is the Branch Committee, such as a Discipline Committee and a student Class Committee. In brief, within a Chinese higher education institution, the “Party Guidance System” strictly directs the University President’s responsibilities.

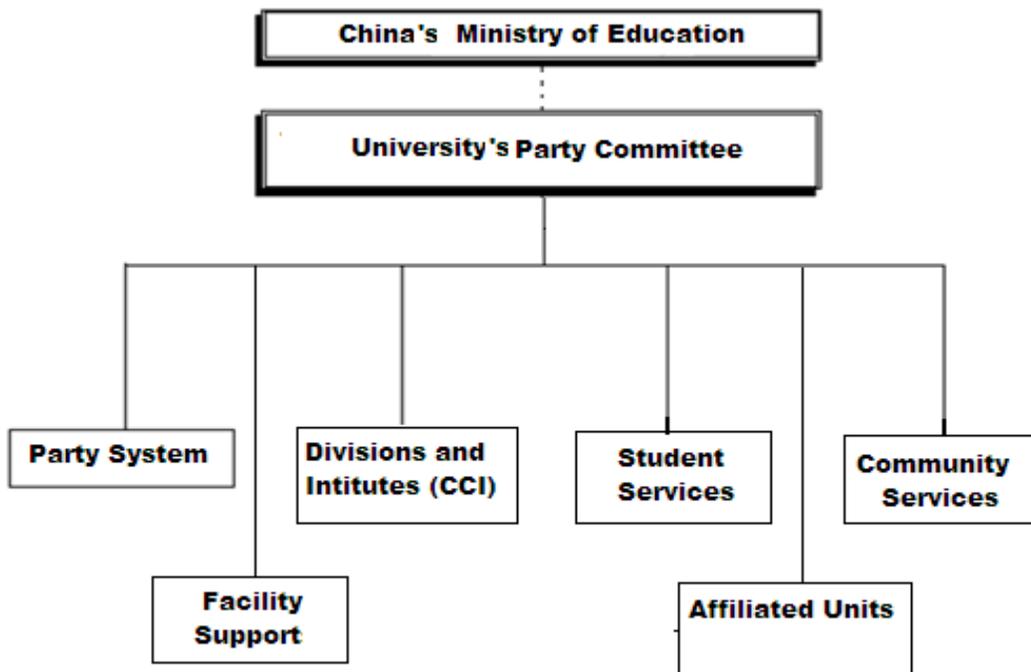


Figure 5.1. The University Structure. Adapted from the University Website.

The Presidential Meeting of the University (see Figure 5.2) is similar in composition to the President’s Cabinet at a US institution, although the function is somewhat different. As the top operational body of the University, the Presidential Meeting is in charge of implementing all Party Committee policies. Members of the Presidential Meeting normally include Vice Presidents of appropriate functional units, and invited directors such as in the Academic Office, Financial Office, Student Activities Office,

Construction Office, Security Office, Information Technology Center, and Social Education Administrative Bureau.

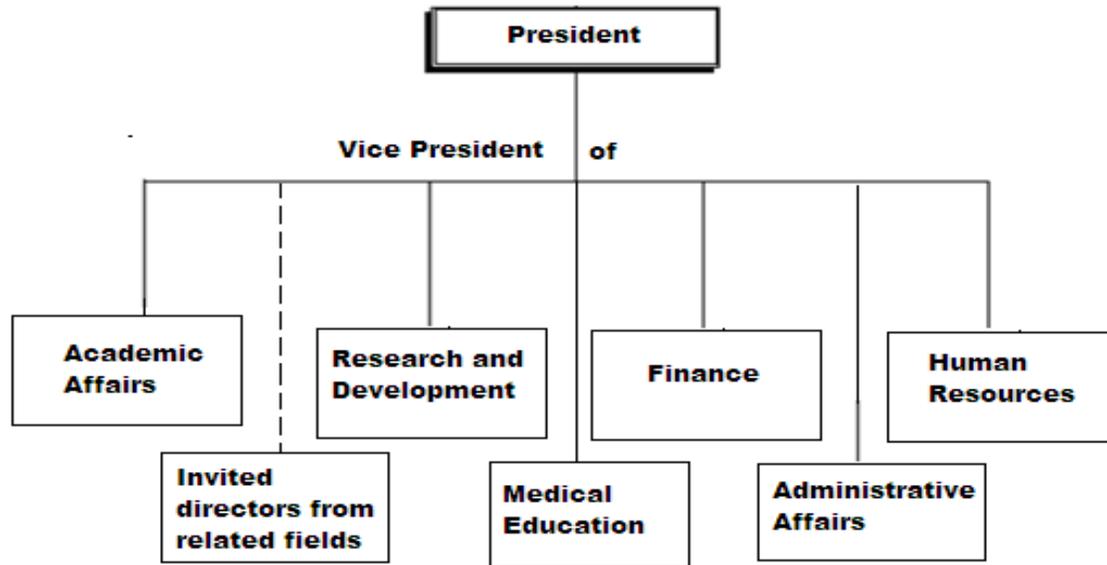


Figure 5.2. The Presidential Meeting of the University. Adapted from the University Website.

The CCI is a secondary structure of the University consisting of five institutes and one school, as shown in Figure 5.3. The Educational Group title is used to indicate that CCI has a legal responsibility for all the institutes and the school. The CCI reports to different units of the University according to the nature of the business. For academic related matters, it reports to the Vice President of Academic Affairs, and for finance matters, it goes to the Vice President of Finance. The CCI establishes its own rules and regulations, as well as managing, monitoring, and coordinating all educational functions and related activities with respect to continuing education, vocational and technical education, informal education and training, and other educational services. Although some of the institutes overlap in certain functional areas, there are benefits to having them remain

as separate units, such as receiving funds from different government agencies (e.g., the Ministry of Education and the Ministry of Labor) and enabling larger student enrollments.

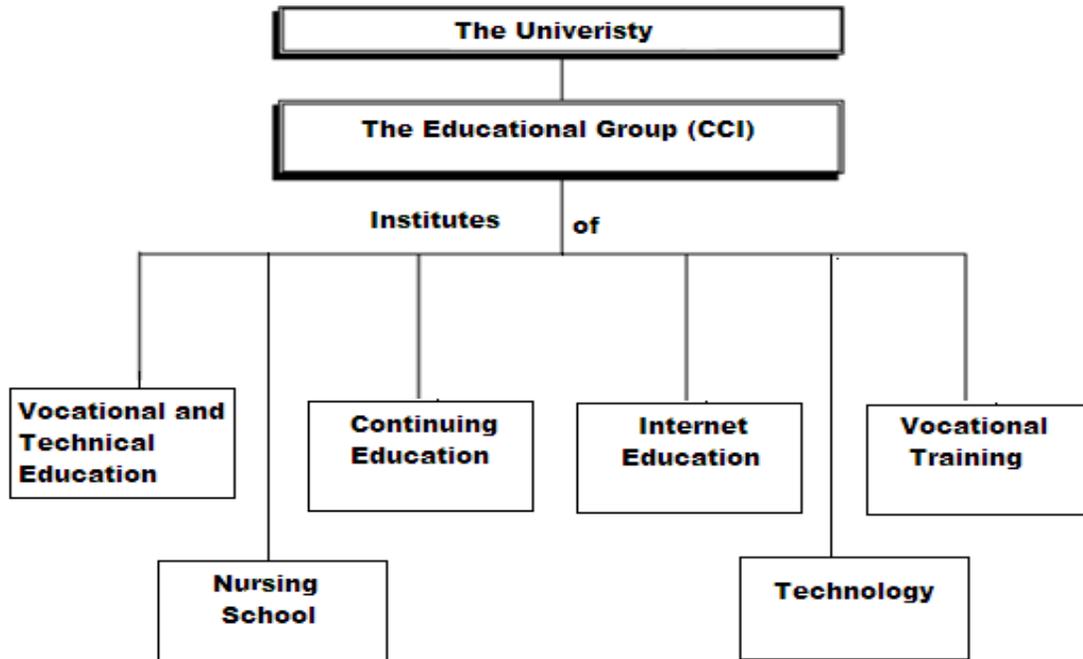


Figure 5.3. The Educational Group. Adapted from the University Website.

Academic and Student Affairs at the CCI are operated under a single managing body for all institutes and other units. A Dean and a Secretary of the mid-level Party Committee supervise this body. The former is in charge of four Institutes, each led by an associate dean. The latter is responsible for four different units; however, the Student Management Center reports directly to the Vice Secretary of the Party (see Figure 5.4). The managing body also has a cooperative relationship with the Nursing School (not shown in Figure 5.4).

Three institutes (Continuing Education, Vocational and Technical Education, and Internet Education) and the Nursing School provide the Career and Technical Education (CTE) programs. The other two institutes

(Vocational Training and Technology) overlap with Vocational and Technical Education. Another important function that supports the CTE programs is Student Affairs, which comes under the leadership of the Party System. The Party Secretary is in charge of the Office of Enrollment and Employment Services. The Vice Secretary of the Party, as noted previously, is responsible for the Student Management Center, which is staffed by class directors (faculty members for academic assistance), political advisors (faculty members for non-academic assistance), and dormitory service members. The Center provides (a) the Party’s instructions to the student Party group and the Youth group to guide the student body’s activities; (b) financial support, academic advising, and career services; (c) dormitory management; and (c) student extracurricular activities support through the directors and advisors.

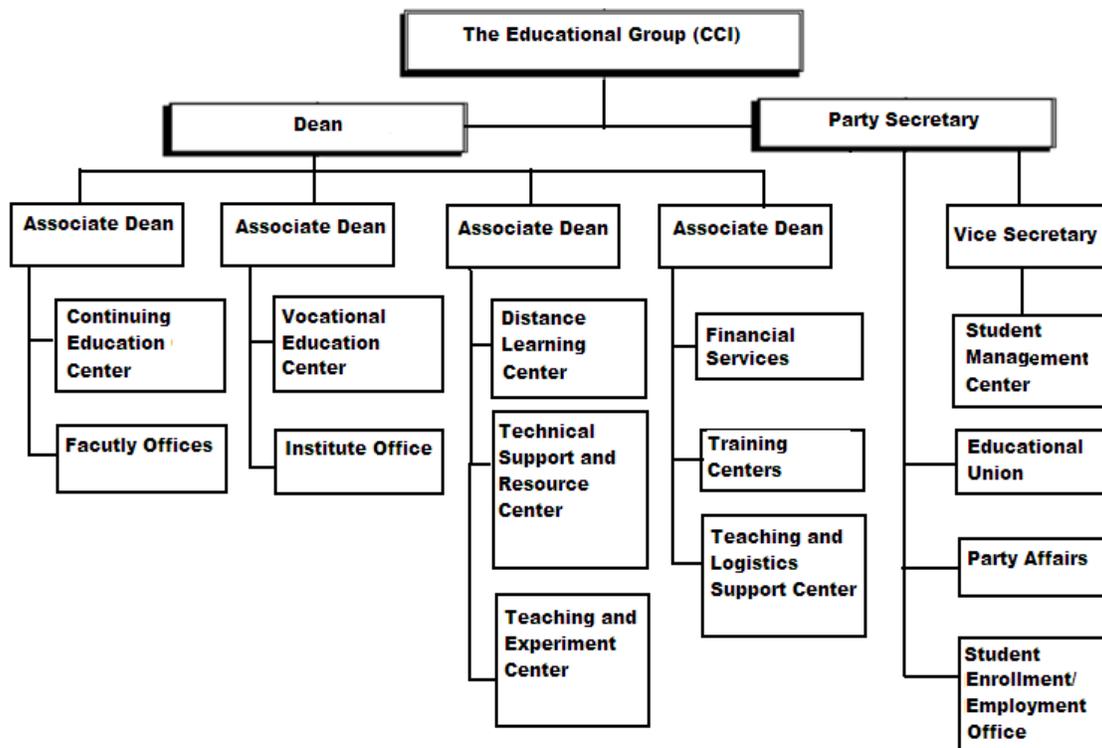


Figure 5.4. Academic and Student Affairs at the CCI. Adapted from the CCI Website.

The CTE programs comprise more than 40 discipline areas, grouped into five categories. These programs include baccalaureate degrees, certificates including the equivalent of an Associate’s degree, and certificates for specific training, some of which are sponsored by local industries. Furthermore, the CCI offers a variety of certificates documenting specific professional qualifications, completion of training, and mastery of specific techniques. Table 5.1 shows examples of CTE programs in the CCI that specifically meet local economic needs.

Table 5.1

Examples of Popular CTE Programs Offered by the CCI

Applied Science	Technology	Business	Career and Workforce Development	Health
Electronics Technology	Communication Engineering	Accounting	Automotive Service Technology	Biomedical Engineering
Integrated Engineering Technology	Computer Applications	English	Bench Work	Clinical Medicine
Manufacturing Engineering	Computer Science and Technology	Hotel Management	Construction Engineering	Dental Hygiene
Manufacturing Technology	Game Design	Insurance	Electronic Assembly Techniques	Dental Medicine
		International Trade		

Power Engineering	Information Technology	Management of	Interior Design	Medical Inspection
Welding	Internet Technologies	International Enterprises	Lathe Work	Nursing
	Mechanical Engineering and Automation	Marketing Tourism Management	Numerical Control Technique	Pharmacy

Mission of the University

Although the University Website does not show a mission statement, the President's declaration on the welcome page uses language resembling a mission statement:

The University will keep its traditions and quality at a high point, continue to build a strong foundation, enforce disciplines and emphasize practice; carry forward the school motto of loving China and our university, pursue truths, be diligent, steady, hard working, plain living; focus on the students' training, promote teachers' creativities, follow the law, standardize management and build the University into a world famous and high level university.

According to the CCI Website, the University has historically established its own unique style of teaching and learning. The University has developed an innovative approach in pursuing excellence in teaching by

strengthening fundamental courses, promoting research, emphasizing creativity, enhancing learning through practice and hands-on experience, improving students' capability for knowledge acquisition, and increasing students' compatibility to function well in the job market. As a part of the University, the CCI has inherited and continued with these traditions and teaching objectives.

Mission of the CTE Programs

The CCI, with support from the University's resources, provides vocational and technical education, adult education, continuing education, and higher education self-taught examination preparation (CCI Website). Also, the leadership understands the importance of cultivating students' comprehensive learning and has been striving to improve teaching quality and build an excellent reputation for its teaching. In addition to intellectual and moral education, the CCI allows students to participate in physical and aesthetic education, as well as various real world experiences through extracurricular activities to help students become moral and healthy citizens.

According to the CCI Website, the CCI plans to reform its outdated educational concepts and training patterns to meet the needs of the modern society. A heuristics method of teaching has been advocated and emphasized to stimulate the creativity of students. Efforts are being made to explore new teaching methods through experimentation, cultivate the ability to adapt to new ideas, implement appropriate rules and procedures to improve management of the Institutes, build a solid foundation to improve teaching quality, and provide a greater contribution, together with all faculty members, to the cultivation of competent talents for the cause of socialist modernization.

This language on the CCI Website represents a common articulation of mission that could be used by any institution in China and therefore does not specifically characterize the CCI. However, the CCI appears to have provided a variety of programs for students with different career goals, and intends to prepare its graduates to become educationally well-rounded students and citizens for the benefit of society. The director of the CCI, C1, emphasized that the essential function of CTE is to train the students to become more “applicable persons” (capably skilled for real world situations) who address the needs of the local economy. C1 also stressed that another goal of the CTE programs is to train high level CTE teachers for the regional CTE institutes.

CTE should train a student to become an applicable person. . . . Our goal is aimed at high level CTE programs, like the CTE teachers training program. We [the CCI] are the training base for the CTE teachers. And, we are just like a ‘wholesale’ [train a group of people]. The society needs more high quality teachers, and wants to improve the teaching level of teachers. It is a task [to train CTE teachers] from the state for our institute . . . ; you [institution] have to fulfill the task.

C1 further explained the importance of continuing education as another mission because the CCI primarily trains adult students.

We have considered CTE as adult education. That is a continuing education called lifelong learning. It is our major task. Lifelong learning means that you study continually for your whole life. According to national regulation, adult education is provided for working adults, not the current high school graduates. The continuing education is for after high school or college education [four-year

institution], so this is a formal system, adult education, or adult continuing education.

Although C1 emphasized continuing education for working adults, the researcher questioned C1 regarding high school graduates who were unemployed and currently not in a college. C1 said members of this population also were admitted as adult students in the CCI institutes. C1 additionally explained that China has two systems for providing CTE. Normally, the Ministry of Education is responsible for CTE; however, the Ministry of Labor is also responsible for some lower level technical training (i.e., secondary).

At past, the tertiary CTE has been divided into two systems in China. One is the higher education that is responsible for the formal education and the tertiary CTE; another is the labor administration that is responsible for skill training. You can distinguish them by the name. If the name is a technical institute, that belongs to the Labor Department; if the name is a vocational training institute, that belongs to Education Department. The technical institute emphasizes skill training; the vocation training institute emphasizes formal vocational education.

Associate Dean C2, who is in charge of career and technical education, described a clear vision of CTE's essential role in meeting the job market demands for China's workforce. C2 also expressed concern about the shortage of capable graduates, as many of them lack the skills needed to work hands-on and operate machinery and equipment in the workplace.

There are two reasons [to promote CTE], [one] is the market demand and [another is China's] entering of the World Trade Organization [in 2001]. The market demand is the major reason. You see that

developing the market economy is the only method to stimulate the development of vocational education. The government also emphasizes vocational education now. Why is now? With the rapid development of the economy, technology has been developing rapidly. But, there is a shortage of workforce at the front of manufacturers, which required a lot of graduates who are capable to operate and work with new technology. When more and more people can receive higher education and higher level of technology have been reached, the society then faces more employment pressure and continuing development issues. The manufacturers and corporations need the people who have hands-on experience and operational skills. There is a shortage of this type of workers at the current time.

C2 discussed the regional differences in CTE, particularly between the coastal regions, where the economy is more developed, and inland regions; the faster the economy develops, the more demands there are for CTE graduates.

In order to improve the vocational education, one thing is needed that is the job market demands. The economy develops faster, the job demand increases more, so the needs of vocational education increase. In fact, [the economy would bring in money,] better equipment, and better facility for education. It is true that there is a big difference between the Southeastern coast regions and inner land regions including rural areas, [because the economy in these areas is underdeveloped].

Associate Dean C3 looked at the purpose of CTE from a more theoretical perspective, but shared C2's view that CTE emphasizes application and practice: "For CTE, I understood, compared with a

traditional education, it stresses the practicality rigorously. It is vocational and professional training, and good for [students'] employment later." C3 also expressed some concerns about the definition of CTE, which is not clear at the CCI; CTE becomes confused with adult education.

[What is] CTE? It is not clearly defined, because the adult education and vocational education are treated equally in the country and some are overlapped. Even the leaders' speeches and the government's documents have not solved it. It seems CTE is for the traditional students, not adults; and the adult education is for the adult students who are employed. But actually, there are many high school graduates in adult education. So there is a question of whether the vocational education should include adult students?

In summary, the CCI has a basic understanding that CTE programs should provide higher education and training to adult students and enable them to capably apply their skills in fulfilling the demands of the local job market. The two primary goals are (a) to train students and ensure they are capable of working in a real world situation, and (b) to provide lifelong educational opportunities for the local adult citizens.

Decision-Making Processes for a New Program

The CCI has provided CTE programs for adult students for many years. Most undergraduate level programs (e.g., CTE teacher training) that correspond with programs offered by the University can be conveniently copied or adapted for the CTE programs. Associate Dean C2 mentioned that the primary difference between the CCI and the University curriculum is that CCI focuses more on programs that address needs of the current market. Moreover, to establish a program is easy for the CCI as long as there is a reference program at the University; CCI can use the entire system including

courses and the teaching plan from the University, and start the program without any evaluation or approval processes. However, to create a new formal educational program, a highly restrictive and time-consuming process is required.

C2 explained the three-step process for establishing new programs (new majors). First, CCI has an instructional committee comprising faculty members and administrators. A faculty member or academic administrator could initiate the new program, but the instructional committee must prepare the materials for a new program proposal and deliver the proposal to the Office of Academic Affairs at the University. Second, this office organizes a committee of experts in a related field to review the proposal. After each expert reads all the materials, a meeting is held, at which one member of the instructional committee describes the proposal and all the experts discuss it. After evaluation, the members vote on the proposal. Finally, the Presidential Meeting of the University makes a decision on the program. In some cases, the president of the University could veto the proposal.

Associate Dean C3 also mentioned the state regulation is quite restrictive and makes the creation of a new program difficult. Currently the Ministry of Education regulates adult education and CTE as formal education; therefore, the Ministry also controls the program majors and the scale of the programs that can be offered by an institution. CCI is in a different situation because the Ministry of Education has authorized the University to approve new program proposals. Without this authorization, CCI would have to seek program approval from a state educational committee, which is under the Ministry of Education. Associate Dean C3 stated:

[To create a new program], it is initiated by the institute; the institute suggests it. There is a unit [instructional committee], [the members] are coming from the front line, they are responsible for a new suggestion, they propose [a suggestion], then the institute administration discusses it and delivers [the proposal] to the Office of Academic Affairs for decision... Faculty members' [role for the proposal], based on my knowledge, it depends on the University, depends on the University's faculty and resources. The institute itself has only a few faculty members [who propose new programs]...some programs like adult education, for some institutes, the state education administration decides what kind of programs you can offer. If you want to create a new program, you can test run this program for two times successfully, you may be allowed to establish the new program after approval.

The idea of creating a new program is based on market needs, which means the information is coming from the hiring companies. The CCI must identify the demands of the local job market. Based on the job market information, the CCI uses existing programs from the University that match the job market needs and establishes the programs with few changes. The CCI rarely creates a new program.

In summary, if a new CTE credit program is needed, the CCI instructional committee submits the proposal to a University expert committee for evaluation and the experts' recommendation is sent to the Presidential Meeting of the University for a decision. In the case of an institution that is unaffiliated with a national key university, a new credit program proposal must be approved by a state educational committee within

the MOE. However, a non-credit training program can be proposed, evaluated, and approved by an institute of the CCI.

Planning a CTE Program

Financial Support

In planning any CTE program, financing is an essential factor for support of the program. Generally, the CCI has three sources of funding: (a) state and local government appropriations coming from taxes, (b) tuition coming from students and their parents, and (c) small donations coming from individuals or corporations. The CCI primarily depends on tuition, and an occasional allocation of special training funds from the government. Because CCI uses the University's resources, it does not receive much direct funding from the government. However, CCI has actively sought additional funding streams. C2 described the situation and talked about other sources of funding that support the CTE programs.

Our funding for operation is mainly dependent on student tuition, especially our institute. The fund for regular education is mainly dependent on the state, and the tuition is a supplement. For our continuing education and vocational education, the students have to pay their tuition. The state cannot invest money to your place, because of the limitation of economy. So we have to think about a way to find funding from the society. For example, we pursue an airline corporation to establish a cooperation of creating an aviation service-training program, the airline corporation knows this field very well for workforce needs and job requirement. In the cooperation, the corporation is responsible for building the laboratory; we provide the training program. After students finish the training, there is a guarantee for student employment.

According to the CCI Website, the 2008 academic year tuition for a CTE program is about 12,000 Yuan (\$1,700) per year, which does not include books, fees, and living expenses. Associate Dean C3 said:

This tuition level is considered as an average in the nation. Some students felt the tuition was high considering the average income of 20,000 to 40,000 Yuan nationally. Based on the local government price guidance, the tuition has not reached the highest limit. Any tuition increase has to be review by the local government price agency.

Director C1 mentioned during a follow-up telephone interview that on some occasions, there is a special government fund available for specific training. The training fund could be given to an institute having a strong program that can provide training for a specific purpose, or an institute may apply for the funds. As an example, training for rural area primary school teachers could be given to a college that has a strong elementary education program. In summary, although there may be other potential funding sources, tuition is the main source of revenue, and the tuition should cover all program costs.

Teacher Preparation

The quality of programs provided by the institutes depends to a great extent on the quality of faculty members and support staff. Therefore, finding ways to recruit a quality faculty member and prepare the instructor to teach in the program are important issues. The CCI is concerned about their educational quality and faculty resources.

C2 spoke about how to build a strong faculty team by hiring high quality instructors and doing research on tertiary CTE.

The CCI is concerned with our faculty team and has established a research unit especially for teaching and research on tertiary CTE. Most of our teachers have rich teaching experience; we also hire a certain number of 'dual experts' teachers from the front line of industry; these have built a solid foundation to improve the quality of education.

The need for faculty positions is dependent on the programs offered. Establishment of a new full-time faculty position must go through a four-step approval process: the institute academic committee evaluation, the institute administration recommendation, the University human resource department, and final approval by the vice president of the University. Currently, the full-time positions at the CCI are basically fixed, with hiring only being done to replace someone who retires. The CCI hires part-time instructors primarily from a large pool of faculty in the University, a few part-time instructors from other colleges and universities in the city, and a very few instructors from industry. The CCI administration makes the part-time instructor hiring decision. C2 expressed his perception of an ideal ratio of three equal faculty sources that CCI should use in the near future.

Faculty members in our institute, at least I think that the major source of faculty comes from the University. It is not only this source, we also have the source that is from other colleges and universities. The city is a place where there are so many institutions; we also hire faculty from those colleges and universities. Besides, we are in CTE; we want to make a certain effort to aim on the frontline of industry and to hire the technical experts and engineers as instructors. My thought about the ratio is like this: our own [the institute] faculty members comprise one third, the faculty members coming from the

University and other institutions comprise one third, and the last one third may come from industry. This arrangement of faculty is a very big change compared with the traditional. It would obviously affect CTE. During the program, those instructors could bring more real world experiences to our students, if taught by those experts and engineers rather than the ordinary teachers.

C3 also mentioned the requirement for a newly hired part-time instructor, who at least should be a college or university faculty member or a certified engineer from industry. C2 explained the requirements of hiring a faculty member in detail.

[According to the educational background of] the person, if the person is young, it requires a doctoral degree, [because the CCI is affiliated with the University and refers to the requirements of the University]; if the person is relatively old, it requires a Bachelor's or a Master's degree. [Looking at the title of] the person, who has to be an associate professor or above; if we hire an expert from industry, it has to be an engineer or above.

The CCI has stressed that CTE faculty members should become “dual experts,” which means an expert in teaching and an expert of engineering. This is also a goal for all CTE instructors in the country. C3 said, “Our faculty tends to lack practical ability because most CTE instructors are coming from the traditional educational institutions.”

Regarding quality of faculty, the question is how to train faculty and ensure they become “dual experts.” C3 said that the CCI has the “dual experts” requirement; yet, there is no specific strategy to implement it. C2 added that the CCI does not currently have a faculty-training plan, but one will be considered in the future. The CCI encourages individual faculty

members to take courses. For example, if a faculty member who holds a Master's degree wants to pursue a Doctoral degree, the CCI has an incentive policy to reimburse part of the tuition. However, the faculty member must study on his own time and without detracting from regular job assignments.

In essence, it seems that hiring processes result in stability, as CCI is not hiring full-time faculty currently and CCI only deals with part-time faculty hiring by following traditions and experience instead of administrative procedures. But this context will not enable achievement of C2's vision of having three equal faculty sources. Also, there is no strategy for training and updating faculty in the CTE area, although some individual faculty members may, through their own initiative, pursue advancement and keep updated on the latest technology.

Curriculum Development

Development of the teaching plan (curriculum) is based on specific needs of the local job market. According to C2, the process for developing new course curriculum generally is decided by the CCI, which means CCI has the authority to approve new courses. The teaching research unit in each institute comprises faculty and technical support staff who focus on teaching methods and new course proposals. Also, any faculty member can go through the unit to propose a new course. C2 said, "A new course is simpler than a program, it is not strict on process. If we need a course, we can decide on our own. But you do not change the teaching plan, in terms of the total credit in a plan of a formal program, it is fixed." The instructional committee of the institute actually evaluates the proposal. If the course has a reference course in the University, then the CCI would use the University course with a few changes.

On rare occasions, the CCI may need to create a new course. C1 explained:

For instance, a course I taught in an undergraduate program in the University, now I need to teach the tertiary CTE course, [and] I want to use the same textbook that was familiar and easier to prepare with. If I created a new course, I would have to spend a lot of time.

If a completely new course is proposed, without a reference in the University, the course must go through evaluation by the expert committee of the University. For a public fundamental (core) course, such as the Party History, Math, or Physical Education, a committee of the MOE would issue a teaching guideline for the course.

According to a CCI internal document, typical course curriculum generally includes a title, total credits and teaching hours, purpose of the course, key requirements of the course, objectives of the course, schedules of lectures and labs, and textbooks required. A course assessment has two levels. For a core course, students are required to take the same examination that is administered for all sections and the results are graded on a percentage. For an elective course, students may be required to take an examination developed by the individual instructor; however, more often students receive a pass or fail grade based on their homework and projects.

At the CCI, each student is required to take the regular courses in their specific program and three additional types of courses: political theory (e.g., Mao's or Deng's theory) or current political issues, ethics, and physical education. These additional courses cannot be waived. Faculty must follow the teaching plan and cannot omit any topics, although there is flexibility in the use of teaching styles and discretion in the depth or extent of discussion for each topic on the plan. C3 stressed, "The teaching plan is restricted. You

may have a little freedom on topics, but cannot go too far. Two instructors teaching a course, they could have different teaching styles, but the contents of the course are the same.”

C2 described the difficulties of providing practical training for CCI’s students due to limited facilities and lack of cooperation from businesses to let the students visit. “Hands-on practice for a CTE course is basically conducted on campus, but it is very limited. We have established a few relationships with local industries. Depending on the program, the students may go to these sites to a visit.” In China, there is no tradition of establishing relationships between industry and postsecondary education institutions; therefore, the CCI finds maintaining relationships with industry to be difficult. C2 expressed hope for a future time when the CCI could provide more laboratories and better equipment for students to practice skills, rather than having to plead with and pay industry sites for a visit.

The textbook is suggested on the teaching plan and normally the teaching research unit selects the book, although the faculty may be consulted. Faculty generally prefer to continuously use the same textbook, as this reduces teaching preparation time. C3 explained this situation in the adult education area,

We [the institute] selected the textbook. There is a [continuing education] center taking care of selecting textbooks. The center may ask a faculty member’s opinion, not decision. It is because we want to select a new textbook that is award-winning and edited by an authorized publisher, but those teachers who teach the course would like to use an old book to avoid preparing for a new textbook.

C2 had a slightly different view of the textbook selection process in the CTE area: “The textbooks now basically are selected by course instructors. Since

there are so many versions of the textbook, the instructor knows best which one is best.”

In brief, course curriculum development is a relatively rare activity at the CCI. There are many existing courses in the University and the CCI simply uses them, with minor revisions, for CTE programs. The teaching research unit or center usually selects the course textbooks. Mao’s or Deng’s theory, ethics, and physical education courses are required as unique standard components of a CTE program curriculum.

Teaching Methods

According to the CCI Website, much attention is given to continuous improvement of teaching quality. Instructors are professors, associate professors, and lecturers with extensive teaching experience. The CCI has a teaching research unit and detailed rules and regulations regarding teaching that provide a foundation for quality improvement. The research unit is a study group that provides teaching strategies and techniques to be shared by other instructors. The unit also sets up the procedures for lab classes, and creates rules for students working in special laboratories. However, because most instructors are experienced teachers, CCI does not have funds for faculty training in teaching methods.

Teaching quality relates to teaching methods. In China, the traditional teaching method is lecture only, while the students listen. Currently, the CCI is trying to change the educational paradigm, reform traditional teaching methods, and implement pedagogy that will stimulate the students' independent thinking and problem solving abilities. The objective of this change in pedagogy is for students to not only possess necessary cultural knowledge, but also master vocational skills and the capability to deal with real world challenges.

C2 emphasized the importance of teaching methods, which should not only train students in academic knowledge, but also train students in a hands-on capacity.

Actively utilizing the heuristics of teaching, making students think independently and cultivating students' creativity are very important for CTE. We go through experiment, practice, teaching real situations, project design, and graduation design processes to train our students to possess the capacity of hands-on experience, and operational skills.

C2 also mentioned that in the CTE teacher-training program, the CCI has specially designed courses to meet the requirements of future teachers, such as the theory of CTE, educational psychology, and technology. For facing the challenges of the twenty-first century, students now have more elective courses to choose from, such as liberal arts courses, military courses, patriotic and traditional seminars, and special lectures on entrepreneurialism and trends in CTE.

According to the CCI Website and documents, the CCI strives to adapt modern educational concepts, which are diversified, Internet oriented, digitalized, and personalized. These concepts improve the quality and efficiency of education, cultivate students' interest in technology, and promote use of multimedia education through the Internet. As a result of rapid developments in technology and growing demand for distance learning the CCI has established the Internet Education Institute (IEI).

With strong support from the University's educational resources and management experience, the IEI is striving to establish a multi-level and multi-faceted distance education system that emphasizes continuing education to meet the increasing demand. IEI now has more than 200 part-time faculty members and technical staff to support distance learning. The

organizational structure of IEI includes the general office, distance education department, education management center, education resources development center, technical support center, research institute of distance education, and journal editorial office. Using satellites and the Internet, the CCI has cooperated with other institutions nationally and internationally to conduct live teaching transmission experiments and all participating institutions share some elective courses and credits. Currently, there are more than 10,000 students taking distance-learning courses in Computers, Nursing, Management, Law, and Economics.

The CCI offers programs in many different formats for working students. For example, the self-taught examination assistance program provides a series of help sessions for each subject tested on the national self-taught examination. The student usually does the examination preparation individually; however, the CCI now provides a program with classroom training to help prepare students for the examinations. After students pass the examination, they receive a diploma or a Bachelor's degree from the national self-taught examination committee. C2 explained:

Self-taught examination is study at home initially, later some institutes started a program to help these students prepare for the examinations. Any student could be accepted by the program but the self-taught examinations are organized and conducted by the examination agency of the province. It is easy to get in and difficult to get out [pass the examination].

In addition to the self-taught program, C1 mentioned correspondence programs as a means for providing flexible study times.

Working adults spend their spare time studying here, some for a formal education. Some students from a junior level of college want to

upgrade to senior level. Most students go through correspondence, or night school, and use their spare time. Now the technology is developed, [where they] can go through distance education.

In China, before the 1980s, correspondence study was popular, and students communicated with their teachers by traditional mail. When television developed, the TV University became popular. Many TV University help centers were established in every major city and provided a great opportunity for tens of thousands of people to receive higher education. In recent years, these two methods have gradually been replaced by Internet and satellite communications, which use the computer as a base for interactive teaching and learning.

C3 explained three types of learning formats at the CCI. One format is called “off-the-job”; the adult students leave their job by permission of the employer, the positions are kept open for the students’ return, and the students attend the CCL full-time. After completing a program and passing tests, the students receive a diploma or a degree. Another learning format is called “spare-time” or “Night University”; the students use their spare time to study by attending university classes at night and on weekends. Requirements similar to those in the first format exist for obtaining a diploma or a degree. The third format is called “correspondence education”; students use their own time and primarily depend on self-study, although periodically they attend a face-to-face help session. After completing the program, they also can receive a diploma or a degree. The current trend indicates that distance learning will replace correspondence learning in the near future.

In summary, the predominant teaching method is the traditional classroom lecture. Recently, distance-learning programs using the Internet

and satellite technologies have become popular. However, distance learning is not the primarily format for CTE programs because this mode lacks the necessary hands-on component. The self-taught examination is a unique way to provide a postsecondary education opportunity for many people who are unable to attend a college or university; they can access higher education for personal betterment.

Student Enrollment and Services

Based on its Website, the CCI enrolls students in different levels of formal education for a variety of CTE and adult continuing education programs, including graduate, undergraduate, and certificate. The CCI provides formal education, specific training programs, and self-taught examination assistance programs for adult students using three different formats: full-time, part-time, or correspondence (now called distance learning).

Each year before summer admissions begin, the Ministry of Education decides how many students can be enrolled (admitted) by the CCI. A national plan is established based on that year's national economic situation, and the rationale that centralized control over the total number of students admitted at each institution is needed to ensure that institutions do not exceed capacity and thus jeopardize the quality of higher education. C3 explained the process.

The number for enrollment, it is decided by the Ministry of Education. Like adult education, every year, the state education administration assigns a number to you, the number of students to be recruited by your institution. All those tertiary CTE students are considered receiving a formal education and the state has a record for each student. Each year, based on the national economy, the state education

administration has a big plan, in which there is a number for regular college enrollment and a number for adult student enrollment; then they divide the number into every province, then again from the province into every institution.

When discussing the admission process, C3 mentioned a national policy that allows for exceptions to the standard process; specified minority students can have lower admission standards and some students receiving national competition awards may receive additional points. The ratio of male to female students varies in different programs, with more female students in business, medical, and management, and more male students in engineering.

All students enrolled in formal education (degree) programs must pass a national college entrance examination, of which there are two types. One is a regular examination for traditional students who just graduated from high school and is conducted in the summer. The other, conducted in the winter, is an adult examination for students who are not new high school graduates; they may be employed or not employed. These two national examinations differ in their level of difficulty and content.

The standard admission procedure for a formal education is complex, and all institutions in the country apply the same rules; however, the scores required for admission may vary, as each institution is authorized to set its own exam cut score. Students passing the regular examination in each province are divided into four groups; a special group comprises students majoring in military fields and the arts, while students in the other three groups are selected based on their examination scores. Students in the special group are selected first by military and art institutions. Students in the second group, who achieved the highest examination scores, are selected second by prestigious universities. All other four-year colleges and

universities select students in the third group who scored in middle. Then the three or four-year tertiary CTE institutes select students in the fourth group, who have lower scores.

The adult examinations have three different sets of tests based on three program options. The first, called *Zhuan Sheng Ben*, is for a student holding a diploma from a three-year institute and seeking admission to a Bachelor degree program. The second, *Gao Qi Ben*, is for a high school graduate seeking admission to a Bachelor degree program. The third, *Gao Zhi*, is for any student interested in pursuing a three or four-year tertiary CTE program to receive a diploma or a Bachelor degree. After passing the adult examination, an institution selects their applicants based on the student's examination scores. However, for some majors, such as art, sports, and police academy, the admission requirements may differ (e.g., add one special test).

C2 stated that admission processes from regular and adult examinations have negatively affected the CTE program's quality by requiring enrollment of students with relatively low scores on the entrance examination.

We used to offer the formal undergraduate education emphasizing CTE. The courses and student sources are somewhat different compared with the regular programs. The regular [higher] education students are enrolled through the regular entrance examination. The CTE used to consist of three student sources, vocational high schools, technical institutes, and worker's school affiliated with a factory. These students go through the adult entrance examination to get in our undergraduate programs, which have been run for a number of years.

They lack strong training on the fundamental courses and are weak on basic knowledge.

The CCI has two special degree programs related to training CTE teachers. The master's degree program enrolls three types of students: (a) those who have received a three year college diploma, (b) those who are currently working adults with a Bachelor's degree, and (c) those currently teaching at a mid-level CTE institute and have two years work experience. These students must pass the national entrance examination for graduate school in order to enroll in the program. The bachelor's degree program enrolls those who graduated from a mid-level CTE institute, a vocational high school, or even a college if they have three years of teaching experience. Previously the CCI enrolled students who just graduated from high school, but now the focus is on adult students. However, C1 predicted an enrollment shift would occur with much younger students being admitted into adult education programs. "If a high school student who just graduated and did not get into a college becomes a member of society, employed or not, the person could take the adult entrance examination for adult higher education or the tertiary CTE." The CCI also offers short-term CTE training certificates, such as training for principals, or teachers or administrative staff at middle level CTE schools. These certificate programs enroll students who are selected by the institute based on its own requirements.

After students have enrolled in a formal education program, each institution must register the students electronically in a Ministry of Education centralized database. C1 explained that centralized registration serves two purposes: controlling the number of enrollments and protecting the authenticity of a graduation document.

Now it is restricted by the state. If a student enrollment plan made by the state [education administration], you [institution] cannot increase or change it [the number] by yourself. You have to match up the number you enrolled with the number in the plan, then go through the local educational administration to register these students into an electronic database with the exact number. You won't be able to register more students than the plan. Even you issue a diploma to a student, if the student later cannot find the record online [from the database], no employer would recognize the diploma, rather believing it as a fake one. The electronic record proves the state recognized the student on a formal education plan and the student has gone through the examination, admissions process, and passed all requirements for graduation. You can find the information from the electronic registration Website of the Ministry of Education.

Recently the CCI has started a special program, called the 3+1 International Express Training Project, which utilizes a British Higher National Diploma (HND) system. The CCI recruits students nationwide for this program. Students are trained in China based on a whole set of British curricula, and after three years they receive a British HND certificate. Then students may continue to study for one additional year in Britain to receive a bachelor's degree and another year for a master's degree. Alternatively, students could apply to other countries for advanced study.

According to the CCI Website, students who gain admission into their CTE programs at CCI can expect to receive an overall quality education. The CCI not only stresses academic and ethical education, but also physical education, art education, labor techniques, and social practices. Students are supported in establishing many diverse organizations such as calligraphy and

painting associations, football associations, art societies, vocational advocacy groups, photography associations, and news and radio stations. Through Student Services, the CCI states that it actively promotes a variety of healthy activities for students to make them grow stronger in body and richer in mind.

Advising support comes from three sources: faculty members, class directors, and political advisors. Academic advising and counseling services are provided by faculty members for course related issues and class directors for general educational issues. Political advisors assist with social and campus survival skills, such as how to make friends, and how to manage time. At the CCI, the Student Management Center is under the Student Affairs Office of the University. The center fulfills six functions: (a) provides student ethics education and national defense education; (b) guides student organizations including the student Party branch and Youth group; (c) maintains order in the dormitory; (d) builds a channel of communication between students and administrative offices and helps students solve problems; (e) coordinates students' extracurricular activities; and (f) provides psychological counseling services.

The Center for Student Work Study and Assistance also is under the Student Affairs Office of the University. This center provides assistance for students who need financial aid, emergency help, tutors, and work and research opportunities on campus. In addition, the Center helps with market surveys, product development, and promotional opportunities outside of the campus.

After students finish their programs, the most important goal is to help them find a job; therefore, the Student Career Center provides services to all students. The Center's Website shows that it offers pre-employment courses,

online occupational evaluation surveys, and career counseling sessions. The Center also collects job and advanced education information, provides job search information, and helps employers to organize job fairs. The employers may come from local or national enterprises, or government agencies. In addition, the Center actively contacts the employers to build bridges between students and the companies, and strives to establish student internship opportunities with industries.

The Career Center also provides guidance to a student association for career assistance and development. This association assists the Center by building a direct channel between the Center and students. Moreover, the association motivates student involvement, promotes career ideas, organizes activities, and improves the employment rate. At the same time, students gain important skills such as the ability to organize projects, develop interpersonal relationships, coordinate activities, and apply creativity to problem solving.

C2 explained that CCI also helps students to find jobs in a variety of ways.

We now have multiple channels. One is through job fairs organized by the CCI, they attract a lot of employers from the local area and allow our students to be recruited right at the fair. Another channel is through relatives and personal connections for job information and hiring. We can also use the Internet to post students' profiles for employer feedback.

Although the CCI would like to establish internships that could help students to form a relationship with industries, this is very difficult to implement because the industries are not receptive to the idea, and only rarely are proper internships available. Sometimes the CCI must pay a fee

just to allow students a visit to an industry site. C2 explained the current situation regarding student interns and practices in industry.

It is very passive, CTE in our country now. Especially with hands-on practice, industries are supposed to help, but industries have no motivation to do it. Some managers of industries may understand the importance of hands-on practice for students, [but] a lot more managers do not even bother to think about it. We have to work so hard to convince the managers to accept our students, but students are only allowed visiting the site. Students want actual hands-on experience, this is even more difficult [to obtain].

C3 also explained the difficulty of setting up internships. Fees and personal connections are needed to gain permission to visit the job site.

Industries generally do not welcome students to their place. The industries want to avoid trouble. Sometimes, institutes have to pay a fee for a visit. Sometimes, without a personal connection with them, the industries won't accept any student visitation. Even if students go there, they are not allowed to operate any machinery because of worry about mistakes and general distrust.

In summary, the CCI must follow the national policy and plan for enrolling students in all formal education programs, but the Institute has some flexibility in enrolling students for short-term training. The Student Services system is well established in the University and the CCI; students receive holistic services and guidance. The CCI has a strong management team in Student Affairs and maintains an orderly environment on the campus. Career services appear to be efficient in assisting students and facilitating connections with employers.

Strengths and Challenges of the CTE Programs

Strengths of the CTE Programs

The director of the CCI stressed that managing a tertiary CTE institution has changed over the last few years. The state government has paid much more attention to CTE including new policies and increased funding. In 2005, the State Council of China released a document titled *A Decision of Strongly Developing Vocational Education*, which identified nine major tasks and an action plan comprising 30 strategies. This document sent a strong signal that the state government was taking action on vocational education reform. C1 said, “The national government supports [CTE] on policy including funding toward CTE. The national government promotes the development of CTE.” During a separate conversation, C1 mentioned that the CCI received special funding for a CTE teacher training program. C2 also indicated the time is right to reform CTE and the CCI has a key role to play through the CTE teacher training:

In the recent few years, the national government has realized the importance of CTE for economic development. Especially after 2000, the national government has emphasized the CTE teacher’s training. This is a foundation for the quality of CTE. We are the national base of CTE teachers’ training.

The CCI has a rich source of faculty and facilities from the University, a tradition of emphasizing the quality of teaching, and a complete set of management rules and regulations. Also, the CCI has received many national honors regarding adult education.

Local employers welcome the CCI CTE graduates, and a few large national corporations like to hire students who have graduated from the CTE teacher’s program. C2 explained that students who complete the CTE

program become valued professionals who can outperform regular college students in applying practical skills.

Those students have some weaknesses, and are not strong on the fundamental courses. But, they are strong on the hands-on capability, and like the CTE program. Although at the freshman year level their academic scores are low compared with the students in the regular programs, they have shown unique advantages after graduation. I have noticed, in a couple of years, large national corporations have employed many of our graduates. The advantage of those students is that they are more familiar with their profession, are able to work hands-on with the real project right away. Even competing with other regular college graduates, those students are preferentially hired.

In summary, the CCI has a number of strong CTE programs in the region, which have attracted many students in computer sciences, business administration, economic management, accounting, and nursing programs. And as stated by C3, “The CCI has a good tradition of paying attention to educational quality, a clear vision of education, and a complete management system.”

Impact of Globalization on CTE

Globalization has impacts on human resources, and CTE provides students and the country with sustainable human development and global mobility in the workforce. C1 clearly understood the impact of globalization and felt the pressure for reforming CTE.

I think globalization has affected human resources, it has become globalized. [The workforce moves around the world,] so that higher education has to change the system in many ways to attract capable

people. Unfortunately, [we have] lost many capable people overseas, which forces the higher education system to reform.

The CCI has been active in establishing relationships with a number of foreign counterparts during recent years; the administrators like to dialogue with foreigners, and apply new ideas to improve the CTE programs. C1 said, “In order to reach the international level in the operation of education, the development of programs, and research areas, first thing is to dialogue, then exchange ideas, then again gradually improve ourselves.”

The CCI places emphasis on international academic exchange. For example, the CCI has been editing and publishing a magazine called *The World Vocational and Technical Education Magazine*, which is described by the C2 as “a window to the world” in keeping track of the current trends in career and technical education. Also, in recent years, the CCI has sent scholars to visit many countries for academic exchange programs, and received many higher education delegations from overseas institutions such as the USA, Japan, New Zealand, Canada, and South Africa.

C2 thought the impact of globalization on CTE is evident in the way that globalization has gradually changed people’s perception of CTE. People now are paying more attention to CTE due to the influences of a market economy and connections with international higher education. C2 explained the impact:

“It is obvious and profound. Along with the development of economy and changes all over the world, this impact is great. People gradually change their preconceptions and pay more attention to CTE. This change starts from the government then spreads to the ordinary people. CTE used to be considered as a lower level [of education] and not the mainstream. Now people’s perceptions are slowly changing,

although it takes long time. Recent years, the changes have been fast and big.

C1 expressed a different point of view and thought that globalization has infused a market economy atmosphere into China's context through competition.

In China, the poorer the region is, the narrower the vision of local officials is. Why is that? Because there is no market [economy], the officials control the resources based on their administrative authority. Now under market economy, the needs are affected by the market; it allows competition naturally. The good ones survive and the weak ones lose. [Globalization] brings the big [market economy] atmosphere, it affects an entire region.

C3 also thought the impact of globalization has been enormous and education now is entering the market, especially CTE. When applying to CTE programs, student choice is now influenced by market trends. Therefore, while setting up a program, the CCI must consider the demands of the market and later employment.

In summary, globalization is having a major effect on CTE programs in China. According to this study's participants and the scholars cited in chapter 2, a large number of foreign investors are operating in China and there is a high demand for capable workers. This situation requires that CTE programs be designed to meet evolving market demands. Students now are following market trends and choosing programs that have a high probability of leading them to a good job.

Challenges Facing the CTE Programs

Improving the quality of CTE and changing people's perception. One difficult challenge that CTE programs face is lack of respect by the public.

Although progress has been made over the past few years, CTE still is considered to be at the lowest level in higher education. C1 said, “The biggest obstacle or bottleneck is the people’s perception of CTE, because action always follows thought.” This perception has affected students and their parents who are less interested in CTE than traditional academic universities. Also, CTE teachers are not as proud of their profession when compared to those who work in regular higher education institutions. C1 explained the situation:

The tertiary CTE has long been considered as a junior level or a tertiary vocational education. [Some of the CTE institutes have never been in the higher education level]. Besides, the national entrance examination and college admission processes have divided students into two levels, as a normal university and a tertiary vocational institute. Most of these institutes are established by using local and community funds. Many of the tertiary vocational institutes are now funded by non-government organizations. Those institutes start from preparing students for self-taught examinations and then gradually provide the tertiary CTE programs. After an accreditation evaluation process, some of those institutes reached a college status, and then recruit undergraduate students. Those institutes have two student recruitment plans for a regular undergraduate education and a tertiary vocational education.

To change people’s perception of CTE, C1 stressed that improving the quality of CTE programs is the primary task and producing high quality CTE graduates is essential.

The government has leaned toward CTE. Based on the support from the government and the social acceptance of our graduates by natural

competition of the market economy, it seems people will change their minds and perceptions. Now the new question is how to improve the quality of the tertiary CTE? The real measurement is the quality. It is not changing the direction, but the quality. It is the key issue, in terms of if your graduates could truly meet the requirements of industries and society. In another word, after graduation, the students could immediately join the workforce and work hands-on in the field. That is the core issue. For instance, if a more skillful student, who graduated from a tertiary CTE program could receive higher income than a regular college graduate, we would be able to change the [perception] of the tertiary CTE.

C2 also mentioned how people's traditional thought that "an excellent learner should become a leader" has affected millions and millions of people. People think that regular higher education, not CTE, trains excellent learners thus every student and their parents want to pursue regular higher education. This line of thought has constrained the development of CTE and misled higher education in focusing more on knowledge and theory and less on experience and practice, which also negatively affects economic development in terms of workforce training. C2 discussed the traditional way of thinking.

Everyone's thought in the country is "an excellent learner should become a leader." Is it right? That is talking about the regular education from primary school to middle and high school, then college and university. That's the people's pursuit. In reality, people have improved their culture and academic quality and increased their knowledge through regular education. So from the view of spreading education, it is good. However, from the educational viewpoint, the

aim of regular education leans on the theory, while the real world experience and practicality are getting weaker. But people hold the traditional perception very strongly, focusing more on knowledge and theory. They feel better and that their social status is higher. If you trained in CTE, they feel technique-based learning is lower status. From this point of view, our country and its culture have a lack of something...It has restricted developments of our country and also our economy.

C2, who is the chief editor of *The World Vocational and Technical Education Magazine*, has some knowledge of global vocational education, and thought that foreign CTE was doing a much better job than China. C2 continued to compare the perception of people toward CTE with foreign counterparts and explained that Chinese students who enter CTE have no other choices if they want to attend a college.

I think our CTE compared with international CTE...Germany is doing better. Our vocational educational students are ordinary high school graduates. They first apply to a regular higher educational institution. If they could not get in, then they could only pick a tertiary CTE institute... I think overseas, people treat CTE more fairly than us. I read a report that regular college graduates may have some difficulties in finding jobs than CTE graduates. Some college graduates even take CTE courses or programs.

Establishing an accreditation system and treating tertiary CTE fairly. Another challenge is tertiary CTE's position. How should tertiary CTE be defined in the higher educational system? For historical reasons, the majority of tertiary CTE institutes have developed out of lower status schools and institutes, and no clear definition of tertiary CTE has emerged. Also, an

appropriate accreditation system to evaluate the tertiary CTE institutions has not been established. The fact that most government regulations refer to regular higher education contributes to confusion for the people who work in tertiary CTE and reinforces the poor image that challenges CTE development. C2 is concerned about the low status of CTE compared with the same level of regular higher education.

I think the CTE and regular education should be different including the evaluation standards. We run the CTE programs in a regular higher education environment. How do you evaluate CTE? If using regular education standards to treat CTE, we have lot of confusions and difficulties. For instance, the standards for recruiting students are different between regular higher education and the tertiary CTE. Because of different views in the University, we had to cancel a teacher training program for a couple years. In another instance, the graduates from the teacher training program did not want go to the secondary CTE institutes because of the status of those institutes and lower associated incomes compared with the same level of regular education institutes.

C3 pointed out that the evaluation of CTE is not strict or comprehensive under the current system. Also, adult education and CTE are treated equally and some areas overlap thus creating confusion. C3 explained this situation.

Because adult education and CTE are now treated as equal and overlapped. It's suppose to be that adult education recruited adult students who are already employed and CTE recruited students who should be middle or high school graduates. Now it is a mixed situation in terms of students being adults and also traditional younger students

in either education field. So when you discuss CTE, you should include the adult students or vice versa, it is [confusing]. For instance, when students graduate, should we provide an employment service? According to adult educational rules, No. Actually, there are a lot of students without previous jobs. You should assist them in a job search.

Reforming current tertiary CTE programs and emphasizing practical skill sets. Currently, most of the tertiary CTE programs are similar to the regular higher education programs, thus they are actually not tertiary career and technical education. C1 used a popular Chinese phrase to describe the situation: “*Gao Er Bu Shi* [It is higher but not worth it].” C1 meant that tertiary CTE programs are at the level of a higher education, but the CTE content is not focused on real world experience and hands-on practice; therefore, tertiary CTE is not worth the value of true practical career and technical education. C1 said:

At the current university system in the country, there is no place for the tertiary CTE. We have never set up a correct concept of CTE. Second, at past we always followed the way regular higher education goes to focus on the knowledge transition, not the skills training. So the experiments and laboratory are not adequately provided. Although it is called the tertiary CTE, we trim and compress the regular higher educational programs [for the tertiary CTE programs]. So that we say that *Gao Er Bu Shi* it is higher, which means the contents and knowledge of the programs are at higher educational level, but it never strengthens the capability of skills training.

C3 complained that CTE and adult education simply copy the programs directly from the University. Therefore, the curricula have no specific components of CTE or adult education.

My impression is that [CTE and adult education] are affiliated with the University. So programs on this side, some of them are copied from the four-year undergraduate programs of the University. This is a common problem among CTE around the country. So from designing the CTE plan, organizing, and conducting the teaching, I think there is a difference to the initial idea of CTE [the real CTE programs].

Investing more funding for equipment and laboratories. In order to emphasize hands-on experience and practical skills in CTE programs, adequate laboratories and equipment are essential to giving students an opportunity to practice in real world situations. Although the government encourages industry to provide places for practice, in reality almost nothing has been accomplished in this area. C2 described the difficulty.

Industry is very passive on the issue. Our CTE, especially the real operational skills training should go through the industry, but unfortunately, industry has no motivation to do so. Even when students get there, they basically just to watch as visitors. It is very difficult to allow for hands-on experience.

To change the industry's attitude toward allowing students to practice on site will take a long time, or this may not ever happen. As mentioned previously by C3, an institute needs to pay the industry a fee just to get permission for a site visit. Yet for programs such as Automotive Service Technology and Manufacturing Technology, industries are essential places for practice, rather than trying to find large amounts of funding to build

specialized labs and practice places. Consequently, the CCI knows that it must continue to seek industry cooperation in providing student practice opportunities.

Creating new courses and updating old courses to address changes in the economy. Because faculty members have no incentive or requirement to create new courses, the current courses and curricula may have been running for many years without changes or updates. The content of courses may have become distant from the reality and be out of date. C1 discussed reasons for not updating curriculum.

At the current situation, some teachers do not support [creating new courses]. Why not? They are used to an old course, easy to prepare it. This is related with the faculty evaluation system, in which seniority is the key component. If I have taught this course with undergraduates, and now teaching CTE students, using the same course material without any change, is very easy. If to create a new course I have to spend much more time, I won't. This is a systemic problem. So the institution has to change the system and regulations in order to improve the quality of education. For instance, requiring new course development for each faculty member and setting up incentive mechanisms to encourage faculty. Students and society will also recognize this.

In brief, the CCI is facing some major challenges in developing programs that match the demands of the labor market, and several of the issues are systemic. The study's participants expressed the difficulty of being pushed forward by forces of globalization while being held back by traditional paradigms within society and postsecondary education.

Summary

The CCI is a subsidiary organization affiliated with a large university in the Northwestern region of China and has provided adult education and career and technical education for about 50 years. It takes advantage of rich resources from the University in faculty and facilities to offer a variety of CTE programs in many formats. The University's reputation and tradition have helped in recruiting students, and the CCI's strongest CTE programs in this region have assisted students in finding jobs.

The impact of globalization on the CCI was clearly described by study participants. There are a large number of foreign invested companies in the region and the CTE programs must provide capable and skillful workers to meet the related job market demands. Thus, the forces of globalization are pressuring the CCI to redesign its programs to match the changes in the market. Also, according to participant interviews, there are at least five major challenges ahead that the government, CTE programs, and the CCI must address: (a) improving the quality of CTE and changing the public's perception; (b) establishing an accreditation system and treating Tertiary CTE fairly; (c) reforming the current tertiary CTE programs and emphasizing practical skill sets; (d) investing more funding for equipment and laboratories, while continuing to pursue practice opportunities in industry; and (e) creating new courses and updating old courses to better articulate with the demands of the changing economy and labor market.

CHAPTER 6

CROSS-CASE ANALYSIS

The chapter begins with a comparison of contextual factors that affect postsecondary education in the U.S. and China. Following this examination of context, a cross-case analysis is conducted to address Research Question 5: What similarities and differences exist in the CTE programs operated by a US community college and a comparable Chinese institution? As stated by Creswell (2007), a cross-case analysis involves “a thematic analysis across the cases” (p. 75), thus key findings from chapters 4 and 5 provide the foundation for comparisons.

A Comparison of Contextual Factors

Contextual factors that influence educational policy-making, public perceptions, and methods of teaching and learning emanate from five areas: philosophical and cultural traditions, economics, politics, and functional systems. Comparing and contrasting these factors between China and the US facilitates comprehension of (a) basic principles that guide decision-making, (b) traditions that influence people’s perceptions, and (c) approaches that shape CTE education.

Philosophical – Confucian versus Western

Chinese philosophy is a complex system and has been heavily influenced by Confucian thought, which has two core ideas. First, people should respect and obey officials and learn to become officials. This idea has resulted in the value system of *Guan Ben Wei*—official centered. Second, officials should control resources, manage society, and rule the people. This idea has led to another value system, *Ren Zhi*—ruled by man rather than by law (Hudong, n.d.). Chinese education philosophy has traditionally maintained that a man is supposed to become an official through learning in

order to be successful. In contrast, as explained by Bibkova and Kotelnikov (2007), Western philosophy emphasizes that success and happiness can be achieved in many different ways through active outside interventions, such as money, faith, and popularity. Typically, a Western education system trains a person to develop competition and survival skills in order to be successful. Bibkova and Kotelnikov (2007) also point out that while Eastern philosophies stress group effort, the West stresses personal effort.

A human being [of Eastern origin] is an integral part of the universe and the society. People are fundamentally connected and duty towards all others is a very serious matter. Collectivism is strong...A human being [of Western origin] has an individualistic nature, is an independent part of the universe and the society. Individualism is stronger. (Bibkova & Kotelnikov, 2007, p. 1)

Based on centuries of Confucian thought, Chinese people are philosophically “official centered” and this has a substantial effect on education. Students strive for admission to higher education programs that will enable them to become government officials, and Chinese parents particularly want their children to follow this path. Consequently, students and parents are not satisfied with vocational and technical programs; most people would not think that learning to be a technician is a desirable career option. By contrast, Western philosophy is more concerned with finding a job with opportunities for upward mobility and increased income. Students often select their education programs, whether in liberal arts or technical education, based on getting a job that enables them to make a good living and be satisfied. To be a government official is not a shared aspiration among most students in the West.

Cultural – Chinese versus American

Chinese culture emphasizes harmony, mean, and peace in the relationships among nature, society, and people. The culture stresses that people should keep in harmony with nature, to adapt and fit in; keep their temper to avoid a fight, or opposition; and promote peace in managing conflict and maintain a peaceful society (Hong, 2009). American culture emphasizes individualism and competition based on self-reliance and self-promotion thus “truth” is pursued through confrontation and discussion of controversial topics; the role of laws, rules and regulations takes precedence over relationships. The American’s competitive nature and strong desire to ensure individual freedom allows everyone to pursue their potential and achieve success through their own career paths (NAFSA & AIEF, n. d.).

Chinese cultural tradition has a long history and the core characteristics of mean and harmony affect education in many positive and negative ways. For example, a Chinese student choosing a major often is influenced by their teachers and parents, who may say: “You should do this or do that in order to fit into a popular trend.” By contrast, American students often are independent; they want to pursue their own goals and what seems to best fit their interests.

Economic – Socialist Market versus Free Market

China’s economy, described as a socialist market economy with Chinese characteristics (CMES, 2008; Ollman, 1999), has been gradually established over the past 30 years as a market economic model under central government guidance (Zou & Ouyang, 2009). China’s economy can be characterized in five areas: (a) ownership, (b) income, (c) management, (d) globalization, and (e) relationship between state and provincial governments. First, the state government owns and primarily controls the large

corporations that relate to national defense and natural resources. Other types of ownership include small businesses, joint-ventures, and independent foreign companies that are owned by a group of people, organizations, or private individuals. The private sector has been increasing gradually. Second, individual income, in principle, is primarily based on the person's work effort or position, as these factors are considered measures of the individual's contribution. Other factors that could affect income are the types of work and occupation (e.g., a doctor, a police officer, or a teacher). In recent years, with increased privatization, income is more linked to the market, and the difference of incomes among people has increased. Third, management focuses on balancing long-term versus short-term interests, while also leveraging advantages of both the government planned and market economy. Fourth, the economic system not only participates in global competition, but also focuses on its own domestic market development. Moreover, the economic model is based on guidance from the central government, which shares power and resources with local provincial governments (Zou & Ouyang, 2009).

The US has a capitalist, market-oriented, mixed economy, in which private individuals and business firms make major decision about what products to make and to sell. Almost two-thirds of the nation's total economic output goes to individuals for personal use and the remaining one-third is bought by government and business. The federal and local governments buy needed goods and services predominantly in the private marketplace and play less of a role in planning based on the premise that private ownership is likely to operate more efficiently than businesses with substantial government ownership (CIA, 2010; Conte & Kerr, 2008; Gutek, 2006).

Conte and Kerr (2008) and Ollman (1999) characterize the US market economy in relation to freedom of production, choices in consumption, and mechanisms of the market. First, individuals are free to purchase any product they like and can pay for; produce almost any product and maximize the profit of the product; work hard to earn their income; and undertake risks and receive the rewards of competition. Second, individuals can help guide the economy not only through the choices they make as consumers but through the votes they cast for officials who shape economic policy. Third, supply and demand determine the prices of goods and services. If people want more of a particular good than the economy is producing, the price of the good rises. The price catches the attention of new or other companies that, sensing an opportunity to earn profits, start producing more of that good. If people want less of the good, prices fall and less competitive producers either go out of business or start producing different goods. Individuals can establish a unique price determined by demand and supply, and quickly acquire the technical and social skills and knowledge needed to function in this economy.

A major difference between the Chinese and US economies is in where the two countries are located along what might be conceptualized as a continuum between socialism on one end and capitalism on the other. Globalization has blurred lines between extreme positions, particularly in national economies. China's blended economic system creates some conditions that negatively affect the quality of higher education programs and enrollment. As mentioned by Associate Dean C2, when market demand increased for a certain skill in the workforce, state owned and private higher education institutions rushed to offer related programs in order to benefit from the income. Subsequently, the state and provincial government

stepped-in to regain control because of poor quality in many programs and overproduction. Now, programs must be approved and enrollment numbers are issued by the government. The US postsecondary education system follows market demand through competition. The federal and state governments do not directly control new programs and enrollment. US institutions have substantial autonomy and community colleges are particularly agile in establishing programs or training based on market needs. As Associate Dean A1 mentioned, the market needs more energy efficient technology now, and the USCC can create the “green” programs rapidly to meet the needs, such as wind and solar energy programs.

Political – One Party versus Two Parties

The political system in China is based on multi-party cooperation and political consultation under the leadership of the Communist Party of China (CPC). The CPC and the democratic parties are equal under the Constitution, but politically the democratic parties are subject to the leadership of the CPC. A consensus on socialism is the political foundation of the multi-party cooperation structure, which is described as a unique political system called democratic centralism, suitable for the most populated country in the world (China Factfile, 2009a).

The US system is described as a democratic-republic in which the people directly, or indirectly through representatives, take part in governing. American politics has been dominated by two major parties. The Democratic Party tends to support a large federal role in education, while the Republican Party traditionally favors a more limited federal role (Guterk, 2006). Minor parties are allowed to participate in the elections but generally do not have sufficient support to be successful. Representatives of the two parties play a significant role in deciding which values will be promoted and enforced by

the government through the legislative and budgetary processes. The president may be from either party, and is selected by citizens through a national competitive election process (Wilson & DiIulio, 1995).

Political parties influence higher education through policy, regulation, and appropriation of funding. China's political system is manifested in higher education through the Communist Party's control of all institutions. As explained by participants in this study, the Party committee determines every major policy and every leadership decision regarding human resources. For example, if the Party committee members have a conflict that affects the committee's operation, the upper committee could remove one or more members. This instant power can be efficient in solving some problems. In the US, postsecondary education is basically the responsibility of state government and each institution is governed by a board of trustees. In the case of community colleges, the board members are often elected by the local community, and if the board members have a conflict that affects the operation of the board, removal of a member would usually have to wait until the next election. Thus, in the US, some governance decisions could take longer than in China's Party controlled system, but the local control of US community colleges can expedite other types of decisions, such as those involving budgeting, enrollments, and hiring.

Functional – Centralized System versus Decentralized System

China has a centralized governmental system. The National People's Congress is an organizational form for the state power in China. State administrative, judicial, and procuratorial organizations are created by, responsible to, and supervised by The People's Congress, which operates under the Communist Party's guidance (China Factfile, 2009b). The State Council, or the Central Government, is the executive body and the state

administration, exercising unified leadership over local administration at various levels throughout the country, and regulating the specific ministries and functions at the central, provincial, autonomous regional, and municipal levels. This system enables leadership of the central government to concentrate on dealing with national affairs, while allowing lower levels of government to actively handle local matters (China Factfile, 2009c).

The United States has a presidential, federal republic system. The US constitution divides governmental powers between the central and state governments (Burns, Peltason, Cronin, & Magleby, 1997). The central government is referred to as the Federal Government and is structured by three main branches: Legislative Branch, Executive Branch, and Judicial Branch. The three branches share powers reserved for the national government, and the federal government shares sovereignty with the state governments. Since 1980, there has been a federal Department of Education with a secretary of education who is responsible for the administration of federal programs related to education through federal funds (Guttek, 2006). In brief, the US has a decentralized system, in which many functions of the central government, such as education, have been handed over to state and local government organizations, and the private sector (e.g., private colleges).

China's centralized government system controls not only all major industries, but also major cultural and educational institutions. Typically, the Ministry of Education and other ministries control higher education institutions that are directly associated with the particular ministry. For example, the Ministry of Health directly controls a major medical university. By contrast, in the US government system education is run by the state governments. Typically, US postsecondary education is mainly influenced

by state funds provided to public institutions; however, the federal government provides financial aid to students attending both public and private postsecondary institutions.

Cross-Case Analysis of Institutional Strategies and CTE

The previous two chapters presented analyses of CTE programs within two separate case studies. In this chapter, a cross-case comparative method is used to further analyze characteristics of the two CTE programs. The first four research questions are reviewed by presenting key points in tables that facilitate the cross-case comparison. These points are then further compared to draw out the similarities and the differences that address Research Question 5: What similarities and differences exist in the CTE programs operated by a US community college and a comparable Chinese institution?

Similarities and Differences in Organization and Operation

Table 6.1 shows the main characteristics of each institution's organization and operation under four categories: steering committee, administration, academic structure, and services structure. These characteristics relate to Research *Question 1*: How are the CTE programs organized and operated in a US community college and a comparable Chinese Institution?

Similarities. The organizational structures of the case institutions are comparable in four areas. First, the steering committees are similar. At the institutional level, the USCC has a board of trustees comprising members elected by the local constituencies. The CCI has a Communist Party committee with members elected by the Party members in the institution. Second, a similarity exists in the administration of the institution, with the

USCC having the presidential cabinet, and the CCI having the Presidential Meeting.

Table 6.1

Organization and Operation

Category	USCC	CCI
Steering Committee	The College Board of Trustees	The University Party Committee
Administration	The President's Cabinet	Presidential Meeting
Academic Structure	Academic Affairs	The Educational Group
Services Structure	Student Affairs	Student Management Center

Although the names are different, the members in both groups have similar positions in the respective institutions, and are responsible to the Board of Trustees and the Party Committee respectively. Third, in the academic structure, the USCC has Academic Affairs and the CCI has the Educational Group; both entities are in charge of CTE and manage the CTE programs through their teaching divisions or functional institutes. Fourth, in the student services structure, the USCC has the Students Affairs area, and the CCI has the Student Management Center; both areas provide a variety of services for all students through institutional units and internal organizations.

Differences. Although there are similarities in the organizational structures, operations within the structures are different in four areas: steering committee, administration, academic affairs, and student affairs. First, at USCC, the Board of Trustees is an independent entity and responsible to its constituents. Members of the Board are elected from the local district and any citizen in the district could be a candidate who represents a certain citizen interest group. The election is a public event and all residents in the district, who are US citizens can vote. At CCI, the Party Committee is a subordinate branch and reports to the upper committee of the provincial education administration. Members of the Party Committee are elected by University Party members (not every citizen or university employee is allowed to be a Party member), or appointed by the upper committee. Because the selection or election is a restricted activity, Committee members represent the Party organization.

Second, at USCC, the president is in charge of the operation of the institution. Members of the presidential cabinet are appointed by the president, approved by the Board, and are responsible to the president. At CCI, the members of the Presidential Meeting are appointed by the upper-level of the Party committee for top-level members, and the same level of the Party committee for middle-level members. The Presidential Meeting is responsible to the Party committee. Third, at USCC, Academic Affairs is clearly focused on CTE and all other programs as the first priority, while at CCI, the University Academic Affairs treats CTE as secondary programs. Fourth, at USCC, Student Affairs emphasizes functions such as advising and counseling services, financial aid, and athletic teams. At CCI, the Student Management Center provides a variety of services, academic and non-

academic, and all services are under the Party’s supervision through the class directors and political advisors.

Similarities and Differences in Mission and Purposes

Table 6.2 shows the mission and purposes of CTE programs at the case institutions. These characteristics emerged from the findings that addressed *Research Question 1*.

Table 6.2

Mission of the Institution and Purposes of CTE Programs

Category	USCC	CCI
Mission	The College is to be at the forefront of higher education, serving the needs of the community. It will be the first place residents turn to for the highest quality education and cultural opportunities, and it will serve as a model of distinction for community college education.	The University will keep a high level of tradition and standards, build a strong foundation, emphasize practice, pursue truths, focus on students, improve teaching quality, standardize management system, and build a high level university in the world.
CTE purposes	To support the college’s mission and goals, especially in preparing students for entry into the job market, and giving them a firm	With support from the University resources, provides vocational and technical education, adult education, continuing education, and

academic base for continuing higher education self-taught
their education. examination preparation.

- Provide a career path for graduating high school students into the job market;
- Update the members of the community thus ensuring that they are knowledgeable, skillful, and current in the technology of their chosen field; and
- Retrain members of the community who are unemployed or want to change their career.
- Provide higher education and trainings to adult students and enable them to apply their skills to the demands of the local job market;
- Train students so that they can work in a real world situation; and
- Provide lifelong educational opportunities for the local citizens.

Similarities. At one level, both institutions generally have a similar mission and an ambitious goal to become one of the top higher educational institutions in the field. The main purpose of CTE programs is basically the same in preparing students through education and training to become competent workers and meet the demands of the local job market. CTE also

provides continuing education opportunities to citizens for updating their knowledge and technology skills for lifelong learning.

Differences. At a more specific institutional level, each case has a different mission and goals. The USCC aims to be one of the best community colleges in the country and provide higher education for all, but the CCI aims to be one of the best institutions in the world and provide higher education for a select group. Thus the purposes of CTE are affected by the institution's goals and three differences are revealed by comparative analysis of the cases. First, at the USCC, CTE provides a pathway for high school graduates; at the CCI, CTE provides training for adult students, not high school students immediately after graduation. Second, the USCC provides training programs for employed and unemployed adults to upgrade and update their knowledge and skills; the CCI provides training programs for unemployed adults to prepare them for the job market. Third, at USCC, learning provides an opportunity for adult students to upgrade their technical skills, pursue a new career, and improve their living standard; at the CCI, learning is a tool for students to find a job and earn a living, not for changing their career.

Similarities and Differences in Decision-Making Processes

Table 6.3 summarizes the decision-making procedures for establishing a new program by addressing three questions: Who has the right to propose the idea; who is responsible for making a program proposal; and what is the approval process? Decision-making was addressed in the findings of Research *Question 2*: What administrative decision-making processes are used by the US and Chinese institutions when establishing a new CTE program?

Similarities. In order to create a new program, the initial idea is crucial. Participants at both institutions indicated that ideas primarily come from demands of the local job market, and also suggestions from top and mid level administrators at the institution. Of particular importance is that new programs meet job market demands, so the workforce can adapt to changes in the local economy. As shown in Table 6.3, although the processes of initiating a proposal are different in the case institutions, the approval processes basically go through the same steps, except the final step in which USCC changes are approved at the state level and CCI change approval must be finalized by the national Ministry.

Differences. As a result of functional differences, initiating a new program can be contrasted in the two cases. At the USCC, faculty members commonly initiate a proposal; however, the suggestion could come from many sources. Typically, the advisory committee is one of the most important sources for suggestions, and the committee's agreement is required as part of the approval process for a new program. As mentioned in chapter 4, the committee members come from the frontline of industry and they have firsthand knowledge of the market needs through their work experience. Also, some members come from headhunter services and know what kinds of skill sets industries are seeking. These members bring in the latest ideas regarding demands of the local job market and job qualification requirements. The committee members' collective knowledge is a positive characteristic of the process for creating new programs. Administrators and students, especially working adult students, also can provide valuable suggestions for new programs. Importantly, innovation is encouraged, and creating new programs and courses is considered to be a faculty responsibility, although funding may be limited.

Table 6.3

Decision-Making for a New Program

Category	USCC	CCI
Source of the idea	<ul style="list-style-type: none"> • Faculty • Advisory Committee • Job Market Demands • Administrator • Student Requests 	<ul style="list-style-type: none"> • Teaching Research Unit • Administrator • Job Market Demands
Proposal initiator	<ul style="list-style-type: none"> • Faculty 	<ul style="list-style-type: none"> • Teaching Research Unit
Process of approval	<ul style="list-style-type: none"> • Discipline faculty • Division Curriculum Committee • College Curriculum Committee • State Education Board 	<ul style="list-style-type: none"> • Instructional Committee • Institutional Expert Committee • Presidential Meeting • A Committee affiliated with the Ministry of Education

The approval process for a new program normally takes about six months; however, in the interim, faculty may run a new course in a pilot model without formal approval, thus enabling USCC to respond rapidly in addressing local demands.

At the CCI, the teaching research unit in each institute is the main source for new program proposals. The unit consists primarily of faculty, but also some administrators, and its main objective is teaching. The unit collects data on the job market and gathers feedback from employers during graduation time. Consequently, a new program, starting from the suggestion, to making a proposal, and going through the approval process, would be at least one year behind the current needs. Faculty members seldom initiate new programs, as this would require doing new course preparations. In fact, the CCI is encouraged to adapt curriculum from the University rather than initiate new programs thus there is no incentive for innovation.

Cross-Case Analysis of CTE Program Planning Processes

Research Question 3 asked how each institution plans for a CTE program in relation to financial support, teacher preparation, and student services. However, to strengthen this comparative analysis and cast further light on the potential for transferring procedures and practices, the researcher explored two additional areas--curriculum development and teaching methods. Therefore, this section discusses five rather than three areas related to Research Question 3.

Similarities and Differences in Financial Support

Table 6.4 summarizes the major funding streams that provide financial support for CTE programs at the case study institutions.

Similarities. Both institutions support CTE programs primarily through tuition and a small amount of special funds and grants from the

government. Therefore, they tend to increase tuition to cover the shortage of general funding. A large project or capital budget increase needs government investment or other sources.

Table 6.4

Financial Support

USCC	CCI
<ul style="list-style-type: none"> • Local Tax and State Appropriation • State and Federal Grants • Tuition and Fees • Private Donations • Bonds 	<ul style="list-style-type: none"> • Tuition • State Specialized Funds

Differences. At the USCC, tax revenue is used to provide a relatively large portion of general funding for the institution. In the last decade, but particularly since the recession started in 2008, state budget cuts have affected most public postsecondary education institutions. According to A2, private donations also have declined. Tuition and fees comprise almost 40% of USCC’s funding, and the trend is toward continued tuition increases to make up for shortfalls in state and local appropriations.. However, the community has shown support for the USCC and its CTE programs by approving bonds that enabled constructed of two new buildings.

Although not shown in Table 6.4, the CCI receives indirect support for capital investment from the affiliated University, which allows the CCI to use university facilities and laboratories. Therefore, tuition provides 100%

of the revenue to cover general operating costs such as employee salaries. Occasionally, the government provides some specially designated funding to support a particular CTE training program, such as CTE teachers' training.

Similarities and Differences in Teacher Preparation

Table 6.5 shows primary factors summarized from each case study regarding teacher preparation for a CTE program including recruitment, training, and the ratio of part-time to full-time instructors.

Table 6.5

Teacher Preparation

USCC	CCI
<ul style="list-style-type: none"> • Full-time Position: Need-based • Requirement: Master's Degree, Otherwise specific experience • Faculty Sources: Mainly external • Ratio of Full-time/Part-time: 50/50 • Updated Training: Individual 	<ul style="list-style-type: none"> • Full-time Position: Fixed • Requirement: Doctoral and "dual experts" • Faculty Sources: Mainly internal • Ratio of Full-time/Part-time: 10/90 • Updated Training: Individual

Similarities. Although there is a difference in requirements for educational background, both institutions want to hire faculty with a certain degree and real world experience; the instructor should bring both knowledge and experience to the students. However, both institutions face challenges in trying to hire faculty having extensive work experience. At the

USCC, attracting faculty with extensive experience is difficult because the USCC cannot compete with industry salaries. At the CCI, few faculty members come from industry and many come from the University. The faculty's knowledge is more theoretical than applied, thus both institutions encourage their faculty to pursue updated training through individual effort.

Differences. At the USCC, establishment of a new full-time faculty position is based on program growth; therefore, the number of faculty positions is dynamically adjusted by student enrollment. However, part-time faculty who are experts in the local community are the main source of hiring to accommodate increased enrollments. Although a position may require a master's degree, a lower degree can be accepted from a candidate with compensatory experience in a high demand field. The institution maintains a 50:50 teaching load ratio of part-time to full-time instructors as a way of reducing operational costs.

Because the CCI is affiliated with a University, there are a small, fixed number of full-time faculty positions. Therefore, the majority of instructors are part-time at the CCI and they are responsible for 90% of the teaching activities. Most of these instructors are faculty of the University, and only a few instructors are hired from outside of the University. These University faculty members make extra income through the part-time positions. In the future, the CCI hopes to have 1/3 full-time instructors, 1/3 part-time from within the University, and 1/3 part-time from outside the University. Currently, the requirement for faculty to be "dual experts" in teaching and engineering is not fulfilled.

Similarities and Differences in Curriculum Development

Table 6.6 shows the major considerations of curriculum development in the CTE programs of both institutions, including course ideas, initiations, contents, and textbook selections.

Similarities. As mentioned in the section on decision-making, the idea or suggestion to initiate a new course curriculum proposal can come from a variety of sources. But demands of the job market have been the most influential factor in creation of new curriculum at both institutions.

Table 6.6

Curriculum Development

USCC	CCI
<ul style="list-style-type: none"> • Advisory committee suggestions • Market demands • Updating and revising • Pilot program • Faculty initiative • Online tech support • Textbook selected by faculty 	<ul style="list-style-type: none"> • Instructional committee/teaching research unit • Market demands • Copy/use existing University courses • Special course requirements • Textbook selected by institute

At the USCC, normally the full-time faculty member who has planned the course selects the textbook. The faculty assumes responsibility for ensuring the textbook is the most current edition published. At the CCI, the institute normally selects the textbook rather than the faculty member who teaches the course. One additional curriculum difference is that all students at CCI must take a special set of core curriculum required in every Chinese institution (e.g., Mao or Deng’s theory courses).

Similarities and Differences in Teaching Methods

Table 6.7 shows the methods of teaching in CTE programs at both institutions including traditional, online, hybrid, and other deliveries.

Differences. At the USCC, the advisory committee not only suggests new programs, but also recommends new courses. Alternatively, a faculty member can propose a new course, but needs the advisory committee's support for the proposal. After a course is developed, it must be periodically reviewed, revised and updated. Some courses need to be upgraded or canceled. However, in the CCI, new course curriculum is simply copied and used from existing courses in the University; new curriculum is rarely created. At the USCC, there are two procedures that help to expedite new course creation. One is the pilot project, which enables faculty to place a new course on the schedule and meet a current demand without delay while the proposal simultaneously goes through the approval process. Another is the paperless process of curriculum development, which is an online application supported by USCC's Information Technology Department. This online application improves efficiency in the approval process.

Table 6.7

Teaching Methods

USCC	CCI
<ul style="list-style-type: none">• Classroom and Lab	<ul style="list-style-type: none">• Classroom and Lab
<ul style="list-style-type: none">• Online teaching	<ul style="list-style-type: none">• Internet /Satellite TV teaching
<ul style="list-style-type: none">• Hybrid courses	
<ul style="list-style-type: none">• Flex/independent learning	<ul style="list-style-type: none">• Self-taught examinations
<ul style="list-style-type: none">• Service learning	

Similarities. Classroom and laboratory instruction is the main delivery method in both institutions, although online teaching has also been developing rapidly. More students are having the opportunity to take courses on-line for their education. However, in CTE, many courses cannot be offered online because they require hands-on components.

Differences. At the USCC, online teaching in CTE is considered a supplemental, not a primary delivery method. Students have the option of choosing either a traditional classroom or online delivery for specific courses that are offered online. At CCI, online teaching is receiving much more attention and seems to be growing in importance as a delivery method for their students. Online instruction has become the only delivery method for students who are enrolled in the Network Institute. Because the technologies are available, the CCI can provide higher education opportunities to people in remote areas. For China, with its large population, online course delivery is a suitable method for providing access to more students; institutional capacity is no longer limited by classroom and dormitory space.

The USCC uses three effective teaching methods that have not been seen in the CCI. First, the hybrid method is partial classroom teaching and partial outside of classroom activities; faculty use of this approach has been increasing. This method gives students flexibility in managing their time and teaches them to learn through use of technology. Second, flexible, or Independent Learning (self-paced study) is tailored to fit into a mature student's learning style and time availability. Third, Service Learning provides benefits to both the community and students by combining community service and academic instruction. In addition to these methods

and overarching all instructional practices was what participants described as the academic freedom needed to encourage critical thinking and creativity.

A unique program at the CCI is called self-taught examination preparation, which allows a large number of people to access higher education and earn a degree. The CCI provides the self-taught examination preparation program to assist students who wish to take the examinations and receive a certificate or a bachelor’s degree in a certain field. This type of program is not found at the USCC.

Similarities and Differences in Student Enrollment and Student Services

Table 6.8 summarizes key points concerning student enrollment and student services for CTE programs at the case study institutions including the admission policy, recruitment, enrollment, activities, requirements of graduates, and services related to advising, counseling, internship or work study, and career development services.

Table 6.8

Student Enrollment and Student Services

USCC	CCI
<ul style="list-style-type: none"> • Open access admission • Recruitment efforts • Academic Support Center • Counseling and Advising Center • Career Service Center/Seminars • Internship • Requirement of graduates: Critical thinking skills 	<ul style="list-style-type: none"> • Selective admission • E-registration • Class Director/Political Advisor • Student Management Center • Career Service Center • Requirement of graduates: hands-on skills

Similarities. Students recruited and enrolled in USCC and CCI are similar in age range; both institutions have young and adult students within the CTE programs. In addition, students receive a variety of career services through placement and the employment services office.

Differences. The case institutions differ in four primary characteristics related to enrollment and student services. First, the USCC's "Open Access" policy provides an opportunity for every citizen, including high school drop-outs, to enter postsecondary education by attending the college. Students from low income families can apply for student loans and grants to help pay for college expenses. Second, in recent years, some of the USCC CTE programs have experienced declining enrollments necessitating efforts to recruit new students. Third, the students' ability to apply critical thinking skills is emphasized as a learning outcome in the CTE programs. Fourth, USCC's students receive academic advising, counseling, and career services. Two programs are particularly noteworthy--internships and career development training: The internship is an effective way for students to learn from real world experiences and also establish a connection with a potential employer. Career development seminars help individual students to understand their personality and gain insight into career paths that may best suit them.

The CCI does not have an "Open Access" policy; students must go through a selective admission process. However, for some CTE programs students can be accepted with a minimum requirement, such as a high school diploma. Regarding enrollment, a national E-registration is used to ensure the authenticity of students by preventing counterfeit documentation, and controlling for program quality by preventing enrollment beyond the Ministry of Education's established quotas. An area of emphasis in the CTE

programs is developing students' hands-on technical skills. For academic advising and general counseling, services are provided by the class directors and political advisors through the Party system that includes the Student Management Center. Through the Party system, the CCI has close control over student organizations and student activities.

Cross-Case Analysis of CTE Strengths and Challenges

In addition to comparing the strengths and challenges of CTE programs in the case institutions, the impacts of globalization on CTE are also addressed. Using globalization as an analytical lens helps to understand the causes of challenges that CTE may face. This analysis is based on findings that address *Research Question 4: What strengths and challenges do the CTE programs exhibit in each institution?*

Similarities and Differences in Strengths of CTE

Table 6.9 shows the strengths that emerged in the CTE programs of each institution.

Similarities. The strengths of the case institutions' CTE programs are comparable in three areas. First, a variety of strong CTE programs are offered to meet many different students' needs. Second, a strong faculty team with technical knowledge and teaching experience is present. Third, an information technology team in each institution has provided necessary support to CTE programs.

Differences. At the USCC, CTE programs have shown six major strengths. First, the leadership of the institution empowers the faculty to promote existing programs and be innovative in developing new CTE programs. Second, many experienced faculty members are not only knowledgeable, but also have first-hand experience from working in industries and corporations. Third, as a result of community support, the

modern facilities and state-of-the-art equipment provide a productive, comfortable, and efficient teaching and learning environment. Fourth, a series of programs in technology, health care, and graphic design have been developed to meet the needs of the local community, and courses are updated or revised to keep pace with market changes. Fifth, USCC offers “open access,” and lastly, the class sizes are small thus allowing students to interact directly with their instructors.

At the CCI, the CTE programs have shown four major strengths. First, the state government has been actively promoting CTE, and the policy and funding have become more favorable toward CTE programs. Second, the CCI possesses a rich source of faculty and facilities from the University and has several of the strongest CTE programs in the region.

Table 6.9

Strengths of CTE Programs

USCC	CCI
<ul style="list-style-type: none"> • Effective leadership in administration and faculty • Strong team of faculty and staff members with a variety of expertise and extensive experience • Excellent information technology and state-of-the-art laboratories and equipment • Diversity and strength of 	<ul style="list-style-type: none"> • The state government has been giving increased attention to CTE. Policy and funding support have benefitted CTE • The University provides a rich source of faculty and facilities • The CCI provides a variety of programs in many different formats • The CCI has a number of very strong CTE programs in the

<p>programs and community support</p> <ul style="list-style-type: none"> • Updated and revised programs and courses • “Open Access” policy • Small class size with direct interaction between teachers and students 	<p>region</p> <ul style="list-style-type: none"> • The distance learning is strong • The CTE graduates are welcomed by local employers, and a few large national corporations
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Third, CCI’s distance education is strong in technical support, delivery methods, and services. Lastly, the graduates are welcomed by employers.

Similarities and Differences in Challenges of CTE

Table 6.10 shows the major challenges that the CTE programs face at each institution.

Similarities. Three common challenges are faced by the two case institutions as they attempt to improve the quality of their CTE programs. First, both institutions need to create new programs and courses that address the current skills required by the local job market. Second, USCC and CCI need to provide training opportunities to faculty that enables them to update their knowledge and gain experience with using the latest technologies. Third, each institution needs to emphasize the performance of graduates in the CTE programs and develop the students’ problem-solving skills.

Differences. The USCC faces five major challenges. First, study participants stated the current semester system of scheduling is less suitable

Table 6.10

Challenges of CTE programs

USCC	CCI
<ul style="list-style-type: none"> • Providing a suitable and flexible course scheduling format • Keeping tuition affordable • Meeting the changing needs of industry • Stressing student performance in curricula • Upgrading faculty knowledge and skills for new program demands • Enhancing marketing strategies for student recruitment • Articulating with four-year institutions • Communicating with other community colleges 	<ul style="list-style-type: none"> • Gaining respect for the CTE programs • Reforming and improving CTE • Establishing a CTE accreditation system • Emphasizing students' practical skill sets • Seeking more funding to procure new equipment and laboratories • Creating new programs to meet job market needs • Creating strategies for pursuit of the “dual experts” faculty

than the previous quarter system for CTE students, especially for those who are working. Second, tuition and fees have not been stable; increasing tuition and fees is not welcomed, particularly when the economy is in a recession. Third, curriculum has not adequately emphasized the critical thinking component to ensure graduates possess not only technical skills, but also the creative capability to solve real world problems. Fourth, a student

recruitment strategy seems to be absent, and articulation with four-year institutions is not strengthened to attract more students and encourage graduates to pursue advanced study. Lastly, lack of communication between community colleges impedes the sharing of information and promising practices that could improve the CTE programs.

The CCI faces four major challenges. First, in order to change the public's negative perception of CTE, the institution is faced with finding ways to improve the quality of its CTE programs and producing competent graduates who have current knowledge and skills. Second, CCI is limited in its ability to reform the CTE programs within the current University structure. Third, the absence of a CTE accreditation system and quality standards against which to measure the CTE postsecondary institutions and programs negatively affects quality improvement. Fourth, most curricula have not emphasized the hands-on practical skills to ensure graduates possess not only general knowledge, but also the capability to solve real world problems. Lastly, funds are inadequate to provide the latest technology and equipment for new programs and to update existing programs.

Similarities and Differences in Impacts of Globalization

Table 6.11 shows the impacts of globalization on CTE programs at each institution including the program settings, student enrollments, and employment.

Similarities. Based on interviews with the study's participants, the impact of globalization on CTE at each of the case institutions appears to be different. Similarities were not discernible in the comparative analysis.

Differences. Differences between the two institutions emerged in three primary areas. First, at the USCC, the impact of globalization on CTE programs seems to be slight while the impact on industries and

Table 6.11

Impacts of Globalization

USCC	CCI
<ul style="list-style-type: none"> • Indirect impact on CTE, affect slight • Service-oriented programs increase • Program needs more green factor 	<ul style="list-style-type: none"> • Large impact on CTE settings because of foreign investment • Job market increases for capable people • New programs need to meet job market demands

manufacturers is much greater. Indications of globalization are seen in certain jobs moving out the United States, and many tasks are outsourced through the Internet. Second, USCC has experienced increased demand for service-oriented programs because some types of service sector jobs cannot be moved and outsourced, such as Automotive Maintenance and Office Technology. Third, discussions of global warming are leading toward a trend of integrating “green” factors into the CTE programs.

The impact of globalization in China and on the CCI is immense. In recent decades, China has attracted a large amount of foreign investment. Second, these investments have exponentially increased the demand for a skilled workforce, especially in the new technology areas. There is a

shortage of qualified workers in regions where the foreign invested companies are located. As C2 mentioned, “There is a shortage of workforce at the front of manufacturers, which required a lot of graduates who are capable to operate and work with new technology.” Third, the investments also bring in many new markets such as services, and new training programs are needed to meet these demands. Students, who have enrolled in a CTE institution, want to follow the needs of the job market as a guide for choosing a program; however, the existing programs are never current with the market.

Summary

As explained in this chapter, the USCC and CCI have several similarities in their CTE programs, but they also face many different challenges and must deal with issues and difficulties that are specific to their different contexts. Because the contexts and institutions are different in many areas such as policy, organization, funding, program settings, faculty, and teaching methods, each institution could learn from these differences and understand some of the limitations as well as potential opportunities for improvement in their CTE programs. The CTE programs in US community colleges have been highly successful (Cohen & Brawer, 2003), and this research study has identified some of the major forces and factors that created successful CTE programs in the USCC. The CCI wants to improve the quality of their CTE programs in order to meet the demands of a booming economy in China. The USCC’s experiences could be valuable references for the CCI. Moreover, some of the CCI’s experiences could also be considered by the USCC. A discussion of the conclusions regarding sharing and borrowing, and what has been learned from the research study are addressed in chapter 7.

Chapter 7

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter begins with an overview of the research study followed by conclusions concerning positive characteristics of CTE programs in the two case study institutions. The third section offers an analysis of implications drawn from the research and the fourth section provides recommendations for the institutions and future research.

Overview of the Research Study

Objectives of the Study

The researcher has studied a US community college and a comparable Chinese institution over a period of two years to explore and compare how the CTE programs are organized and operated in these two institutions. The research has achieved the four major objectives initially established for this study: (a) to understand the concept of CTE programs in a U.S. community college and a Chinese institution; (b) to identify and explain the CTE model employed at the institution in each country; (c) to describe and analyze the similarities and differences of the CTE programs in the two countries; and (d) to explore the possibility of adopting or adapting positive characteristics from each of the CTE programs to benefit the case institutions, and potentially the postsecondary educational systems in both countries. The fourth objective is addressed for the first time in this chapter.

In addition to these objectives, five driving questions have guided the study:

1. How are the CTE programs organized and operated in a US community college and a comparable Chinese institution?
2. What administrative decision-making processes are used by the US and Chinese institutions when establishing a new CTE program?

3. How does each institution plan for a CTE program in relation to financial support, teacher preparation, and student services?
4. What strengths and challenges do the CTE programs exhibit in each institution?
5. What similarities and differences exist in the CTE programs operated by a US community college and a comparable Chinese institution?

Theoretical Frameworks for the Study

Globalization theory has been used as the primary analytical framework for the entire research process. This theory provides insights into ways that the forces of globalization, including advanced technology, have impacted higher education. As Carnoy (2005) has pointed out, “Today’s massive movements of capital depend on information, communication, and knowledge in global markets. And because knowledge is highly portable, it lends itself easily to globalization” (p. 3). Moreover, Levin (2001) argues, “the community college has become a globalized institution because it has been affected by global forces” (p. xiii).

The US and China are major players in the world economy, which is described by some scholars as the knowledge economy. Carnoy (2005) suggested that knowledge is fundamental to globalization and globalization has a profound impact on the transmission of knowledge. A knowledge intensive economy makes tertiary training a necessity in producing large numbers of competent workers. Training students for the workforce becomes one of the most important tasks in the globalization process; therefore, CTE has a responsibility to face the challenges in this task. Salmi (2000) described three challenges confronting higher education: (a) radical changes in training for which workers need higher level skills and updated

knowledge, (b) new forms of competition in delivery methods that depend on new technologies, and (c) new modes of operation that require transformation in governance and organizational structure. The desire to contribute ideas that may improve current CTE programs aimed at meeting the need for technical and analytical competencies in the workforce has been the primary motivation behind conducting this research. Career development theory has provided a secondary analytical framework for the study and was used to evaluate CTE student services. Application of this theory could provide faculty with a tool to help students better understand their personality and establish an appropriate career goal for obtaining a meaningful job in the future. Career guidance services or career development services are being provided in response to new social demands internationally (Pope, Zhang & Hu, 2002). Career development theory can help CTE graduates entering the job market to reach their ultimate career goal.

Conclusions

Based upon a careful analysis that compared and contrasted the USCC and CCI case studies, positive characteristics of their respective CTE programs are discussed. These characteristics are categorized into seven areas that represent the research questions: structure and operation, mission, financial support, teacher preparation, curriculum development, teaching methods, and student enrollment and services. In some instances, the characteristics are potentially transferable (with adaptations) from one institution to the other and could lead to CTE program improvements.

Structure and Operation of CTE

As explained in chapter 6, the case institutions have similar organizational structures, which seem to function effectively. However, the

cases contrast sharply in their mode of operation due to quite different political structures in the two countries. In the USCC structure, the Board of Trustees and Academic Affairs are strengths. The Board of Trustees is a democratic organization and the community constituents elect all board members; the Board is responsible to the community. Typically, the Board also includes a non-voting student member, normally the student body president who is elected by the students. Thus, the students' perspectives are factored into the Board's decisions. USCC Academic Affairs treats CTE as having equal priority with other programs. This principle is based on the mission and goals of the college, which provides CTE as one the five major functions: liberal arts (transfer), CTE, remedial education, continuing education, and community services. Therefore, the USCC is attentive to CTE program funding and faculty requirements.

Although the level of attention given to CTE by USCC may serve as a good point of reference as tertiary CTE gains recognition in China, the Board of Trustee functions are not suitable for the CCI context. In the CCI structure, two advantages emerged from the case comparison—quick resolution of different views, which expedites decision-making, and student support services. First, the institutional Party system is able to resolve conflicts among administrators and managers effectively. Because the Party system has different levels of committees, each committee reports to an upper-level committee that can appoint and remove a lower level administrator and manager, as well as committee members. However, the structure is not applicable in the USCC context. Second, the CCI provides direct student services through the Student Management Center. This center provides services through the student advisors, who reside in the student dormitory; the advisors closely monitor and guide all students' activities. It

is an effective system for providing immediate help to students. This student advisor approach could be used as a reference for USCC.

Mission of CTE

The mission and goals provide guidance that programs need to be successful; therefore, it is important to clearly articulate the mission and establish feasible goals. After comparing and contrasting the cases, three strengths were identified in both institutional mission statements: (a) they clearly state that the institution pursues providing a high quality education and aims to be a front runner in the field; (b) they establish a set of CTE goals for the institution to produce not only a capable workforce for the local job market, but also qualified graduates for advanced study; and (c) they provide opportunities for adult students to continuously update their knowledge and technological skills and meet their personal needs. These goals are clear, feasible, and might be beneficially transferable for other similar institutions.

Decision-Making Processes for a New Program

The processes for initiating a new program proposal are different at the case institutions; however, the approval processes have similar steps, except the final step. At USCC a new program is approved at the state level and at CCI change approval is linked to the national Ministry.

At the USCC, faculty members initiate a proposal, but the suggestion could come from many sources. Although the advisory committee is the most important source, administrators and students, especially working adult students, also may bring in some valuable suggestions for new programs. Importantly, innovation is encouraged and creating new programs and courses is considered a faculty job requirement. At the CCI, the teaching research unit in each institute is the main source for new program proposals.

However, the CCI is encouraged to adapt curriculum from the University rather than initiate new programs thus there is no incentive for innovation. Potentially, the USCC advisory committee concept could be transferable to the CCI and a new program meeting industry requirements could be used to pilot an adapted process.

Financial Support

Although financial sources in the case institutions are slightly different, both face funding shortages. In the USCC, cuts in funding from the state are the major challenge. In the CCI, financial support is solely based on tuition; consequently, lack of funding sources is an impediment. Both institutions recognize the need to seek alternative funding streams for support of current programs and to create new programs. The USCC has three approaches for increasing funding and resources, which are positive and feasible. First, private donations in the form of funding or equipment from corporations, institution's friends, and alumni are common practice in the US. The donor can establish a special fund, such as a scholarship, or a single gift. Also, the college has a designated office to campaign for this type of funding. Second, faculty can apply for a research grant and request special funds from government agencies and community organizations to support existing programs or a new program (e.g., a grant for veteran's training).

Third, the institution can gain local community support and issue bonds to collect funds for new capital projects. Potentially, the CCI could seek financial or resource support through cooperation between the institution and industry. For example, the industry would donate funding or equipment for a laboratory in the institution and the CCI would then agree to do contract training for the industry employees. The CCI also could start

encouraging a culture of giving donations by developing activities for the alumni.

Teacher Preparation

The research participants in both institutions indicated that a shortage of qualified teachers is the main factor that affects the quality of programs. The institutions address teacher shortages by recruiting new teachers and training current teachers. Three prominent strategies were identified in the cross-case analysis for enhancing faculty qualifications and supporting teaching activities. First, the CCI hires part-time faculty members from other institutions. Because no policy prohibits the employee from working for different employers, this is an effective way to recruit teachers and also to allow these teachers to make extra income. According to participants, this approach has not shown any negative effect. Second, at both institutions, hiring engineers and experts from the local industries as part-time instructors fills the shortage of experienced teachers, but at the CCI, only a few part-time teachers are hired from industries because those teachers often lack teaching experience. Third, at the USCC, there is an incentive policy for faculty development that rewards faculty for updating and upgrading knowledge and technical skills related to their teaching responsibilities. The policy includes benefits such as reimbursement for tuition, faculty sabbatical and on-leave opportunities, and pay increases for additional qualifications. This incentive policy for faculty development could be transferable to the CCI.

Curriculum Development

Curriculum development includes both programs and courses. Based on the interviews, participants in both case institutions emphasized the importance of creating new courses and programs, and updating existing

curricula. Continuous updating and program development are essential to the sustainability and quality improvement of the CTE programs. In the comparison of cases, the USCC showed strengths in four areas of effectiveness that could be adopted by CCI. First, every faculty member creates new courses and programs, and updates them as a routine activity. This activity is evaluated annually as part of the performance evaluation and tenure process. Second, the configuration of the USCC advisory board (using industry representatives) provides a strong link to industries. In addition to generating ideas and suggestions for new college programs and courses, the advisory board is an efficient way to gather information concerning the needs of industries.

Third, updating the textbooks is another way to capture the trends of new technology and demands of the market. Although faculty members could write textbooks, this is not the norm. Instead, selecting an up-to-date published textbook is much quicker and an effective way for keeping the program current with changes in industries. This approach works well because the US textbook publishing companies are competitive and update the textbooks rapidly. Fourth, faculty members participate in activities such as local community events, industry expos, new technology seminars, and publisher's conferences. In addition, faculty members listen to requests from students. These activities and students' ideas provide feedback that is used for improvement of the programs and courses.

Teaching Methods

During the interviews, study participants mentioned that CTE programs have used a variety of teaching methods. In both institutions, two methods provide the most common teaching and learning environments: (a) a classroom-laboratory combined setting and (b) online or distance learning

for students who cannot attend the institution. At the USCC, two additional innovative methods are used and welcomed by students. First, the hybrid delivery method benefits students who prefer self-study with minimal on-campus activities. Second, service learning integrates instruction and community service together thus benefiting the student, the institution, and the community. These two methods may be transferable to CCI. At the CCI, a special training program prepares nontraditional students for a series of higher education subject examinations in order to earn a certificate or a degree diploma. This degree by examination program is unique to China, but the approach may be applicable for GED sections in USCC.

Student Enrollment and Services

The student enrollment and services areas involve many policies and functional units in the institution. After comparing and contrasting the two cases, five policies and activities were most notable. First, the USCC policy of “Open Access” gives any adult the opportunity to receive a postsecondary education regardless of background and socioeconomic status. Although this policy promotes equity, it is not currently feasible in the CCI context due to capacity limitations, which are recognized by the Ministry of Education’s admissions quotas. Second, the USCC full-time advisors and counselors provide professional assistance to students in need of academic and career development. Counselors and faculty advisors use career development theory to help students find a career path, establish career goals that best match their personal needs and interests, and choose a suitable occupation. CCI could also enhance student career advising services by adopting this theory. Third, the USCC offers internships that help many students to apply their learned skills in a work setting and to establish connections with

potential employers. The CCI has made extensive efforts to establish internships and plans to continue seeking industry partners.

Fourth, CCI's student advisors, who live in the dormitory and are very close to students, and class directors, who are experienced faculty members can provide immediate services whenever students are in urgent need of help regarding emotional, physical, and spiritual problems. Although American students live in an individualistic society and like freedom from dependence, the USCC could learn something from the practices of CCI's student advisors and class directors. More student interaction with faculty and staff could enhance retention and program completions rates. Fifth, in the CCI, student organizations help students with employment services; the institution provides financial support and guidance to these student organizations. This type of service to the student body could potentially be adapted by USCC student organizations.

In summary, each institution has notable positive characteristics; some represent similarities and some are unique. Transfer or adaptation of concepts and practices across international borders appears to be more feasible in academic than in organizational and policy areas. The CCI could learn from the USCC in refining the CTE program mission and goals, identifying alternative funding streams, improving instructor qualifications, strengthening the performance of graduates, and improving curricula. However, the socio-political contexts of USCC and CCI are so different that some characteristics are not transferable. The fact that the CCI resides within a university also may limit the extent to which it can make changes.

Implications

Comparative Studies

Comparative studies can assist CTE policy makers and administrators to reflect on the overall purposes of their CTE programs, improve the programs, and identify factors that influence the effectiveness of CTE systems (Keating et al., 2002). Yet, the review of literature revealed a lack of comparative studies on CTE, and a paucity of scholarly articles and research reports directly from the CTE field, especially in the US. Therefore, this study adds to the body of knowledge regarding both comparative education and CTE programs.

The main purpose of comparative education is to transfer educational ideas from one country to another (Phillips & Schweisfurth, 2007). However, a second important aspect of comparative education is to learn more about one's own situation; the comparison causes researchers to examine the familiar in new ways. Because the US and China have different political systems, cultural backgrounds, and historical environments, some ideas and methods are not feasible for transfer. Yet these ideas may be useful for future reference as both CTE systems continue to evolve.

In examining implications of the research, positive characteristics drawn from the study's conclusions are analyzed specifically from the perspective of "borrowing" (Phillips & Schweisfurth, 2007, p. 17). Characteristics can be adapted or adopted by individual "borrowers" to promote reform and development, improve knowledge about one's own and other's education systems, and enhance international goodwill (Phillips & Schweisfurth, 2007).

China's long history and Confucian thought have shaped the public's view of what higher education should be. However, CTE is a relatively new

area and does not fit well into the traditional higher education mode; therefore, China can benefit from studying other country's postsecondary CTE models. The CCI could borrow from four of USCC's positive policies and methods to reform and improve its CTE programs. First, CCI's decision-making process would benefit from including direct representation of student organizations. Traditionally students never are involved in the decision-making process at the institutional level in China. The idea of having a student representative participate as a non-voting member in the decision-making board (e.g., the USCC Board of Trustees) would benefit the democratic process by allowing students to voice their opinions and suggestions when the board is establishing policies or regulations. Although Chinese students have channels to voice their views through the student organizations, they are not directly involved in the decision-making process.

Second, the USCC's incentive and promotion policies could inform CCI's efforts to improve the quality of CTE programs through faculty and curriculum development. Sabbatical and on-leave programs, which allow faculty to do non-teaching projects on or off campus would provide faculty with an opportunity to focus on their own training and update of technical skills. A promotion policy that includes three requirements would help to motivate quality improvement: teaching, curriculum development, and student advising. Although the USCC promotion policy also includes community services, this requirement is not well suited to the CCI context.

Third, the USCC curriculum has been consistently updated with current technology and emphasizes hands-on practice in order to achieve the goal of ensuring that graduates possess not only knowledge of the latest technology, but also the capability to solve real world problems. CCI shares this goal, and three aspects of curriculum development used in the USCC

could be feasible at the CCI: (a) the advisory board, (b) the approach of updating and revising existing programs and courses, and (c) the adoption of textbooks covering the latest developments in the subject area.

Fourth, the USCC career development programs and services are effective in helping students to establish career goals. Professionally trained faculty and counselors use career development theory to assist students through four phases: understanding their personality, identifying a career path, knowing their personal tendencies in career development, and choosing a career. The ultimate goal of the career development services is to help students find the best-fit and most satisfying job. The CCI and its students could benefit from the principle of helping students to choose the right major and program in order to fully develop the students' potential.

Also noteworthy in the discussion of borrowing is one particular area in which the USCC could benefit from CCI's processes--student services. At the CCI, student advisors and class directors closely mentor all activities on campus for individual students and student organizations; the staff is attentive to problematic and potentially troubled students. Although USCC faculty and staff members are directly involved with students in academic as well as extracurricular activities, and American students prefer to be independent, the concept of "closer to students" could be borrowed in an adapted form from the CCI. More interaction between students, faculty, and staff could help to prevent negative and violent incidents. Moreover, US community colleges are under great pressure to substantially increase student completion rates (e.g., by 50% over the next 10 years) (Motz, 2010) and a "closer to students" approach could assist in accomplishing this goal.

Globalization of CTE

Another implication of this study is that CTE professionals must learn how to cope with the forces of globalization. As stated by Salmi (2000), globalization is happening, and everyone is affected by it. Bloom (2002) points out three challenges that today's world faces under the impact of globalization. First, a fast-changing world requires students to possess problem-solving skills and flexibility. Higher education institutions must teach their students not only what is known now, but also how to keep their knowledge current and to become adept with new technologies. Second, curricula must encompass the knowledge, skills, and perspectives students need to know. Third, higher education needs to grab hold of the opportunities offered by globalization and encourage students and faculty to connect with others to solve problems. Cross-institutional and cross-border networks offer great promise for promoting scientific innovation appropriate to countries' needs.

Globalization has an impact on the US and China. Each country must respond to global trends appropriately in order to benefit from them. Understanding and adapting to globalization would provide the policy makers and educators a clearer vision for the future of CTE. This research study found the influence of globalization was clearly understood in Chinese CTE programs, but at the US institution there was much less awareness. In recent decades, China has received large amounts of foreign investment, imported more new technologies, and developed a booming economy that requires a large number of highly trained workers. CTE in China needs reform and quality improvement to meet the demands of the labor market. CCI is experiencing related pressures and a sense of urgency to change. Although the USCC has not shown the impact of globalization clearly, the

US also needs more graduates who have less than a four-year degree and more than a high school diploma. Stromquist (2002) quantifies the importance of access to community colleges in the U.S. when she says “between 40 and 50 percent of the jobs in the new economy will not require university training but rather some type of work-based technical or trade credentials” (p. xxi).

The CCI wants to exchange new ideas and propel its CTE programs to a high level that better meets labor market requirements. CCI has shown a great interest in learning from and cooperating with foreign counterparts, typically US institutions. Based on the analysis in this study, CCI could learn from examining USCC’s CTE programs. As Hinchcliff (2000) says, the globalization process is transformed to construct positive collegiality and enhance human experience by adding value to the process of respect for a variety of types of learning, such as internationalized, student-centered, continuing, and cooperative learning. The CCI has started to send graduates to foreign countries and also uses foreign CTE program packages to train students locally. The USCC has established and sponsored a study-abroad program for years, which is welcomed by students and the community. However, there was no evidence that USCC desires to internationalize or globalize its curriculum and programs.

The US community college model has been discussed by scholars in China for a decade, but not put into practice. However, in recent years the governments of some major cities have shown great interest and are starting to establish community colleges (Hangzhou Daily, 2003; Chen, 2009). These community colleges primarily provide non-credit courses and programs for the cities’ citizens. This initiative is a beginning, and although there are only a small number of community colleges, China has a large

population and a desire to achieve massification in its higher educational system. The US community college model could help to inform the further development of these institutions. Yet, the structure of the education system in China was deeply influenced by the Soviet model, thus most CTE institutions have been established for a specific industry, such as electronic institutes, nursing schools, transportation institutes, and aviation institutes. For these institutions, the community college model may not be of interest, but the methods of operating US CTE programs could be useful as a frame of reference.

The Organization for Economic Co-operation and Development (OECD) (2009) report, *Learning for Jobs*, has provided recommendations concerning immediate needs of CTE in European countries and a few countries outside of Europe. Three of the five major areas emphasized in this report were consistent with findings from this study. First, OECD (2009) recommended that each country offer a mix of vocational programs reflecting student preferences and job market trends. In addition to training for specific skills that meet employers' immediate needs, CTE programs should provide transferable skills to support occupational mobility. The OECD study found that new programs and courses should be created in time to meet the needs of industries and demands of the local job market. Moreover, research and data collection should be used to assess the current and future job market.

Second, OECD (2009) recommended that each country sustain their workforce of teachers by (a) encouraging CTE faculty to have part-time work in industry; (b) promoting flexible pathways of recruitment; and (c) adopting a standardized assessment framework. The OECD study found that more funds are needed from all possible sources, including government

grants and private donations, to invest in CTE program facilities and equipment compatible with what is used in industry, and for new programs. In addition, more collaboration is needed with industries and corporations.

Third, OECD (2009) recommended that each country offer sufficient incentives for both employers and students to participate in workplace training that includes effective quality assurance. The OECD study found that instructors should not only be graduates from doctoral or master's degree programs, but also possess some real world experience from industries. In addition, the OECD study recommends that institutions establish an incentive policy to attract capable teachers and adjuncts from industry, and offer time for faculty to receive training in the latest technology to enhance their knowledge and improve their technological skills.

Recommendations

Both institutions in this study have faced many challenges, and both institutions possess many positive characteristics. Some of the characteristics discussed in this study could be used to either inform or improve CTE programs at the case study institutions, as well as other similar institutions in China and the US. However, context is important and some characteristics might not be suitable for sharing, such as the open access policy or aspects of the governance structure.

Being mindful of the challenges that each institution faces, as well as differences in the case institutions' contexts, recommendations are divided into three sections: for both institutions, for USCC, and for CCI. Recommendations also are provided for future research.

Recommendations for CTE Programs in Both the US and Chinese Institutions

Both institutions have experienced the impacts of globalization and the current economic crisis, and they both must address the same challenges in meeting the increasing demand for a globally competent workforce. Four recommendations have been drawn from the comparative analysis of challenges that both institutions face:

1. Create timely new programs and courses based on periodic program and course evaluations, and annual job market and industry needs assessments.
2. Seek alternatives for reducing operational costs, and at the same time, look for possible alternative funding sources, such as establishing industry partnerships and participating in entrepreneurial activities.
3. Recruit qualified full-time or part-time instructors who have both advanced degrees and prior work experience from industries through corporation partnerships.
4. Add a critical thinking component in all curricula to ensure graduates possess not only technical skills, but also the capability to be creative in solving real world problems.

Recommendations for the USCC.

The first policy is borrowed from the CCI, and the other six recommendations are based on typical challenges the USCC must address.

1. Encourage faculty to become more involved with students both in academics and extracurricular activities. Provide faculty training to help them identify and assist problematic and potentially troubled students.

2. Provide a diversity of formats (e.g., classroom/laboratory and online) and schedules (e.g. 4 weeks, 8 weeks, and 12 weeks) for all major CTE programs and courses.
3. Keep the tuition and fees stable for at least the next few years to facilitate recruitment and an increase in the enrollment base.
4. Look for alternative ways to reduce operational costs, such as hiring more student workers for a wide range of on-campus jobs and creating organizational efficiencies that enable merging of some institutional administrator positions.
5. Create and implement an enrollment management plan that includes student recruitment strategies to be carried out by admissions staff and faculty members (e.g., advertising, CTE demonstrations, and promotional activities on and off the campus).
6. Develop and implement articulation agreements with four-year institutions to ensure students have a good path for pursuing advanced study.
7. Establish a communication network for community college CTE faculty and administrators in the state that enables them to easily share information and exchange ideas.

Recommendations for CCI.

The first four recommendations are policies and methods borrowed from the USCC, and the last two are based on typical challenges the CCI must address.

1. Improve the decision-making process by factoring in a student perspective. The decision-making body should include a non-voting student representative who can provide a student view for policies and regulations.

2. Create incentive policies that link faculty evaluation and promotion with performance in teaching, curriculum development, and student advising, and support sabbatical and on-leave programs for faculty training.
3. Improve curriculum development processes in three areas: (a) create an advisory board that includes industry representatives and provides ideas and suggestions for new programs and courses; (b) update and revise existing programs and courses periodically to stay current with advances in technology; and (c) update textbook selections to ensure materials taught are current.
4. Strengthen student employment services, create service learning and internship opportunities, and apply career development theory in career development services.
5. Revise the CTE mission statement and vision by sharpening their focus, as this will ensure greater clarity in the goals of CTE programs.
6. Lead the way in collaborating with the Ministry of Education and other CTE institutions to establish an independent tertiary CTE system and a CTE accreditation system that includes program assessment, accountability, and incentive policies for faculty improvement.

Recommendations for Future Research

The US and China are geographically large and there are more than a thousand institutions that provide CTE in each country. Moreover, institutions in different regions of a country can be diverse. The case institutions examined in this study are comprehensive higher educational institutions and not CTE specific; they provide other types of education such

as regular, adult, continuing, and remedial education. Moreover, this study focused on the entire CTE program, not a specific area. Therefore, three recommendations for future research are provided. First, a case study institution could be selected from a different region such as a coastal area. Second, selection of an independent institution in China that focuses solely on CTE programs would enable a researcher to concentrate on CTE issues and gain further understanding of the CTE programs. Third, a specific program or a cohort study group could be selected for research; for example, an Office Automation program. The researcher could then compare and contrast the program in the US and China to gain an in-depth understanding of how a particular CTE program is organized and operated.

Summary

Each institution in this study has faced many challenges in terms of problems needing to be solved. Some of the problems are similar and some are different. Each institution also possesses positive transferable characteristics in their CTE programs. Some of the academic and student services characteristics could be shared across borders to improve the quality of the CTE programs and to meet global economic needs. However, characteristics related to policy and organizational structure generally were not transferable.

Finding ways to improve postsecondary education has become a global challenge. Comparative studies can assist CTE policy makers to reflect on the overall purposes, structures, and directions of their CTE programs and help them to understand some of the limitations and potential opportunities for improvement in the programs. Factors that influence the effectiveness of CTE systems, such as their capacity for skills formation, methods of financing, equity of access and outcomes, and demand

responsiveness, can be identified. There are a number of special topics in CTE that should be researched in the future.

Under the impact of globalization, international cooperation and collaboration between institutions and programs becomes more and more important, particularly considering there are many shared problems and thus the potential for shared solutions. Beyond providing findings, implications, and recommendations for improving the quality of CTE in the case study institutions, this research offers insights and information that may be valuable to postsecondary education administrators and policy makers, and promote cooperation among CTE educators in the US and China.

REFERENCES

- American Association of Community College (AACC). (2009). Fast facts. Retrieved August 25, 2009, from <http://www.aacc.nche.edu/AboutCC/Pages/fastfacts.aspx>
- Ames, R. T., & Rosemont, H. Jr. (1998). *The Analects of Confucius: A philosophical translation*. New York: Ballantine Books, the Random House Publishing Group.
- Andringa, R. C. (2001). The internationalization of higher education: Can the American experience advance peace and learning in the world? Retrieved June 11, 2008, from https://www.cccu.org/filefolder/Internationalization_of_Higher_Education_Can_the_American_Experience_Advance_Peace_and_Learning_in_the_World.pdf
- Appadurai, A. (1996). *Modernity at large: Cultural dimensions of globalization*. Minneapolis, MN: University of Minnesota Press.
- Association for Career and Technical Education (ACTE), 2008, What is CTE? Retrieved June 11, 2008 from http://www.acteonline.org/career_tech/index.cfm
- Bandler, M. J. (2002). The global linkage: A conversation with James McKenney, in community colleges in the United States, Retrieved September 10, 2008, from <http://www.usembassy.it/pdf/ej/ijse0602.pdf>
- Bibikova, A., & Kotelnikov, V. (2007), East versus West: Philosophy, cultural values, and mindset, Retrieved December 12, 2009, from http://www.1000ventures.com/business_guide/crosscuttings/cultures_east-west-phylosophy.html

- Bloom, D. E. (2002, September 19). *Mastering globalization: From ideas to action on higher education reform*. Paper presented at the University of Laval conference on “Globalisation: What Issues Are at Stake for Universities”, Quebec Canada. Retrieved January 31, 2010, from <http://www.bi.ulaval.ca/Globalisation-Universities/pages/actes/BloomDavid.pdf>
- Bogden, R. C. & Biklen. S. K. (2007). *Qualitative research for education: An introduction to theories and methods* (5th ed.). Allyn and Bacon.
- Boli, J. (1996). Globalization. In P. Cookson, Jr., A. Sadovnik, & D. L. Levinson (Eds) *Encyclopedia on education and sociology*. Cambridge: Garland Publishing.
- Brandenburg, U., & Zhu, J. N. (2007). Higher education in China in the light of massification and demographic change. Retrieved September 18, 2008, from http://www.che.de/downloads/Higher_Education_in_China_AP97.pdf
- Brint, S., & Karabel, J. (2006). Community colleges and the American social order. In B. Townsend, & D. Bragg (Eds.), *ASHE Reader on Community Colleges* (pp. 63-74). Boston: Pearson Custom Publishing.
- Brown, B. L. (2003). *International model of career-technical education: Trends and issues alert*. (ERIC Document Reproduction Service No. ED475097) Retrieved October 18, 2008, from ERIC database.
- Brown, D. (2002). *Career choice and development*. (4th ed.). San Francisco: Jossey-Bass.
- Burns, J. M., Peltason, J. W., Cronin, T. E. & Magleby, D. B. (1997). American Federalism. In L. F. Goodchild, C. D. Lovell, E. R. Hines, & J. I. Gill (Eds). *ASHE Reader Series: Public Policy and Higher Education*. Boston: Pearson Custom Publishing.

- Cao, W. (2002). 高等职业教育的困境 [The difficulty of the tertiary vocational education]. Hunan Normal University. *Education and Vocation*, 2002, No.3.
- Career Pathways (n.d.). Welcome to career pathways. Retrieved October 2, 2008, from <http://www.careerpathway.org/home.htm>
- Carnoy, M. (2005). *Globalization, educational trends and the open society*. Open Society Institute Education Conference 2005. Retrieved January 31, 2010, from http://www.soros.org/initiatives/esp/articles_publications/articles/globalization_20060217/carnoy_english.pdf
- Community College Times (CCTIMES). (2008). *Forging a relationship with Chinese colleges*. Retrieved June 11, 2008 from: <http://www.communitycollegetimes.com/article.cfm?TopicId=3&ArticleId=992>
- Central Institute of Career and Technical Education (CICTE), (2009), *新世纪初中国职业教育发展—2004-2007年职业教育发展报告* [New century Chinese vocational education development: 2004-2007 report]. Beijing, China: Ministry of Education, the People's Republic of China. Higher Education Publishing House.
- Central Intelligence Agency (CIA). (2010). The world factbook: United States economy review. Retrieved on June 20, 2010 from <https://www.cia.gov/library/publications/the-world-factbook/geos/us.html>

- Chen, C. (2009). 我省首个城市社区大学开学 [The first city community college in our province open its door]. Retrieved January 31, 2010, from http://jydb.newssc.org/html/2009-12/29/content_791155.htm
- Chen, J. F. (2002). 从比较的视角探析高等职业教育的发展 [From a comparative viewpoint to explore the development of the tertiary vocational education]. *Journal of Henan Vocation-Technical Teachers College (Vocational Education Edition)*. 2004, No.4.
- China Education and Research Network (CERN), (2006). *2006年全国教育事业发展统计公报* [2006 Bulletin of statistics of national educational development]. Retrieved June 11, 2008, from http://www.edu.cn/jiao_yu_fa_zhan_498/20070608/t20070608_236759.shtml
- China Factfile. (2009a). Multi-party cooperation and the political consultative system. Retrieved Dec.12, 2009, from http://english.gov.cn/2005-08/15/content_23058.htm
- China Factfile. (2009b). The system of People's Congress. Retrieved December 12, 2009, from <http://www.china.org.cn/english/Political/26144.htm>
- China Factfile. (2009c). The system of People's Congress. Retrieved December 12, 2009, from <http://www.china.org.cn/english/MATERIAL/28847.htm>
- China Market Economics Society (CMES). (2008). *中国市场经济研究会导言* [Introduction of China Market Economics Society]. Retrieved December 12, 2009, from <http://www.scjj.org.cn/benhuijianjie.asp>

- China Value. (2009). 改革开放30年成就 [The outcomes of reform and open-door policy for 30 years]. Retrieved on February 11, 2010 from <http://www.chinavalue.net/wiki/showcontent.aspx?titleid=343109>
- Cohen, A. M., & Brawer, F. B. (2003). *The American community college*. (4th ed.). San Francisco: Jossey-Bass.
- Conte, C., & Karr, A. R. (2008). *An outline of the U.S. economy*. Retrieved on June 20, 2010 from <http://usa.usembassy.de/etexts/oecon/chap2.htm>
- Cook, C. E. (2008, May/June). How China is reforming higher education. *Change*, 33-39
- Creswell, J. W. (2007). *Qualitative inquiry & research design: Choosing among five approaches* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Department of international cooperation & Exchanges (DICE), (1998), *Vocational Education in China*. Ministry of Education, the People's Republic of China,
- Dong, Zhe (1994) The United States community college model and its application in China: A policy study. Retrieved from ProQuest Digital Dissertations. (AAT 9426779).
- Friedman, T. L. (2005). *The world is flat: A brief history of the twenty-first century*. New York: Farrar, Straus and Giroux.
- Government Accountability Office (GAO). (2008, May 15). *Workforce development: Community colleges and one-stop centers collaborate to meet 21st century workforce needs*. (Report number GAO-08-547).

- Greene, J. C. (1990). Three views on the nature and role of knowledge in social science. In E. G. Guba (Eds.), *The paradigm dialog* (pp. 227-245). Newbury Park, CA: Sage publications, Inc.
- Guba, E. G. & Lincoln, Y. S. (1981). *Effective evaluation*. San Francisco: Jossey-Bass Publications.
- Gutek, G. L. (2006). *American education in a global society: International and comparative perspectives*. (2nd ed.). Long Grove, IL: Waveland Press, Inc.
- Hangzhou Daily, (2003).建设学习型城市社区大学呼之欲出 [Building a learning community university]. Retrieved January 31, 2010, from <http://www.livingyou.com/inforef/ShowInfo.asp?NewsID=9745>
- Hantrais, L. (1995), *Comparative research methods*. European Research Centre, Loughborough University, United Kingdom. Retrieved April 14, 2008, from <http://sru.soc.surrey.ac.uk/SRU13.html>
- Harris, Z. (1996, March 26). *Institutional transformation*. (ERIC Document Reproduction Service No. ED405042). Retrieved October 18, 2008, from ERIC database.
- Hinchcliff, J. (2000). *The globalization of education*. (ERIC Document Reproduction Service No. ED447296). Retrieved October 18, 2008, from ERIC database.
- Holland, J. L. & Rayman, J. R. (1986). The self-direct search. In W. B. Walsh, & S.H. Osipow (Eds), *Advances in vocational psychology volume 1: The assessment of interests* (pp. 55-82). New York, NY: Routledge.

- Hong, Ying. (2009). Discussion of *the basic spirits of Chinese culture*. Xihua University. Retrieved December 12, 2009, from <http://theory.people.com.cn/GB/10073831.html>
- Hu, N. B., Watkins, D., Shao, T. P., Belaief, L., & Kehl, F. (1996). Planning and developing community colleges in China. U.S.-China Education Foundation, New York City.
- Hudong. (n.d.) 官本位 [Official Centered]. Retrieved December 12, 2009, from <http://www.hudong.com/wiki/%E5%AE%98%E6%9C%AC%E4%BD%8D>
- Hvistendahl, M. (2008) China moves up to fifth as importer of students. *The Chronicle of Higher Education*. Retrieved September 17, 2008, from <http://chronicle.com/weekly/v55/i04/04a00103.htm>
- Imel, S. (2002). *Career development for meaningful life work*. (ERIC Document Reproduction Service No. ED467240). Retrieved November 11, 2008, from ERIC database.
- Jie, Y. (2007). Internationalization in Chinese education: Policy analysis through a theoretical framework review. *Pacific Asian Education*, 19 (1), 58-71.
- Johnson, A. G. (1995). *The Blackwell dictionary of sociology: A user's guide to sociological language*. Cambridge, MA: Basil Blackwell Inc.
- Johnson, B., & Christensen, L. (2004). *Educational research: Quantitative, qualitative, and mixed approaches* (2nd ed.). Boston: Pearson Education, Inc.

- Keating, J., Medrich, E., Volkoff, V., & Perry, J. (2002). Comparative study of vocational education and training systems: National vocational education and training systems across three regions under pressure of change. Leabrook, Australia, National Centre for Vocational Education Research. Retrieved Nov. 14, 2008, from <http://www.ncver.edu.au/research/proj/nr9009.pdf>
- Kong, X., & Gimmestad, M. (1999). ERIC Review—U. S. community colleges and China's counterpart institutions. *Community College Review*, 27 (3), 77-91.
- Lechner, F. (2001). *World Culture Theory*, The Pensamiento Critico Website. Retrieved June 11, 2008 from <http://www.pensamientocritico.org/fralec0703.htm>
- Lechner, F. J. & Boli, J. (2005). *World culture: Origins and consequences*. Malden, MA: Blackwell Publishing.
- Levin, J. S. (2001). *Globalizing the community college: Strategies for change in the twenty first century*. New York: Palgrave Publishers Ltd.
- Li, H. (2005). 发展职业教育为什么要强调中国特色 [Why emphasizing on Chinese uniqueness of developing vocational education]. China Education and Research Network. Retrieved November 19, 2007, from <http://www.edu.cn/20051205/3164089.shtml>
- Li, H. Z. (2009). *高等职业教育概论* [An Introduction to higher vocational education]. Beijing, China: Science Publishing House.

- Li, J. Q. (2006). *高等职业教育研究与实践* [*Research and Practice on tertiary vocational education*]. Beijing, China: Science Publishing House.
- Li, L. (2003). LILANQING JIAOYU FANGTANLU. [Li Lanqing's memories on education], Beijing, China: People's Education Publishing House.
- Li, Y. P., & Lumby, J. (2005). The changing situation of new century vocational education in China, *Management in Education*. 19 (3), 12-15.
- Liu, C., & Long, Y. (2006). 高等职业技术教育改革探讨 [Explore the educational reform of tertiary vocational and technology education]. China Education and Research Network. Retrieved November 19, 2007, from <http://www.edu.cn/20060209/3172324.shtml>
- Liu, C., Wu, Z., & Ji, Y. (2003). 高等职业教育经费来源渠道及投资策略研究 [Discussion on the strategy of investment and funding resources for the tertiary vocational and technology education]. Retrieved November 19, 2007, from http://www.cctve.com.cn/iSystem/pageprocess?pageurl=paper/2003-06/25/content_19066.jsp
- Liu, H. (2006). 2005中国职业技术教育热点话题 [The 2005 hot topics in Chinese vocational and technological education]. Central Institution for Vocational and Technological Education, China Education and Research Network. Retrieved November 19, 2007, from <http://www.edu.cn/20060119/3171236.shtml>

- Ma, S. C. (2001). *XinShiJi ZhiYi JiaoYu ZouXiang JueZe* [The trend and choice of vocational education in the new age], Shanghai Educational Publishing House.
- McMurtrie, B. (2001). Community colleges become a force in developing nations worldwide. *The Chronicle of Higher Education*, 47 (37), A44-A46.
- McMurtrie, B. (2008). *Community colleges take on global challenges. The Chronicle of Higher Education*, Retrieved May 1, 2008 from <http://chronicle.com/daily/2008/04/2383n.htm>
- Merriam, S. B. (1988). *Case study in education: A qualitative approach*. San Francisco: Jossey-Bass Publications.
- Merriam, S. B. (2001). *Qualitative research and case study applications in education*. San Francisco: Jossey-Bass Publications.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: A sourcebook of new methods* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Ministry of Education (MOE). (2003). *中华人民共和国中外合作办学条例* [*The regulation of China and foreign joint venture in education*]. Retrieved November 21, 2007, from <http://www.edu.cn/20030325/3080642.shtml>
- Ministry of Education (MOE). (n.d.). Higher education in China. Retrieved November 1, 2008 from http://www.moe.edu.cn/english/higher_h.htm
- Motz, D. (2010, May 17). Community colleges' unfunded mandate. *Inside Higher Ed*. Retrieved June 26, 2010 from <http://www.insidehighereducation.com/news/2010/05/17/completion>

- NAFSA, Association of International Educators, & American International Education Foundation (AIEF). (n.d.). Some general differences between Chinese and American cultures. Retrieved June 20, 2010, from <http://www.china-nafsa.aief-usa.org/culture/differences.htm>
- National Bureau of Statistics of China. (NBSC). (2008). 改革开放30年报告 [The report of reform and open-door policy for 30 years]. Retrieved on February 11, 2010 from http://www.stats.gov.cn/tjfx/ztfx/jnggkf30n/t20081117_402517351.htm
- National Center for Education Statistics (NCES). (2006). Percentage of undergraduate credentials awarded by Title IV postsecondary institutions that are in career education. Retrieved August 24, 2009, from <http://nces.ed.gov/surveys/ctes/tables/P84.asp>
- National Center for Education Statistics (NCES). (2008). Commissioner's statement. Retrieved November 1, 2008, from <http://nces.ed.gov/programs/coe/statement/index.asp>
- National Population and Family Planning Commission of China. (2007). 2007年中国主要人口数据 [2007 Major Chinese population data]. Retrieved at September. 26, 2008, from http://www.chinapop.gov.cn/wxzl/rkgk/200806/t20080629_157022.htm
- Office of Educational Improvement and Innovation. (OEII) (2007). Program brief on career and technical education. Department of Education, Oregon. EII 07-Issue 8. Retrieved November 21, 2007, from <http://www.ode.state.or.us/teachlearn/pte/cteprogrambrief4-2007.pdf>
- Ollman, B. (1999). Market economy: Advantages and disadvantages. Retrieved December.12, 2009, from http://www.nyu.edu/projects/ollman/docs/china_speech2.php

- Organisation for Economic Co-operation and Development (OECD), (2009). Learning for Jobs: The initial report of the OECD policy review of vocational education and training. Retrieved January 31, 2010, from <http://www.oecd.org/dataoecd/36/24/43926141.pdf>
- Parsons, F. (1909). *Choosing a vocation*. Boston: Houghton Mifflin.
- Patton, M. Q. (1987). *How to use qualitative methods in evaluation*. Newbury Park, CA: Sage Publications.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Peterson, G. W., Sampson, J. P., & Reardon, R. C. (1991). *Career development and services: A cognitive approach*. Pacific Grove, CA: Brooks/Cole Publishing Company
- Peterson, G. W., Sampson, J. P., Reardon, R. C., & Lenz, J. G. (2003). Core concepts of a cognitive approach to career development and services. Center for the Study of Technology in Counseling and Career Development, University Center, Florida State University. Retrieved June 11, 2008, from <http://www.sociology.emory.edu/globalization/theories03.html>
- Phillippe, K. A., & Sullivan, L. G. (2005). *National profile of community colleges: Trends and statistics* (4th ed.). Washington, DC: American Association of Community Colleges.
- Phillips, D., & Schweisfurth, M. (2007). *Comparative and international education: An introduction to theory, method, and practice*. New York: Continuum International Publishing Group.
- Phillips, D., & Schweisfurth, M. (2008). *Comparative and international education*. New York: Continuum International Publishing Group.

- Pope, M., Zhang, W., & Hu, X., (2002, March). The evolution of career guidance and counseling in the People's Republic of China. *The Career Development Quarterly*, 50, 226-236.
- Postiglione, G. (2001, Spring). Community college development in China, *International Higher Education*, Center for International Higher Education, Boston College.
- Reyes, G. E. (2001, Spring). Theory of globalization: Fundamental basis, University of Pittsburgh Graduate School of Public and International Affairs. *Sincronía*, Primavera. Retrieved August 24, 2009, from <http://sincronia.cucsh.udg.mx/globaliz.htm>
- Robertson, R. (1991). The globalization paradigm: Thinking globally. In *Religion and Social Order* (pp. 207-224). Greenwich: JAI Press.
- Robertson, R. (1992). *Globalization: Social theory and global culture*. London: Sage.
- Roekel, D. V. (2010). Global competence is a 21st century imperative. *An NEA policy brief*. NEA Education Policy and Practice Department, Washington, D.C.
- Salmi, J. (2000). Tertiary education in the twenty-first century: Challenges and opportunities. The World Bank, LCSHD Paper Series No. 62.
- Sen, A. (2002). How to judge globalism: Global links have spread knowledge and raised average living standards. But the present version of globalism needlessly harms the world's poorest. *The American Prospect*, 13 (1), p. A2 (5).
- Shi, Z. (2001). 以创新思路架构高职高专发展战略 [In a creative mind to establish the strategy of developing the tertiary vocational education]. *Chinese Higher Education*, 2001, No. 12.

- Smith, D. J. (2007). How community colleges can work for world peace. *The Chronicle of Higher Education*, 54 (9), B30.
- Smith, J. (1989). *The nature of social and educational inquiry: Empiricism versus interpretation*. Norwood, NJ: Ablex.
- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.
- State Council of China. (2005). *国务院关于大力发展职业教育的决定*. [Decision of the State Council on strongly developing vocational education]. Retrieved November 19, 2007, from http://www.gov.cn/zwggk/2005-11/09/content_94296.htm
- State Council of China. (2006). *全民科学素质行动计划纲要 (2006-2010-2020)*. [The guidelines and action plan for scientific attainment for all people (2006-2010-2020)]. Retrieved at November 21, 2007, from http://www.gov.cn/jrzg/2006-03/20/content_231610.htm
- States' Career Clusters Initiative (SCCI). (2008a). Our vision, mission and goals. Retrieved November 19, 2007, from <http://www.careerclusters.org/whatis.php>
- States' Career Clusters Initiative (SCCI). (2008b). Our vision, mission and goals. Retrieved November 19, 2007, from <http://www.careerclusters.org/vision.php>
- Stromquist, N. (2002). *Education in a globalized world: The connectivity of economic power, technology, and knowledge*. New York: Rowan & Littlefield Publishers, Ltd.
- Wang, Z, (n. d.) *神童诗* [Poet of Genius Kid]. Retrieved April 19, 2010, from <http://baike.baidu.com/view/1390407.htm?wtp=cat#2>

- Willis, J. W. (2007). *Foundations of qualitative research: Interpretive and critical approaches*. Thousand Oaks, CA: Sage Publications.
- Wilson, J.Q., & DiIulio, J. J. (1995). *American government*. Lexington, MA: D.C. Heath and Company.
- Wonacott, M. E. (2001). *Career clusters. The highlight zone: Research @work*. (ERIC Document Reproduction Service No. ED461730) Retrieved November 11, 2008, from ERIC database.
- Wu, R. T. Y. (2002). A comparative study of the trends in career and technical education among European countries, the United States, and the Republic of China. Retrieved May 1, 2008, from http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/000019b/80/1a/f4/a4.pdf
- Yang, H. (2008). Comparative studies on Sino-Canadian higher education. *US-China Education Review*, 5 (3).
- Yang, J. T. (2003). 我国高职教育形势刍议 [The preliminary discussion of national situation of the tertiary vocational education]. *Chinese Vocational and Technical Education*, 2003, No. 26.
- Yang, W., & Zhang, M. (2003). 进入 21 世纪的高等职业教育 [Entering the twenty first century of the tertiary vocational education]. Zhengzhou Railroad Technology Vocational Institution. *Chinese Vocational and Technical Education*, 2003, No. 26.
- Yin, R. K. (1994). *Case study research: Design and methods*. Thousand Oaks, CA: Sage Publications.
- Yu, Z.W., & Wu, Z. L. (2005). 迈向“世界工厂”进程中的中国高等职业技术教育 [Chinese tertiary vocational education in the process of

- entering “world factory”]. ShenZhen Technology Vocational Institution. *Vocational and Technical Education*, 2004, No. 1.
- Zhang, W., Hu, X., & Pope, M. (2002, March). The evolution of career guidance and counseling in the People's Republic of China. *The Career Development Quarterly*, 50, 226-236.
- Zhou, M. S. (2002). 中国百姓蓝皮书：教育发展最快的十年 [The Chinese people’s bluebook: The fastest decade of education development in China]. Retrieved November 19, 2007, from http://www.edu.cn/zong_he_news_465/20060323/t20060323_55998.shtml
- Zhu, X. M. (2005). The problems and strategies of adult education in minority regions. Adult Education College, Xinjiang Talimu University, Xinjiang, China.
- Zou, D. T., & Ouyang, R. H. (2009). 中国经济发展和体制改革报告NO.2: 中国道路与中国模式 (1949-2009) [The Chinese economy and system reform report No. 2: Chinese way and Chinese model: 1949-2009]. China: Social Science Achieve Publisher.

APPENDICES

Appendix A

Participant Interview Questions

1. What are the purposes of the CTE programs at your institution based on multiple perspectives, including economic, social (cultural and philosophical), national, and regional?
2. What decision-making processes, administrative procedures, and planning strategies are used at your institution to establish, develop, and operate your CTE programs? Please address the five areas listed below and any additional areas that may be relevant.
Faculty: recruiting, qualifications, teacher numbers, full/part time ratio, faculty training program/method;
Curriculum: course development processes, program structure, internship/ hands-on or experiential courses, industrial practices;
Teaching: methods, scheduling, textbooks, lab facilities;
Revenues: taxes, tuition and fees, cooperative donations, other sources of funding;
Students: admission processes, student numbers, job placement services;
3. What are the major strengths and uniqueness of your CTE programs collectively and individually?
4. How does the globalized market economy affect your CTE programs and how do you address the related challenges?
5. Considering the purpose of this study, which is to explore and compare CTE programs at a US and Chinese institution, are there any additional questions I should have asked or you think are important to understanding the CTE program at your institution?

Appendix B
Informed Consent – Participant

Thank you for agreeing to participate in this study that will take place from September, 2008 to January, 2010. This form outlines the purposes of the study and provides a description of your involvement and rights as a participant.

I consent to participate in a research project conducted by Harry Hou, a doctoral student at National-Louis University located in Chicago, Illinois.

I understand the study is entitled A Comparison Of The Career And Technology Education Programs In A US Community College And A Comparable Chinese Institution. The purpose of the study is to explore and compare how the Career and Technology Education (CTE) programs are organized and operate in a US community college and a comparable Chinese institution. It will answer five essential questions: (1) What are the general organizational structure and operations of the CTE programs located in a US community college and a Chinese institution; (2) what strengths and challenges do the CTE programs face in each institution; (3) what are the administrative decision-making processes and procedures each institution utilizes when establishing a new CTE program; (4) how does each institution plan for a CTE program, in terms of financial support, teacher preparation, and student services; and (5) what are the

similarities and differences of the CTE programs between a US community college and a comparable Chinese institution?

I understand that my participation will consist of audio-taped interviews lasting 1 to 1½ hours in length with a possible second, follow-up interview lasting 1 to 1½ hours in length. I understand that I will receive a copy of my transcribed interview at which time I may clarify information.

I understand that my participation is voluntary and can be discontinued at any time until the completion of the dissertation.

I understand that only the researcher, Harry Hou, will have access to a secured file cabinet in which will be kept all transcripts, taped recordings, and field notes from the interview(s) in which I participated.

I understand that the results of this study may be published or otherwise reported to scientific bodies, but my identity will in no way be revealed. Also, the name of the my institution will not be published.

I understand there are no anticipated risks or benefits to me, no greater than that encountered in daily life. Further, the information gained from this study could be useful for CTE programs in the US and China.

I understand that in the event I have questions or require additional information I may contact the researcher: Harry Hou, 10022 Devonshire Lane, Munster, IN 46321. Phone (219) 922-4803 or E-mail: houhain@cod.edu.

If you have any concerns or questions before or during participation that you feel have not been addressed by the researcher, you may contact my Primary Advisor and Dissertation Chair: Dr. Diane Oliver, National-Louis University, 122 S. Michigan Avenue, Chicago, IL 60603. Phone (312) 261-3728 or E-mail: diane.oliver@nl.edu.

Participant's Signature: _____

Date: _____

Researcher's Signature: _____

Date: _____

Appendix C

Demographic Questions for Research Participant

Date: _____ Participant Name: _____(optional)

Please complete this demographic background questionnaire for the CTE study.

1. How many years have you worked in the CTE field:

Less than 5 years _____

5 - 10 years _____

11 - 15 years _____

16 – 20 years _____

21 – 25 years _____

26 – 30 years _____

Over 30 years _____

2. How many levels of administrative positions are in your institution?

What is your current position?

_____ Levels

- President
- Vice president
- Dean
- Associate dean
- Department coordinator
- Faculty member

3. How many total years and in what roles have you participated in a community college?

As faculty member in a community college: *Years* _____

As coordinator in a community college: *Years* _____

Other _____ in a community college: *Years* _____

4. What departments have you supervised and/or worked in at a community college. Please list all departments throughout your career, as well as length of time (i.e. computer science department, student services, advising, etc.)

	Departments	Number of Years
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

5. Please check the highest degree you have obtained:

Doctoral_____Master_____Bachelor_____Associate_____Other_____

6. Please list your industry employment experience below:

Job/position Title: # of Years Worked

7. Have you ever traveled on business or for pleasure to a foreign country?

Yes ___ No ___ If yes, please list all the places you have visited.

1. _____
2. _____
3. _____
4. _____
5. _____

8. Please list a few of the most popular CTE programs in your institution.

_____	_____
_____	_____
_____	_____

Thank you for taking time from your busy schedule to complete this form.

The thoughtful sharing of your experiences is appreciated and will benefit my research.

Harry Hou

Doctoral Student

National-Louis University

Appendix D

Confidentiality Agreement on Data Transcription/Translation

This confidentiality form articulates the agreement made between Harry Hou, the researcher, and [NAME OF INDIVIDUAL AND COMPANY OF A PROFESSIONAL TRANSCRIBER].

I understand and acknowledge that by transcribing/translating the audiotapes provided to me by Harry Hou, that I will be exposed to confidential information about the research study and the research participants. In providing transcription/translation services, at no time will I reveal or discuss any of the information of which I have been exposed.

In addition, at no time will I maintain copies of the electronic or paper documents generated. Further, upon completing each transcription/translation, I agree to provide the electronic and paper documents to the researcher:

Harry Hou
10022 Devonshire Lane
Munster, IN 46321, USA
(219) 922-4803
houhain@cod.edu

I understand that breach of this agreement as described above could result in personal and professional harm to the research participants for which I will be held legally responsible.

Transcriptionist's

Signature: _____

Date: _____

Researcher's

Signature: _____

Date: _____