Addressing Completion in Level I Workforce Certificate Programs in Rural East Texas

by

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Abstract

By 2018, 56% of all job openings required skilled training or a workforce certificate to meet the technical skills needed for business and industry. The problem of this study was that low completion rates in Level I workforce certificate programs at community colleges across Texas contributes to the increasing shortage of available skilled workers to fill vacated and new positions in business and industry. This study was intended to provide answers to the research questions about which groups of students enrolled in Level I workforce certificate programs in rural east Texas are completing at higher rates than others. The purpose of this quantitative research study was to discover to what extent significant correlations exist in completion rates by gender, race/ethnicity, and college for adult students in Level I workforce certificate-programs at rural, east Texas community colleges from 2014-2017. The quantitative correlational research study was conducted using archival data posted on a public website. The population consisted of approximately 470,000 students across Texas, the archival data were collected, and the sample included all students who failed to complete a Level I workforce certificate from one of four community colleges listed in the study. While research has been conducted about completion in higher education in general, there was little information specifically targeting completion from Level I certificates at rural community colleges.

Dedication

I dedicate this dissertation to my husband and soul mate, Johnny Dozier. I thank him for his understanding and support of the time commitment necessary to complete this project. From grocery shopping to running menial errands that often included providing meals for me while I studied was remarkable and spoke volumes of your love and support for me. There is no doubt, without you, this journey would have been much more difficult, if not impossible. As I always say, God made you just for me, and me just for you. He knew long before we did what we would accomplish together. Thank you for being you.

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Chapter 1: Introduction

Higher education institutions have seen an increase in the number of adult students enrolling in recent years (National Center for Educational Statistics, 2017). The increase in the number of students enrolling at higher education institutions occurred between the years 2005 to 2010; however, in the years 2010 to 2015, administrators started realizing decreases in enrollment and low completion rates for the enrolled learners. The trend in low completion rates for Level I workforce certificate programs is a concern for administrators at community colleges in Texas. Workforce certificate programs such as Automotive Technology, Construction Technology, Air Conditioning and Refrigeration Technology, Industrial Technologies, Culinary Arts, Cosmetology, Office Careers, and many others are offered to equip students with the necessary skills matching the workforce requirements. At community colleges in Texas, students are not required to demonstrate college readiness before enrolling in a Level I workforce certificate program (Texas Higher Education Coordinating Board, 2015).

The Texas Higher Education Coordinating Board (2015) allows colleges to perform internal assessments for the students and design academic remediation programs for the workforce students to facilitate persistence leading to completion in level 1 workforce certificate programs. The Texas Higher Education Coordinating Board is the agency in Texas responsible for regulation of higher education across the state. The board oversees all activities of higher education and determines if the higher education institutions are permitted to offer specific certificate and degree programs. The Level 1 workforce certificate programs offered by some community colleges cover a minimum of 15 semester credit hours up to 45 semester credit hours to completion (Texas Higher Education Coordinating Board [THECB], 2015). The shorter period

allows adult learners enrolled in the programs to complete the course in less time and attracts more learners to enroll in Level I workforce certificate programs.

Adult learners have commitments and other responsibilities, so community colleges design these programs to accommodate the unique requirements of these learners. The courses and programs are designed to cover both theoretical and practical aspects to equip adult learners with the skills needed in the workforce (Helaire, 2014). Workforce certificate programs cover a range of fields which include, but are not limited to, Automotive Technologies, Construction Technology, Welding Technology, Air Conditioning and Refrigeration, Industrial Technologies, Culinary Arts, Cosmetology, Office Careers, and a variety of other programs depending on the region of the state (Texarkana College, 2018). The programs are tailored to be more technical with an emphasis on equipping the learners with technical skills in demand in the workplace (Gonzales, 2017). In most Texas community colleges, the programs are open to all interested students to enroll (Spangler, 2012). The concern is not the number of students enrolled, but the number of students who persist in completing the course sequences in the programs at community colleges.

The objective is to encourage as many people as possible to enroll in the programs and benefit from the skillsets obtained when completing the programs. There are very few colleges experiencing satisfactory completion rates for adults enrolling in Level I workforce certificate programs (Rodriguez, 2013). The issue of persistence has remained a significant challenge for the community colleges to oversee students to completion in certificate programs chosen. The study has the objective of establishing demographic attributes to determine completion rates in rural, east Texas, colleges. The research design and approach were focused on whether or not correlations between demographic variables and completion rates exist among adult learners

enrolled in Level 1 workforce certificate programs at rural, east Texas community colleges from 2014-2017.

Chapter 1 introduces this quantitative correlational research study. The background of the study provides research information including a brief literature review relating to the concern about the lack of completion in Level I workforce certificate programs across Texas and the impact this issue has on a larger scale. The chapter also includes the problem statement, the significance of the study proposal, research questions and hypotheses, theoretical framework, a listing of the definition of terms used, assumptions, scope and delimitations, limitations, and a summary of the chapter contents.

Background of the Study

The prior research shows there is a decline in the number of skilled employees available as the majority of the baby boomer generation is retiring and the market demands for specific skills increase across the United States (Modestino, 2016). Employers are interested in skilled employees who can meet the market requirements as employers are looking for already trained and skilled individuals to fill available positions. A shortage of skilled technical workers has had an impact on the Texas workforce with available candidates lacking the required technical skills to fill available positions (Texas Association of Workforce Boards, 2014). Community colleges in the larger Texas region are not producing enough skilled candidates to replace the aging workforce, and the states and community colleges need to work together to ensure the current skills gap is filled. Collaboration between the states and the community colleges can help in finding solutions to fill in the increasing skills gap in the job environment (Shaffer, 2015). Enhancing the skills pool to meet job market demands becomes the responsibility of the institutions of higher learning in Texas and other states to locate the best possible approach

(Shaffer, 2015). Research literature provides insufficient evidence on how the different enrollment demographics affect the persistence of students enrolled at community colleges.

This study determined if a significant correlation existed between students who complete Level I workforce certificate programs and demographic variables including gender, race/ethnicity, and college. As established by previous research, completion rates among adults who enroll in Level 1 certificates were less than 15 % which is quite low given the programs are one year or less in length (Complete College America, 2013). Statistics point to the fact that about 70 % of certificate-seeking students at community colleges fail to persist to completion which is directly affecting the skills pool making the workforce globally uncompetitive (Kennedy, 2015). The dropout rates among adult learners are not only affecting the skills, but also affecting the cultural diversity in the community college as minority populations are dropping out of college in higher numbers (National Center for Educational Statistics, 2008).

Although universities and community colleges adopted the open enrollment policy, the policy has done little to address the pertinent issues associated with persistence rates among students to complete college. Open admission was initially viewed as a solution to encourage more adult learners to enroll in programs with 95 % of the institutions adopting the policy (National Center for Educational Statistics [NCES], 2008). The policy was mainly supported by the fact that colleges in the past decade were overlooking Level I workforce certificate programs with an increased focus towards degree programs. The educational programs mainly focused on educational attainment while ignoring technical skills development among the learners. As proposed by this research, enhancing the technical skills improves not only the educational attainment but also boosts the skilled labor pool which is beneficial to the community (NCES, 2008). Community college enrollment rates increased in the years 2000–2010, but then

experienced declines with the changes in economic conditions and changing labor market

demands being significant factors (NCES, 2008). The study conducted by the National Center for

Educational Statistics (2008) reported a decline in the number of adult students persisting to

complete college could have far-reaching implications on the job market.

Statement of the Problem

The problem of this study is that low completion rates in Level I workforce certificate

programs at community colleges across Texas contribute to the increasing shortage of available

skilled workers to fill vacated and new positions in business and industry. Efforts have been

made to decrease and close the skills gaps in the current workforce, but the issue of completion

with adult students from Level I workforce certificate programs still exists. Programs like

Closing the Gaps and *60X30TX* were created by Texas legislation to reinforce the idea of

motivating and promoting students to complete college. Despite these efforts, Texas is still

lagging behind in attainment of the desired educational skills to match the requirements of the

workforce. According to research, the situation is projected to become more severe by the year

2040 (Texas Association of Workforce Boards, 2014). As established by the Texas Association

of Workforce Boards, the issue of skilled labor shortage will remain a significant problem unless

active steps are taken to ensure colleges tailor programs targeted to reduce the shortage. The

situation is further aggravated by the increased number of workers from an aging, skilled

workforce which are exiting due to retirement.

Additionally, the lack of completion in technical certificate programs puts the employers

in a compromising situation. Texas has made deliberate efforts to increase adult certificate

enrollment rates and decrease the drop out rates in community colleges. The lack of completion

in technical certificate programs was attributed to low retention rates because many of the

enrolled students drop out during the course sequence in the programs. Completion in Level I workforce certificate programs for adult students enrolled at community colleges was relatively low. If institutions are focused on providing the next generation of talented employees, then equipping existing or new programs for skills training that is in demand with updated equipment becomes necessary for graduates who complete the programs. Through persistence, students enrolled in Level I workforce certificate programs will complete and acquire the necessary skills to fill positions added by a growing economy in Texas.

At one college, for example, approximately 900 students enrolled in a Level I workforce certificate program from 2014-2017, and approximately 40% of the 900 students failed to persist to completion (Texarkana College Institutional Effectiveness and Research, 2018). Studies show employment for students while enrolled in a community college can be an issue (MacDonald, 2018). Employment for students while enrolled in Level I certificate programs was a significant barrier limiting those working students from persisting and completing college, while traditional students were 12 times more likely to persist in completing a certificate program and acquiring the certificate (Macdonald, 2018). The lack of persistence among community college students leads to loss of college revenue and fewer graduates entering the workforce (Riddick, 2014).

A significant number of factors and challenges force adult students to drop out of college and research seeks to evaluate those factors with the goal of assisting institutions in developing remedies to solve the challenges (Morrison Goings, 2013). A literature review has shown many potential factors contributing to the low persistence rates among adult learners enrolled in Texas community colleges (Kennedy, 2015). There was little research or evidence in the literature providing answers for the low completion issues among Level I workforce certificate-seeking adult students enrolled at rural, community colleges across Texas. Although there was research

on the issue, little attention was given to addressing which demographic groups such as gender, race/ethnicity, and college were completing Level I workforce certificate programs more frequently. Studies have been conducted in other regions, but so far no study has been conducted targeting the Texas Level I workforce certificate-seeking students enrolled in rural, east Texas, community colleges. The research will add value to the existing literature by specifically addressing persistence challenges and completion numbers for adult students in Level I workforce certificate programs in Texas.

Purpose of the Study

The purpose of this quantitative research study was to discover to what extent significant correlations exist in completion rates by gender, race/ethnicity, and college for adult students in Level I workforce certificate-programs at rural, east Texas community colleges from 2014-2017. The inclusion criteria for the research was all participants were 17 years of age and above and completed a Level I workforce certificate program at one of the four rural, east Texas community colleges specified in the study. The population size for this study consists of approximately 470,000 adult students previously enrolled in a Level 1 workforce certificate program, also referred to as vocational students, enrolled at nonprofit community colleges across rural, east Texas from 2014-2017. Four rural, east Texas community colleges were included in the study. The research study included all enrolled Level 1 workforce certificate-seeking adults from the four Texas community colleges and no exclusion criteria were used for this study. The study examined demographic characteristics such as gender, race/ethnicity, and college.

A quantitative correlational study was conducted to determine if significant correlations exist between groups of adult students (by gender, race/ethnicity, college, and completion rates) in Level I workforce certificate programs from rural, east Texas community colleges who

completed from 2014-2017. Descriptive statistics included raw data representing the

demographic characteristics of the sample such as gender, race/ethnicity, and college. The

procedures and techniques involved in descriptive statistics allow for summarizing using methods

to describe the mode for gender, race/ethnicity, and college of students completing a Level I

workforce certificate program from one of the four rural east Texas community colleges in the

study. For purposes of this study, archival data for all Level I workforce students who completed

from 2014-2017 were analyzed to measure the most frequently occurring data in the demographic

categories to determine which category had the highest level of completion. Group frequencies,

standard deviation, and ranges were the variables of the gender, race/ethnicity, and college data to

be presented in charts and graphs from the raw data collected in this study (Creswell, 2014).

Descriptive statistics were used to summarize archival completion data for adult

workforce Level I certificate-seeking students from four rural, east Texas community colleges

collected from the Texas Higher Education Coordinating Board's Interactive Database online.

Descriptive statistics allowed for summarizing data using methods to describe the mode for

gender, race/ethnicity, and college for students completing Level I workforce certificate

programs. Inference for categorical data involves significance testing for ways to test the

hypotheses about distributions for the population of students who completed Level I workforce

certificate programs by gender, race/ethnicity, and college from community colleges across

Texas. Following the statistical testing, the hypotheses were answered to determine if significant

correlations exist between the categories of adult Level I workforce certificate-seeking students

by gender, race/ethnicity, and college. The correlational study provided the opportunity to

analyze archival data then describe a naturally occurring situation after the proper statistical

testing had been completed (Creswell, 2014).

Finding significant correlations among the demographic groupings of students by gender, race/ethnicity, and college using significance testing for categorical data provided answers to the hypotheses regarding student completions in Level I certificate programs while also supporting the need for intervention development. The goal was to analyze data and conduct the most appropriate statistical testing to understand which demographic category showed the highest completion level. Locating answers to these questions required data analysis from reporting agencies, and trend comparisons to build moderation and validity of the study (Kennedy-Clark, 2015). All student demographic data were collected based on persistence leading to completion by the Texas Higher Education Coordinating Board and made available on the THECB's interactive accountability database collection website (THECB, 2018c). Student demographic information such as gender, race/ethnicity, and college were collected and tested to determine which groups completed at the highest levels without names or additional personal identifiers present.

The study was a quantitative research design to examine enrollment and completion data for students in Level I workforce certificate programs at four community colleges in rural, east Texas between 2014-2017. The secondary data reported to the Texas Higher Education Coordinating Board by designated officials at the community colleges in Texas were needed for this study. The data were collected from the Texas Higher Education Coordinating Board's public database on the THECB's accountability webpage. The research study was designed to determine if significant correlations exist in completion between the variables containing gender, race/ethnicity, and college groups. Completion from a Level I workforce certificate program was the dependent variable for the study. The independent variables for the study were (1) male, (2) female, (3) African American, (4) Hispanic, (5) White, (7) other, and (8) college.

By 2018, 56% of all job openings required skilled training or a workforce certificate (The Center for Public Policy Priorities, n.d.). The success of the economy in Texas relies heavily on community colleges to produce graduates with the skills necessary to meet the demands of a technically trained workforce. The literature indicated little research was providing evidence of correlations in completion between demographic groupings among workforce Level I certificate-seeking students. Emphasis was placed on student success for academic degree-seeking students, and the same efforts are necessary to improve completion rates for Level I certificate-seeking students. Erikson's Theory relates to the proposed quantitative descriptive study as Erikson explains the importance of psychosocial development, the relation to adulthood, and career success. Based on Erikson's Theory, identity is the outcome of an ever-changing stage occurring during one's life course to include a socially recognized occupation (Erikson, 1963; Karkouti, 2014).

The lack of research concerning the completions issue in workforce Level I certificate programs contributed to the negative impact on the local and state economy in Texas with a shortfall in skilled workers (Texas Association of Workforce Boards, 2014). Improving completion rates may lead to an increase in the number of skilled employees available to businesses and industries in need of replacing an aging workforce and economic growth. Finding commonalities in demographic data of students who complete Level I workforce certificate programs supports the need for intervention development for the student groups lagging behind. The goal was to provide data to make suggestions to administrators in community colleges for changes to improve completion of Level I workforce certificate-seeking students across Texas. A higher educated workforce is needed to address the skills gap expected to increase over the next 20 years (Texas Association of Workforce Boards, 2014).

At one rural, east Texas community college with over 900 students enrolled in Level I workforce certificate programs from 2014-2017, approximately 40% failed to complete, and this lack of persistence may likely continue each year without research and recommended changes being made (Texarkana College Institutional Research and Effectiveness, 2018). The data collected and examined may help to guide the response of administration in decision-making at nonprofit, rural, east Texas community colleges. These changes may also lead to increasing student persistence in obtaining a Level I workforce certificate and the opportunity for an improved life upon completion.

This quantitative correlational study was designed to determine if demographic characteristics influence the completion of workforce certificate-seeking students enrolled at community colleges across rural, east Texas from 2014-2017. Collecting and examining demographic data by categories using significance testing to draw conclusions and predict trends may help in recommending necessary changes to assist students with persistence to completion to help improve the technical skills gap reported across Texas. Significance testing will allow conclusions to be drawn and predictions for generalizations of unobserved data from smaller sample sizes to be made. Conclusions can be made from descriptive data using significance testing on categorical data for comparison, testing, or making predictions. Descriptive statistics were used to summarize known specific demographic raw data of Level I workforce certificate-seeking students from one of four, rural, east Texas community colleges collected from state and federal agencies.

Significance of the Study

The findings of this study may benefit business and industry seeking to hire skilled graduates of certificate programs, the students, and families, in addition to community colleges based on the importance of persistence to completion at the state and national levels. Community colleges choosing to adopt and implement recommendations derived from this study could potentially produce higher skilled and more employable graduates to help close the skilled labor gap. The study may guide the researcher in determining areas to improve the rate of completion and employment for students enrolling in Level I workforce certificate programs at community colleges across rural, east Texas. Also, this study may help to guide community colleges in designing support services appropriate for the needs of Level I workforce certificate-seeking students.

Some enrollment populations, such as white, African American, and Hispanic have increased from 2000 to 2015, with an even more substantial enrollment increase for white females (National Center for Educational Statistics, 2017). By understanding the demographic differences and needs of the students enrolled in Level I workforce certificate programs, college administrators, educators, and support staff are better informed when developing and providing support services to meet these needs leading to persistence, completion, and employment. Nearly four billion dollars of taxpayer money was spent on *first-time* community college students from 2004 to 2009 who failed to persist to the following year (Womack, 2014). While all community colleges offer some occupational/vocational/workforce programs, most institutions will also provide employment assistance and placement services to assist the students to completion and beyond (Womack, 2014). Community college, non-traditional, adult students have lower self-confidence in academic abilities than those coming right out of high school (Womack, 2014).

Based on the current persistence rates, and the national completion debate, addressing the unique needs, challenges, and goals of community college vocational/workforce students becomes critical (MacDonald, 2018).

Research Questions

Persistence and lack of completion in Level I workforce certificate programs affect stakeholders such as students, taxpayers, and college administrators focusing on the next generation of skilled employees to replace retirees and fill newly added positions. Understanding which demographic groups of adult students who are completing compared to those who are not completing will help to develop support services needed to increase persistence for low-performing groups. The following research questions served as a guide in the quantitative study of completion rates by gender, race/ethnicity, and college in Level I workforce certificate programs at four, rural, east Texas community colleges.

Research Question 1: To what extent is there a significant correlation between completion rates and gender for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017?

Research Question 2: To what extent is there a significant correlation between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017?

Research Question 3: To what extent is there a significant correlation between completion rates and college for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017?

Hypotheses

H1$_o$: No significant correlation exists between completion rates and gender for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

H1$_a$: A significant correlation exists between completion rates and gender for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

H2$_o$: No significant correlation exists between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

H2$_a$: A significant correlation exists between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

H3$_o$: No significant correlation exists between completion rates and college for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

H3$_a$: A significant correlation exists between completion rates and college for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

Theoretical Framework

Erickson's psychosocial identity theory involves different phases of life and experiences individuals encounter including the achievement of generativity defined as productive creativity regarding vocational and professional contributions to society (Erikson, 1963). Erikson believed

a strong identity and healthy body, along with an intelligent and curious mind are what adults live by, although the adults may not understand the power of these actions if allowed to dominate the individual's life or thoughts (Erikson, 1963). Erickson's psychosocial identity theory described the developing sense of duty, feelings of workmanship, and participation necessary for a positive psychosocial identity (Karkouti, 2014). An individual who lacks the willingness to learn, succeed and master specific skills will be led to the feelings of incompetence developing a negative psychosocial identity (Karkouti, 2014).

Erikson's theory explains the importance of adult students developing a sense of duty, workmanship, and participation to guide individuals to develop a positive attitude and the ability to succeed which are both necessary attributes to complete a Level I workforce certificate program and enter the workforce. The research questions will help to determine which demographic categories of Level I workforce certificate-seeking students might benefit from added or improved institutional support to complete these programs. The research will focus on identifying significant correlations in completion by demographic characteristics of students attending Level 1 workforce certificate classes and how the persistence of the learners can be enhanced to improve completion rates.

Erikson's identity theory supports the need for assistance with adult students enrolled at community colleges leading students to develop a sense of duty, feelings of accomplishment through persistence, and workmanship to enter the workforce in Texas. Understanding the demographics of students who persist to completion will allow for the development of specialized intensive support systems such as childcare, flexible schedules, public transportation, or housing to facilitate college completion rates among the adult learners lagging behind (Osam, Bergman, & Cumberland, 2017). Erikson's identity theory will be used in the study based on the importance

of improving the students enrolled in Level I workforce certificate programs psychosocial identity to promote feelings of competence and the ability to succeed leading to an improved persistence rate. Based on the outcomes of this study, understanding which demographic groups prove to have the highest completion rates will guide institutions in assisting students in developing confidence and the ability to succeed in the students who appear to be struggling. The development of additional student support services may lead to higher persistence rates to completion in Level I workforce certificate programs, and a better quality of life.

Erikson's Psychosocial Identity Theory/Vocational

Goal-Help Students Develop a Positive Sense of Duty and Commitment

Workforce Certificate Student Persistence & Positive Psychosocial Identity Leads to Success and an Improved Quality of Life

Goal-Help Students Develop Feelings of Accomplishment through Persistence and Workmanship

Goal-Help Students to Develop Positive Feelings of Workmanship and Participation
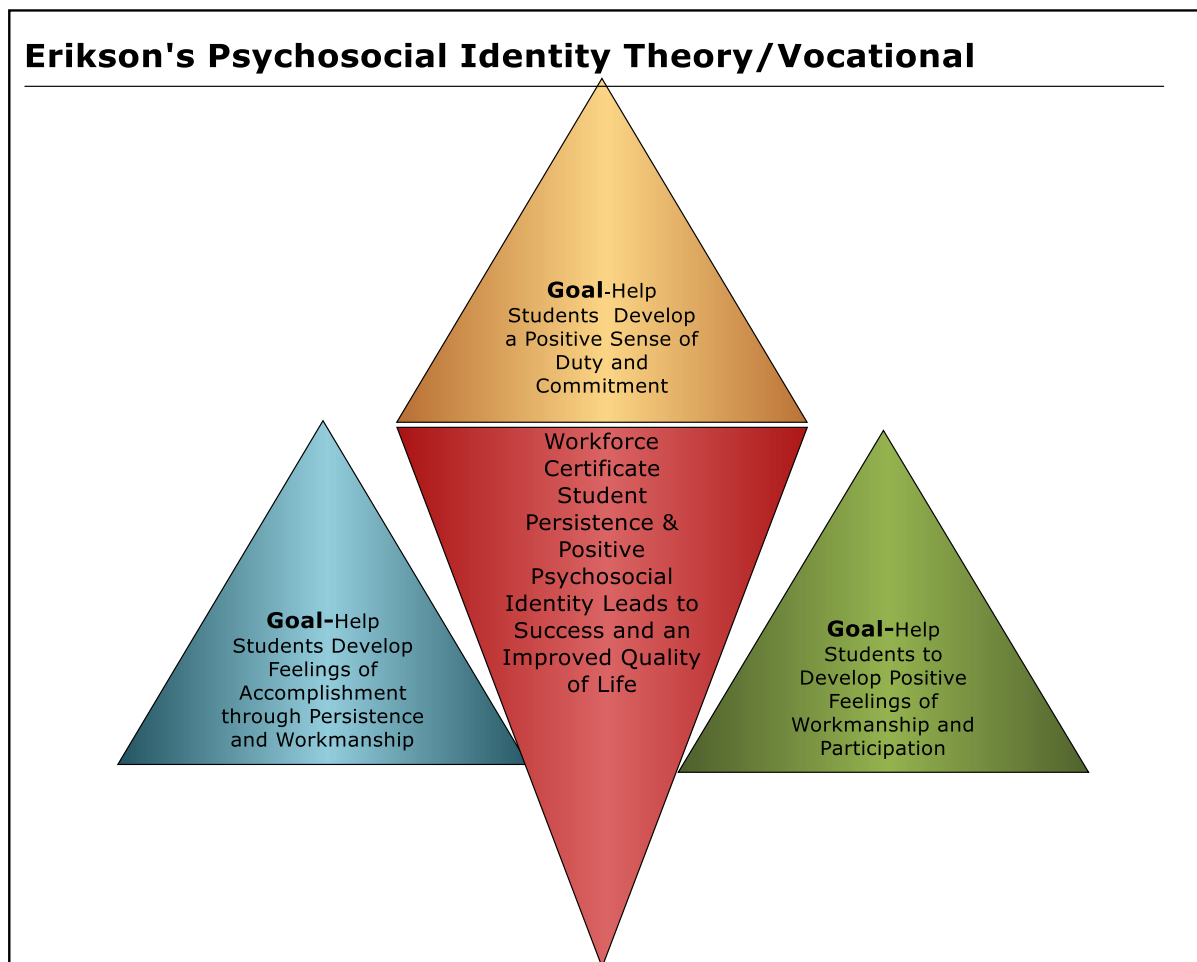
Figure 1. Erikson's psychosocial identity theory and impact on workforce students.

Definitions of Terms

The research used different terms throughout the study, and the terms are standard in workforce certificate programs. The terms represent state agencies, educational programs, and regulatory organizations. The definitions section was significant for the study as it provided a standard definition of the common terms utilized in the entire research process. The study was conducted using archival enrollment and completion data from workforce Level I certificate programs offered at community colleges across rural, east Texas.

Adult Basic Education-The term refers to educational activities administered by the *Division of Adult Education and Literacy (DAEL)*-The organization responsible for the administration of programs to help adults acquire the basic educational skills needed such as reading, writing, math, English language proficiency, and problem-solving. The objective is to facilitate societal productivity among workers, family members, and citizens (United States Department of Education, 2018).

*Level I Certificate Programs (*Cert1*)*-The term refers to technical programs designed for entry-level employees who require upgrading technical skills. The programs target mainly entry-level employees and are designed to cover at least 15 credit hours and a maximum of 45 credit hours. The programs are short enough to be completed within one year which is convenient for working students (Texas Higher Education Coordinating Board, 2015).

Non-traditional student-Non-traditional students refer to independent students who are older than 25 with or without a family, working part-time or full time and attending college. The criteria for defining non-traditional students in this study will cover the participants who are financially independent, have dependents, can be single parents, and pursuing a certificate or diploma (Chen, 2014).

GIPWE-The term stands for Guidelines for Instructional Programs in Workforce Education

developed by the Texas Higher Education Coordinating Board to guide the process of adult

education (Texas Higher Education Coordinating Board, 2015).

State Funded Community Colleges-The state community colleges are institutions which offer a

variety of educational programs which cover a range of fields. Some of the colleges are

comprehensive public institutions providing a wide variety of educational services, ranging from

adult and community education services, through postsecondary career and technical education, to

academic and professional studies at the university level permitting transfer to higher level

studies. In many cases, the states in which these colleges are located may provide financial

assistance (United States Department of Education, 2018).

Persistence-This term is used in the research to refer to the rate by which students can sustain and

persist in completing the courses enrolled in at the community colleges. Persistence rates are

defined by the number of students who successfully enroll in higher education and complete the

required studies based on the degree or certificate selected.

Skills Gap-Skills gap is used in the research to refer to the skills deficit existing in the job market.

The skills gap defined by the difference between the market demands regarding the skills and the

actual skills possessed by the employees (Moore & Morton, 2017).

Texas Association of Workforce Boards-This is a non-profit organization (NPO) entrusted with

the task of representing employees in the development boards in Texas. Currently, there are over

750 community and business leaders who sit on the board. The board was developed to ensure

the local workforce is developed through training and education to meet the market demands

regarding skills. The board matches the current requirements and deficits regarding skills and

liaises with employees to develop the desired talent and skills for the workforce (Texas Association of Workforce Boards, 2018).

The Texas Higher Education Coordinating Board (THECB)-This is the highest agency entrusted with the authority of managing higher education. The THECB has the duty of improving and promoting higher quality care (Texas Higher Education Coordinating Board, 2015). The agency is mandated by the state legislature to oversee higher education and ensure education meets the educational and skills requirements.

Workforce Education-This is a form of educational programs offered by technical and community colleges in Texas. The programs target working people and are developed to serve the needs of this population segment. The workforce programs aim to improve and enhance the workforce skills to match the workforce requirements. These educational programs are beneficial in preparing students for an upgrade or promotion in specific job categories and are designed to take relatively shorter time compared to regular programs (Texas Higher Education Coordinating Board, 2015).

Workforce Education Course Manual (WECM)-This as a manual developed by the state of Texas workforce to provide guidelines and inventory on workforce programs. The WECM is a technical inventory used to guide all workforce-related training programs which take two years or less to complete (Texas Higher Education Coordinating Board, 2015).

Assumptions

For the purpose of this study, the following assumptions were made. *First,* student demographic data were entered correctly at the time of enrollment into a Level I workforce certificate program at community colleges across rural, east Texas. The *second* assumption was enrollment data were cross-checked and verified for accuracy by admission and financial aid

personnel. Skewed data might result if enrolling students selected an incorrect pathway during the admissions process. Community college staff direct students to select enrollment paths electronically such as an associate degree or workforce certificate when enrolling. Without corrections being caught and addressed by college staff, these types of data entry errors may cause skewed results. Cross-checking data at the local level occurs to minimize possible data entry errors for state funding and accountability reporting before submission to the Texas Higher Education Coordinating Board.

Scope and Delimitations

The scope of this study was to determine if significant correlations exist in completion rates by gender, race/ethnicity, and college for adult students who participated in Level I workforce certificate programs at rural east Texas community colleges from 2014-2017. Adult students enrolled in Level I workforce certificate programs at four community colleges across rural, east Texas were the primary focus; excluding any students who were seeking a Level II certificate or an associate degree from the study. The focus of this study was to determine which group(s) of students demonstrate the lowest number of completions to support the need for specialized student support services for these lower-performing groups based on the results.

Univariate statistics included frequencies and percentages. To answer the three research questions (completion rate by gender, race/ethnicity, and college), a series of three chi-square tests were used. In 2015, Sharpe wrote, "chi-square tests are by far the most popular of the non-parametric or distribution-free tests and the default choice when applied psychological researchers analyze categorical data" (p. 7). Along with the chi-square test of independence, Cramer's V tests (Pearson correlations between two categorical variables) were included as measures of the strength of the relationship/effect size (Shih & Fay, 2017). Pearson's chi-

square test (X²) has been widely used in testing for association between two categorical

responses (Shih & Fay, 2017). The probability alpha value for this study was set at $p \leq .05$ to

test the null hypotheses with a 95% probability factor. Given this study used aggregated data

from the Texas Higher Education Coordinating Board's Interactive Database online, the

VassarStats online software was used (VassarStats, 2018).

Limitations

Findings of research determine the practice decisions and support interventions to be

integrated by policymakers in society. The research will be useful to practitioners and will

provide guidance in shaping practices in institutions of higher learning. Quantitative data

involves the process of data collection, analysis, and interpretations (DeMoulin, 2014). However,

the scope of quantitative research can be limited by factors which can limit the reliability and

validity of the research. Internal validity of the research depends on the integrity of the researcher

(Petrovic, 2017). Internal validity and credibility can be affected by personal bias in the data

collection process. The bias can occur during the process of descriptive data collection, and this

can affect the credibility of the findings (DeMoulin & Kritsonis, 2009).

The population for the study was limited to archival data and were collected from the

Texas Higher Education Coordinating Board's Interactive Accountability System website for

approximately 470,000 students previously enrolled in Level I workforce certificate programs.

These students were enrolled in programs resulting in 15 to 42 semester credit hours upon

completion at Texas community colleges from 2014-2017 (Texas Higher Education Coordinating

Board, 2018c). The study resources were constrained and can present a significant challenge

during analysis which can affect the credibility of the findings. Despite the limitation, all the

necessary steps were taken to ensure internal consistency during the research design process.

Conclusions were made from descriptive data using significance testing procedures on categorical data for comparison, testing, or making predictions. Descriptive statistics were used to summarize known specific demographic raw sample data of Level I workforce certificate-seeking students from one of four, rural, east Texas community colleges collected from state and federal agencies.

The research was subject to external validity issues which can affect the transferability of the finding of the research. The sample of all Level I workforce certificate-seeking students from 2014-2017 was significant, but the research can be constrained regarding applicability to other states because of being based on four, rural, community colleges in east Texas. Although the sample only represents the community colleges across rural, east Texas, the results can be used to predict trends for the population of community colleges across Texas. In reality, there is no conventional way of empirically transferring the findings to colleges in other regions because there are other factors affecting completion rates at other colleges. Also, the population of 470,000 was significantly small to draw transferable findings applicable to the entire country. As a consequence, the research was limited regarding transferability because the data will not be representative of the entire country. Limitations affect the dependability and reliability of the collected data.

The data collected were not representative of the whole population, and this means the data will not be reliable for application for a larger sample. The data is open to scrutiny and replicating the study is possible to obtain results with similar findings. The standard data collection approach used in the research was reliable and dependable because all the constructs of quantitative research were carefully selected. The data collection and measurement used are accurate since an accurate representation of the data set is presented. The data were confirmable

and reflected the actual outcomes. However, the objectivity of the research can be limited if the data collection process was limited.

Chapter Summary

Students who fail to complete Level I workforce certificate programs in Texas community colleges, notably four, rural, east Texas community colleges, may cause a shortfall in the region's skilled labor workforce. With an aging population and economic growth across the state, additional skilled employees are desperately needed. The problem warranted research, and possible recommendations for improvement with completion in Level I workforce certificate programs or the decrease will continue to worsen by 2040 (Texas Association of Workforce Boards, 2014). The seeming lack of interest in supporting Level I workforce certificate-seeking students was contributing to the crisis within business and industry across Texas. The findings of this quantitative correlational study will benefit prospective students, college administrators, and potential employers if improvements are made leading to improvements in persistence, completion, and gainful employment. Chapter 2 will present a review of the literature regarding the proposed study.

Chapter 2: Literature Review

The purpose of this quantitative research study was to discover to what extent significant correlations exist in the completion rates between adult students in Level I workforce certificate-programs based on gender, race/ethnicity, and college from rural, east Texas community colleges during the years 2014-2017. The problem of this study was that low completion rates in Level I workforce certificate programs at community colleges across Texas contribute to the increasing shortage of available skilled workers to fill vacated and new positions in business and industry. The literature review supports Erickson's identity theory with the current themes of completion among adult workforce certificate-seeking students facing obstacles and barriers that personally make completion a challenge (Leeder, 2013). Studies support the notion of adult students struggling in a college environment. Specific demographic data exploring which groups were more successful in completing certificate programs compared to others were limited in recent studies. The review of the literature determined possible reasons for dropping out which included but were not limited to; lack of college support, high-level skill demands and lack of skills, family responsibilities, work, and financial responsibilities in addition to other potential factors.

The contents of this literature review include (1) literature search strategies, (2) a workforce education in community colleges, (3) community college students, (4) barriers to college enrollment and completion, (5) workforce certificate programs, (6) remediation in college, (7) additional comments, and (8) summary. In addition, Chapter 2 contains the theoretical frameworks connecting the research study with an explanation of Erikson's and Tinto's theories, which are included in the literature review. There was limited information about completion in Level I certificate programs specifically; therefore, this study will add to the body of knowledge available for future research.

Literature Search Strategy

The literature reviews for this study focused on community college success and recommended improvements. Previous studies about community colleges, student success, barriers, and completion were reviewed. The literature search involved using an electronic university database from American College of Education, Texarkana College, WGU Texas, and scholarly literature searches using Google Scholar online. Full-text, peer-reviewed electronic copies of articles and studies were collected from these databases. A hard copy book was retrieved from the local community library due to unavailability online. Additional online resources were utilized for community college relevant state-level Information.
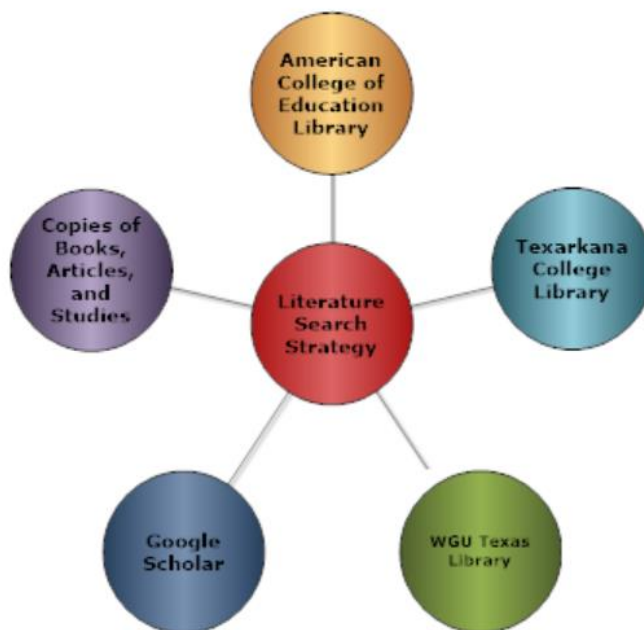

Figure 2. Literature search strategy

The following keywords were used in the literature search: community college, workforce education, vocational education, certificate programs, nontraditional students, community college completion rates, dropouts, skills gap, student barriers in community colleges, credential attainment, CTE completers, adult basic education, retention in community colleges, persistence in community colleges, rural community colleges, technical training programs, technical education, and first-generation college students.

Theoretical Framework

Erikson's model states identity formation is based on overcoming conflicts individuals may encounter during adolescence and early adulthood (Karkouti, 2014). Erikson proposed a psychoanalytic theory of psychosocial development with eight stages from infancy to adulthood. During each stage, the person experiences a psychosocial crisis which could result in a positive or negative outcome for personality development (Erikson, 1963). Based on Erikson's Theory, identity is the outcome of ever-changing stages occurring during one's life course to include a socially recognized occupation (Erikson, 1963; Karkouti, 2014). Erikson's Theory relates to the proposed quantitative, correlational study as Erikson explains the importance of psychosocial development, the relation to adulthood, and career success. A study by Cohen, Chartrand, and Jowdy (1994) used Erikson' s Theory of psychosocial ego identity development to analyze the connection between career indecisions and the eight stages of psychosocial identity, specifically the five stages with four cluster groups utilizing the identity scale.

Table 1

Erikson's stages of psychosocial development-identity scale

Approximate Age	Psycho-Social Crisis	Potential Essential Strengths
Infant to 18 months	Basic Trust vs. Mistrust	Drive and Hope
18 months to 3 Years	Autonomy vs. Shame and Doubt	Self-Control and Willpower
3-5 Years	Initiative vs. Guilt	Direction and Purpose
5-13 Years	Industry vs. Inferiority	Method and Competence
13-21 Years	Identity vs. Role Confusion	Devotion and Fidelity
21-39 Years	Intimacy vs. Isolation	Affiliation and Love
40-65 Years	Generativity vs. Stagnation	Production and Care
65 and Older	Ego Integrity vs. Despair	Renunciation and Wisdom

Adapted from Erikson's Stages of Psychosocial Development, 1963. Retrieved from

Childhood and Society (2nd ed.). New York, NY: Norton.

Workforce Education in Texas Community Colleges

In 1965, oversight of the junior colleges was provided by the Texas College and University System Coordinating Board. The name changed in 1987 to the Texas Higher Education Coordinating Board by the 59th Texas legislature (Tuttle, 2018). The organization and the legislation guided community colleges to serve students. By creating and adopting an open admission policy, education was made available to all residents (Tuttle, 2018). Community colleges are increasingly important to the economy and communities served and are the primary institutions of higher education offering workforce education certificate programs. Nearly 70% of students fail to complete a program of study (Kennedy, 2015). These institutions are under-researched especially within the certificate program sector (Alsman, 2014). There is also a need for a higher degree of research based on the value added to America's industrial strength and the need for skilled laborers (Kennedy, 2015).

Community college is often referred to as grades 13 and 14 beyond high school. This way of thinking likely began with the Truman administration's thought of at least 50 % of Americans being able to complete 14 years of school (Rossi & Bower, 2018). The goal of the Truman administration was to provide access to American citizens through the expansion of the community college system (Rossi & Bower, 2018). In 2009, President Obama followed suit with returning to this initiative to support Americans with increased skill sets and improved economic growth (Rossi & Bower, 2018). Higher education attainment is important to business and industry representatives because of the preference to hire employees with education beyond a high school diploma (Bailey, 2016; Flynn, James, Mathien, Mitchell, & Whalen, 2017). The importance of a college education has increased across the nation over the past few decades; however, most who start in a community college never earn a certificate or degree (Bailey, 2016).

The literature is filled with community college information. The overwhelming consensus in the literature is the need for improving completion. Recommendations for student success and remediation is mentioned throughout the research with little emphasis on Level I certificate programs or certificates in general. Most studies researched completion combining degrees and certificates. College access has been increased significantly by community colleges, especially those offering open enrollment (Schudde & Goldrick-Rab, 2015). Open enrollment and enrollment into programs without the requirement of demonstrating college readiness in any area of academics is a common thread of the research concerns about completion and student success initiatives. Bailey (2016) examined reforms at community colleges and found while community colleges are excelling in enrolling students, the colleges are not following with reforms in efforts to assist students in earning a degree or certificate.

Community College Students

In 2010, the Commit to Complete plan was created by the National Governors Association in an effort to increase the number of college graduates (Miller, 2014). Students who did not enroll in college immediately following high school are considered nontraditional students and could increase enrollment by 1.5 million nationally if recruited to enroll (Miller, 2014). A college student meets the classification as a nontraditional student based on many different factors. This category includes students with dependents, are a single caregiver, delayed postsecondary enrollment, do not have a traditional high school diploma, employed full-time, attend school part-time, or are considered independent of the students' parents for financial aid reasons (Mathewson, 2015). According to a report released by the U.S. Department of Education, almost 75% of all undergraduate students enrolled in higher education are considered nontraditional (Singh, 2014). Most nontraditional students choose community colleges based on class size, course offerings,

and affordability. Verdino (2015) suggests community colleges are responsible for providing specific paths leading students to financial and educational success.

The search for identity as a student involves the meaning of self-concept and social changes. The balance of student versus other roles begins to evolve which affects the student's identity. Unwillingness to actively formulate identity renders to role diffusion, which leads to alienation, isolation, and confusion (Karkouti, 2014). Chen (2014) stated the adult learner population among community colleges across the nation is increasing while the traditional student population is decreasing.

Adult learners often have additional personal responsibilities, and there is a significant difference between the non-traditional student and the traditional college-going student (Blau & Thomas-Maddox, 2014). Non-traditional students could be juggling as many as three life roles which can put academics low on the list of priorities and are likely employed, have spouses or partners, caregivers, parents, or responsible for community members (Chen, 2014; Miller, 2014). These additional responsibilities create challenges for academic studies. McKinney and Burridge (2015) reported 40% of community college students struggle financially and cannot pay for education. Therefore, student loans are necessary, increasing the financial responsibility of an already struggling adult student adding financial burdens without the opportunity for professional advancement (McKinney & Burridge, 2015).

Recent research shows one of the most influential theories of psychosocial development was Erikson's lifespan theory (Dunkle & Harbke, 2016). Based on Erikson's Theory, identity is the outcome of ever-changing stages occurring during one's life course to include a socially recognized occupation (Erikson, 1963; Karkouti, 2014). The importance of identity has excelled with technological advances and the ability to connect with many different people in different

ways. In Western Countries, generativity has gained more research attention than ever before (Dunkel & Harbke, 2017). Erickson's psychosocial identity theory involves different phases of life and experiences individuals may encounter including the achievement of generativity defined as productive creativity regarding vocational and professional contributions to society (Erikson, 1963).

The theoretical framework of Erikson's identity theory supports the idea of the importance of holistic support from community college faculty, staff, and administrators based on the types of students served. A study conducted by Cohen, Chartrand, and Jowdy (1995) described career indecision had been researched for 20 years prior to 1995. Career indecision is a different area of concern with completion in community colleges. Supporting individuals who are suffering from career indecision is an important piece for community colleges to understand. Erikson believed career decisions are one way an individual expresses ego identity (Erikson, 1956). Erikson (1956) also believed if the individual were to be prepared for the tasks of adulthood, such as college and career, the ego identity theory is relevant, and all stages of adolescence lead up to accomplishing those tasks.

Erikson's identity theory supports the need for assistance with adult students enrolled at community colleges leading students to develop a sense of duty, feelings of accomplishment through persistence, and workmanship to enter the workforce in Texas. As individuals age, the need to possess the ability to address challenges and learn from these challenges should increase to prevent the continuous cycle of making the same mistakes. Erikson's theory explains both the individual differences in development and the function of development (Erikson, 1963). A crisis can become crippling for a person the individual does not have a plan of action to grow and move beyond the crisis. In many cases, when students drop out of college, a personal or family crisis is

at the center of the decision (Dunkel & Harbke, 2017; Osam, Begman, & Cumberland, 2017).

In addition to Erikson's psychosocial and identity theory, Tinto's theory of student retention explained persistence in an institution of higher education relied on the ability for students to integrate into the institution (Spannagel, 2016). Approximately 43% of nontraditional students are enrolled in community colleges (Welcome, 2014). Most often, nontraditional students who enroll in community colleges are searching for a career change or the opportunity for a better paying job (Welcome, 2014). Many students graduating from low performing high schools lack the confidence to enroll in college and decide too late in the process to arrive academically prepared. These students starting the process late will arrive unprepared without the knowledge necessary to feel integrated into the institution leading to lack of completion (Rodriguez, 2013).

In addition, there is a need to address the many problems an adult learner faces to complete a workforce certificate or degree. Students are searching for flexibility in times and locations while enrolled in workforce certificate or degree programs. Chen found suggestions were made about resources for nontraditional adult learners such as providing faculty mentors, distance learning opportunities, hybrid or blended courses, accelerated course formats, and prior learning assessments (Chen, 2014). The classification for the learning styles of adult learners can be different. Students can be considered entry-level adult learners between the ages of 25 and over. Employed, nontraditional students tend to place employment first and the importance of being a student second (Chen, 2014).

First-Generation College Students

The literature affirms the need for a holistic approach for understanding students enrolled in community colleges such as academic preparedness and life roles/responsibilities. First-

generation college students are more likely to enroll at community colleges (Herrmann &

Varnum, 2018; Storlie, Mostade, & Duenyas, 2016). Two commonly used terms exist when

referring to college students. The first-generation college students are commonly referred to as

FGC, and continuing-generation college students are commonly referred to as CCG (Hermann &

Varnum, 2018; Storlie et al., 2016). First-generation college (FGC) students represent the first

generation of family members to enroll in college. Continuing college students represent students

with family members who have college degrees.

First generation college (FGC) students tend to require special attention and initiatives to

keep these students from dropping out of college. FGC students lack the awareness of a college

environment and have little to no support from family members for providing guidance during the

process. Similar to the feelings of visiting unknown places for the first time, FGC students may

feel out of place when attending college for the first time (Herrmann & Varnum, 2018). The

identity integration framework was used in a study by Herrmann and Varnum (2018) to improve

college experiences for FGC students. The study concluded the population of FGC students

continues to rise across the nation on college campuses; however, a social gap exists.

Storlie, Mostade, and Duenyas (2016) studied FGC Latina students with the growth of this

population enrolling in higher education using grounded theory. This grounded theory study

supports the purpose of this study in supporting students toward completion. In some cases,

advisors fail to explain the differences in degree types and certificate levels to FGC students for

an understanding of the requirements and differences between the two offerings. According to

the literature, race is not an issue for FGC students. Peer support and faculty engagement were

found to contribute to academic success for FGC students which supports the need for additional

studies to be conducted on community college completion in Level I workforce certificate

programs.

Gender in Community Colleges

Studies have been conducted for years about gender differences in higher education enrollment and degree attainment with one significant student difference discussed by Ray, Galvan, and Zarestky (2018) involving gender-inclusive educational workforce programs. Programs targeted toward male students are also considered barriers for female students. Connecting to Erikson's' psychosocial identity theory; Ray, Galvan, and Zarestky (2018) implied thoughts of gender and career choices begin in childhood and persist into adulthood. Caregiver and educator are considered appropriate career choices for women unlike the high paying male-dominated careers in the industrial sector. The sense of feeling unwanted socially or professionally is considered to be a barrier either in vocational/workforce programs or employment (Blake, 2016; Ray et al., 2018). Juszkiewicz (2016) reported in 2015 community colleges experienced the smallest decline in enrollment in the previous four years with women completing at higher rates than men. The report shows women completed at 41.5% and men completed at 35.7% (Juszkiewicz, 2016).

Race/Ethnicity Students

A qualitative phenomenological research study was conducted in 2018 using the community cultural wealth framework and with the objective of researching Latino males at seven community colleges in Texas (Sáenz, García-Louis, Drake, & Guida, 2018). The purpose was to understand if, and how these male Latino students balanced work, family obligations, and academics while enrolled in college since nearly half of all Latinos who enroll in higher education choose community colleges (Sáenz, et, al., 2018). The findings showed male Latino FGC students relied on family relationships for motivation and support to complete college. This

population of students seems to have difficulty asking for assistance when needed in college. These students likely have multiple roles and responsibilities, and most often work comes first (Sáenz et al., 2018). The study affirms the complicated and confusing processes involved when enrolling in college created barriers for many of the students in the sample. Enrollment complexity is a concern for students attempting to enroll at many community colleges in Texas.

Community colleges are known for serving a diverse population of students. Based on affordability, access, choices, and other factors, the community college system tends to be a better fit for FGC students. Recommendations for community colleges to begin to focus on a 'sense of belonging' activities for students are presented in the literature (Herrmann & Varnum, 2018; Sáenz et al., 2018). Minimizing the feelings of an unsupportive or unwelcome campus environment will help to provide FGC students the opportunity to feel safe and begin to build confidence. Latino students, especially those in the FGC category will work full-time and attend college part-time which has adverse effects on persistence and completion (Sáenz et al., 2018).

African American Students

Educational opportunities are improving across the nation. This trend is partly due to the continuous need for skilled college graduates prepared to enter the workforce (Davis, 2016). A focus of the colleges and government officials is reaching the African American students to promote college attainment. Although significant efforts have been made to improve persistence and completion rates among African Americans, this population continues to fall behind the number of white students completing college. Rankin, Scott, and Kim (2015) indicate a decline in both African American and white students with completion at community colleges in Texas and Oklahoma. The 10-year study concluded there was no significant difference in completion rates between African Americans Hispanics, or white students (Rankin et al., 2015).

Barriers to College Enrollment and Completion

Texas has been hard at work to determine what might work to increase the number of graduates by 2030 (Texas Higher Education Coordinating Board, 2018e). The 60X30 TX initiative was created following the *Closing the Gaps* initiative. Both events were developed with increasing completions in higher education. *Closing the Gaps* was developed to increase enrollment and completion among ethnic/racial groups and low-income students (McKinnney & Hagedorn, 2017). These initiatives from the Texas Higher Education Coordinating Board (THECB) support the need and high demand for community colleges in Texas. Most disadvantaged students enrolling in college will choose to enroll in a community college to attain higher levels of education through certificates or degrees.

A study conducted by McKinney and Hagedorn (2017) using the resource dependency theory and multivariate quantitative analysis found almost 63% of the students in the study were enrolled in vocational/technical/workforce programs with 71% of the sample referred to developmental education. Developmental education is widely offered for degree-seeking students in Texas, but minimal for Level I certificate-seeking students. Barriers to enrollment and completion involve developmental education, fear of failure, family obligations, health, and financial aid (Osam, Bergman, & Cumberland, 2017). Osam, Bergman, and Cumberland (2017) conducted an integrated literature review of barriers affecting adult learners when choosing to enroll in college. One finding of the study is the adult learners may prove to perform at a higher level than traditional students entering college immediately following high school.

Some adult learners have obligations traditional students do not have. A review of the literature by Scott, Miller, and Morris (2016) explains rural community college students in weak economies, without institutions of higher education nearby face obstacles students in larger

communities do not face. Access to technology, transportation, lack of academic preparedness, and lack of child care services are also considered barriers for adult students in college enrollment and completion. The study conducted by Osam, Begman, and Cumberland (2017) explained the three categories of barriers students might experience. The first category is institutional involving challenging admission processes, financial aid, and curriculum offerings. The second category is situational to include family issues, community obligations, and personal finances. The third category is dispositional representing personal characteristics of the student such as fear of failure, personal attitude toward academics, and goals.

Though Scott, Miller, and Morris (2016) studied the importance of community colleges in rural communities, and the barriers occurring for adult students, Harbour and Wolgemuth (2015) elaborated on the importance of community colleges across America. Some perceive community colleges as vocational institutions providing programs for adult students to learn skills to enter the workplace and increase earnings. Consistently, throughout the literature reviewed, community college students are deemed more likely to withdraw from college than university level students because of barriers to include work, lack of educational support services, and family obligations (Harbour & Wolgemuth, 2015). The literature review indicates more research is needed to fully understand the phenomenon termed the 'work-family-school dilemma' for higher success rates at community colleges (Harbour & Wolgemuth, 2015). Studies on gender inclusiveness, Latino completion in both male and female students, African American students, and community college certificate and degree completion, in general, are relevant. Research about workforce Level I certificate completion and the barriers existing for this population of students who are not required to demonstrate college readiness is limited and underrepresented.

The literature search regarding barriers to enrollment and completion consistently

recommended community colleges offer programs to assist adult learners in the enrollment process and increase student support measures to help with completion. The age of the college student is shifting from 18-22 years old to students 24 years and over with significant barriers to overcome in order to succeed. The Texas Higher Education Coordinating Board's latest initiative of 60X30 TX means 60 % of the population ages 25-34 will hold a certificate or degree by the year 2030 (Texas Higher Education Coordinating Board [THECB], 2018e). If this goal is to be met, the colleges must follow the guidance of research and begin to support students in overcoming barriers to college completion. A minimal two % increase was observed for two years with no distinction of certificate or degree attainment (THECB, 2018e). An important recommendation from the study conducted by Scott, Miller, and Morris (2016) was to ensure placement exams are used when advising to improve student success when enrolling in college.

With an increasing demand for data requested by students, parents, college administrators, and policymakers, Guthrie (2016) conducted a study on student success. The study reveals community colleges are becoming more focused on completion. Completion at the community college level represents degrees, certificates, and transfers (Guthrie, 2016). Both Texas and California have made great strides in the ability to collect and analyze completion data Guthrie, 2016; Texas Higher Education Coordinating Board, 2018). The prediction by Guthrie (2016) is the future of outcomes data may take on a different measure and meaning. Ray, Galvan, and Zarestky (2018) emphasize the decisions being made should reflect the people/students being served in community colleges because of student differences.

Understanding the community in which a college serves will provide the opportunity for colleges to discuss, probe, evaluate, and create a strong strategic plan to serve communities. Mince (2017) explains the significance and outcomes of community colleges using an assessment

tool to learn and acknowledge the needs of the community, and asses internally to create an action plan to make changes to meet those needs. The Community College of Baltimore County was declared as one of the top performing community college providers of workforce education opportunities (Mince, 2017). The institution focuses on best practices from across the nation and conducts external and internal assessments to ensure student success and economic to contributions by providing skilled employees to meet the needs of business and industry. Community stakeholders across the nation expect the same results regardless of college size or location.

A challenging barrier to enrollment in higher education is the high numbers of individuals without a high school diploma. Community colleges in Texas are approved by the Texas Higher Education Coordinating Board (2018a) to enroll students concurrently in certificate programs and adult basic education courses while seeking a General Educational Development Certificate, commonly referred to as a GED. These programs, such as the pathways project, are also offered across other states to help citizens obtain education and skills to work toward obtaining a better job and the possibility of living a middle-class life (Maisak, 2017). Since approximately 31% of jobs in the nation require some type of certification or training beyond high school, the need to address the large numbers of people without high school diplomas became necessary. A startling statistic written by Maisak (2017) was the employment numbers are expected to increase by 2020 to almost 24 million people. The population without degrees or post-secondary education will contribute to the skills gap expected to widen by 2020 (Maisak, 2017).

A successful outcome in the future may be measured by social capital value vs. the current way of measuring the economic value of postsecondary education. Adding a new initiative may help to improve the barriers community college students continue to face. Community colleges

may begin to focus on the long-term impacts of certificates and degrees by considering the health, happiness, well-being, and social benefits provided by the community college (Guthrie, 2016). The importance of students having a sense of belonging is a component of student success (Blake, 2016). In addition to positive feelings of belonging at an institution of higher education, Erikson's Theory also explains the significance of individuals possessing a positive psychosocial identity and the benefits expected to occur as a result (Erikson, 1963).

Completion in Workforce Certificate Programs

The increasing demand for higher-level skills in the job market is a key component to success for community colleges and individuals who choose to enroll in workforce certificate or degree programs (Burillo, Slate, & Combs, 2013). The need for individuals trained to fill jobs in the future can require a higher set of technical skills and knowledge. The lack of available skilled employees is a concern across the nation (Shaffer, 2015). Over half (63%) of the new jobs created in the next ten years will require at least some level of post-secondary education requirement (Burillo et al., 2013; Osam, Bergman & Cumberland, 2017). Some of the obstacles for students are a lack of finances, inadequate academic preparation, lack of information, and lack of proper guidance (Burillo et al., 2013). Erickson's identity theory described the developing sense of duty, feeling of workmanship and participation as necessary for a positive psychosocial identity (Karkouti, 2014). An individual who lacks the willingness to learn, succeed and master specific skills will be lead to have the feelings of incompetence and the development of a negative psychosocial identity (Karkouti, 2014).

Based on the research of Frangenberg (2017) many people continue to associate skilled-labor jobs with students who performed poorly in secondary school. Industry representatives argue the need for academia to become better aligned with careers such as construction,

plumbing, electrical workers and manufacturing. A stronger need for educated workers is more present today than in the past (Frangenberg, 2017). Assisting students enrolled in workforce certificate programs will lead to an improved completion rate to support the growth and demands of a skilled labor force in the 21st Century. The four-year degree is no longer necessary to obtain a good paying job (Texas Workforce Solutions, 2018). Highly skilled individuals who graduate from technical schools with workforce certificates will also have many opportunities for great jobs. The significant changes occurring in business and industry to develop a skilled labor force are (1) the skills needed are technically driven, (2) a strong emotional intelligence to include critical thinking and problem-solving skills, and (3) learned conceptual skills while enrolled in workforce certificate programs (Texas Workforce Solutions, 2018).

A study conducted at Richmond Community College consisting of staff and participants of the retention program for adult students and displaced workers depicted rural implications and institutional flexibility contributing to persistence (Howley, Chavis, & Kester, 2013). Harrill, Lawton, and Fabianke (2015) stated a responsive faculty and staff are needed for persistence with adult learners. Recommendations such as rural institutions providing highly qualified support services and making program level adjustments to meet the needs of adult learners are forthcoming (Harrill et al., 2015). Stackable credentialing and integrating developmental education are additional ways rural colleges can improve persistence with rising tuition costs that are adding difficulties for adult learners with financial insecurities (Howley et al., 2013). Obtaining a certificate increases wages an average of 20% over what a high school graduate earns (Falcone, 2016).

Rankin, Scott, and Kim (2015) conducted a quantitative research design to analyze archival data to measure completion policies using descriptive and inferential testing measuring

completion policies for Oklahoma and Texas community colleges. The study asserted over 70%

of high school graduates enroll in college within two years. The concern is less than half of the

students complete earning a credential within six years while attending full-time. Community

colleges will only see about one-third of students earn a credential (Rankin, Scott, & Kim, 2015).

The results of the study showed graduation rates in Texas decreased by 1% and Oklahoma

decreased by 2.6%, and this is not the direction either state is working toward. Increases in

students earning credentials and degrees are sought across the nation to fill jobs of those retiring

or newly created positions (Kennedy, 2015; Rankin, Scott, & Kim, 2015).

Community colleges are likely to be involved in initiatives and pilot programs when

developed and introduced by administrators. With funding cuts across the states, a continuation

of pilots and initiatives are short-lived regardless of success or failure. One such initiative was

Closing the Gaps in Texas. Lowry and Thomas (2017) concluded in a journal article that

appropriate funding for community colleges is a serious challenge for developing initiatives to

prepare and provide a skilled workforce. With 21st-century technology continuing to emerge in

the workplace, providing access to training for faculty is limited based on the costs of

professional development.

A research study conducted by Bers and Schuetz (2014) included three phases to focus on

the term 'nearbies'. In this study, 'nearbies' are students who are close to completion but drop

out. This study addresses the need to build personal relationships with students to align the

students' way of thinking with completion. In contrast to other studies, Bers and Schuetz (2014)

support Tinto's view of only 25% of students drop out for academic reasons 75% drop out

because of a lack of interest and a connection with the skills needed. Student success can be

improved if students have a sense of belonging at the institution (Bers & Schuetz, 2014; Blake,

2016).

Colleges continue to make efforts to improve the student experience through mandatory orientation and advising, although the majority of focus is on two-year degrees. Bers and Schuetz (2014) believed students are not dropping out in mass numbers during the first year, but 40-50% of freshman were found to leave college before entering the second year. Educational objectives can include degree-seeking, transferring a few courses to a four-year university, earning a certificate or credential, and students could have changed objectives more than one time making accurate completion data a challenge to collect at the institutional level (Bers & Schuetz, 2014). The results of this study are based on an alarming concern being most academic students are not required at most colleges to update degree or certificate choices if redirected educational objectives occur until a certificate or degree is earned. At that time, the correct major code is entered. The ability at the institutional level to determine who and why students are dropping may be void and invalid if the data represents the student's initial educational objective instead of the updated degree plan.

Nearbies or students who fail to complete when surveyed have common comments and complaints. Some of the issues uncovered through survey results and focus groups include (1) long waits and hassles to receive advising, (2) advising seemed too brief and insincere, (3) lack of understanding implications of courses and programs, (4) college practices and policies were confusing, (5) lack of warm and welcoming encounters, (6) lack of understanding the developmental courses do not count as credit, (7) lack of faculty engagement, and (8) confusion between students and faculty about online coursework issues. While all the students who completed the survey attended one college, the value placed on earning a degree or credential was high (Bers & Schuetz, 2014). The issues and concerns are not solely faced in America. The

Dutch vocational training programs are also suffering from high drop-out numbers. Evidence is found in the current study to support Erikson's psychosocial theory because Eegdeman, Meeter, and Van Klaveren (2018) indicated the term 'schooling outcomes' (commonly considered completion in the United States), is associated with cognitive skills and personality traits.

The education system of the Dutch seems to have a different perspective on vocational/workforce education. Found in the literature review, the majority of community college certificate programs, especially Texas community colleges do not require students to demonstrate college readiness through entrance testing. Cognitive data are nonexistent for students who fail to complete certificate programs to analyze for research purposes. The Dutch vocational training programs implemented a formative entrance test to collect data for analysis of the cognitive skills for students who drop out within the first year (Eegdeman, Meeter, & Van Klavern, 2018). In addition, student personality traits are measured utilizing the Assess, Manage, and Navigate (AMN) personality traits test.

Community colleges are faced with the high costs of developing training models with relative technical equipment and simulation technology (Lowry & Thomas, 2017). Although the cost of attending a community college is relatively affordable, most adults enrolling in workforce education programs expect to increase knowledge and skills on a personal level for a middle or high paying job (Lowry & Thomas, 2017). This goal for the students is not obtainable if (1) the training is not relevant with the jobs of today and the future, (2) student support services are limited in offerings to assist the typical workforce student (3) students are not completing for various reasons. Grants created under the Carl D. Perkins Career and Technical Education Improvement Act, and others specifically for workforce programs are limited for some community colleges, and in some cases competitive to obtain (Lowry & Thomas, 2017). The cost

of training for career readiness increases each year with expenditures, improved technology, and professional development for faculty, while state funding continues to remain flat and the demand for skilled workers increases (Lowry & Thomas, 2017; Washor, 2015). This model is not sustainable, and changes need to occur if community colleges are expected to continue to provide coherent applicable curriculums, while also improving completion rates to provide skilled graduates for employment and the demand for skilled employees continues to increase (Lowry & Thomas, 2017; Robinson, 2017).

Remediation in College Coursework

Remediation is indicated in the literature as one of the many factors contributing to low success and completion in college-level coursework. As explained by Shields and O'Dwyer (2017), not only is remediation contributing to low completion rates but also low-income students and minority students tend to have even lower graduation rates. Retention and completion are concerns across the nation. The consequences of dropping out of college are numerous. Students with loan debt are required to begin making payments six months after departure from the college. Employers are desperately searching for skilled employees to fill open and new positions in the workplace, and students failing to complete are hindering the potential pool of qualified applicants to choose from (Shields & O'Dwyer, 2017).

Research is not conclusive as to whether remediation is beneficial for students or colleges (Blake, 2016). The alternative to remedial courses is suggested to add contact hours to the student's schedules to work on college readiness such as reading, writing, and mathematics in an embedded model. Best practices, as explained by Blake (2016) include full-time enrollment, embedded student success course materials, and holistic student support services. Students need to have a sense of belonging to have the ambition and confidence to excel. College community

activities to include service learning are beneficial for students who are participating in remediation as embedded within the coursework.

Intrusive advising with a holistic approach using the appropriate test scores will guide advisors to develop the proper course placement and support system to ensure the highest probability of success. Students lacking the proper academic skills to complete remedial coursework should be guided toward alternative career options (Rankin, Scott, & Kim, 2015). Appropriate remediation services are the concern with the lack of proven academic ability (college readiness) requirement in Texas for students enrolling in Level I workforce certificate programs. The alternate career option may be enrolling in a certificate program. The emphasis on completion in Texas does not align with enrolling students in college-level workforce programs who demonstrate low adult basic education skills without required remediation within the programs (Texas Higher Education Coordinating Board, 2018b).

Research shows only half of incoming traditional (immediately following high school) college students complete by earning a certificate or credential within six years (Rankin, Scott, & Kim, 2015). With the increasing demand in the labor market for individuals with a higher skill set this statistic is alarming at best. Burillo, Slate, and Combs (2014) examined demographic trends regarding community college enrollment. The literature review in the study emphasized on-the-job preparedness (Rankin, Scott, & Kim, 2015). The jobs of today and the future will require higher technical knowledge and skills (Burillo, Slate, and Combs, 2014; Shields & O'Dwyer, 2017). The skills and the knowledge needed for successful employment and a substantial increase in wages will require a higher education credential and lifelong training making the community college systems contribution and value higher than ever (Burillo, Slate, & Combs, 2014).

A qualitative study consisting of community college learning assistance centers by Franklin and Blankenberger (2016) was conducted through a survey emailed to participants. The results of the study indicate the need for additional research on student support measures in community colleges. Data collected from the Integrated Postsecondary Education Data System (IPEDS) included 920 community colleges to measure inclusions criterion to determine eligibility in the study. The criteria for inclusion contained community colleges with (1) a learning assistance center, (2) 12-month unduplicated enrollment between 10,000 to 20,000, and (3) provided assistance for students to include at least one or more of the academic areas to include math skills, writing skills, content tutoring, or study skills. The alarming number of community colleges fitting the criteria to participate in the survey decreased significantly from 920 to 109 (Franklin & Blankenberger, 2016). Subsequently, this number demonstrates part of the issue with retention and completion in community colleges across the nation.

Additionally, the research conducted by Franklin and Blankenberger (2016) concluded faculty has minimal participation in the services measured. Institutional general operating funds supported only one community college's learning assistance center in the study, and the rest of the centers relied upon grant funds, a small portion of student fees, and test-proctoring services for outside parties (Franklin & Blankenberger, 2016). One major concern is the majority of the centers are operated by part-time student employees who could contribute to the low usage across the centers by students needing assistance. The consistent student support offering among the participants was math tutoring. Math tutoring is needed in excess based on the large numbers of students enrolling in community colleges require developmental education in math. In addition to the criterion services of the study, more random services were listed in the survey results such as study groups, classroom presentations, and advising (Franklin & Blankenberger, 2016).

As stated in previous sections, community colleges are an important staple in America. Community college students are more likely to fall into the following categories; racial and ethnic, minorities, economically disadvantaged, first-generation students (FGS), and possibly immigrants (Bailey, 2016; Flynn et al., 2017). In a qualitative study, Flynn (2017) discussed the difficulty and challenges community colleges face when serving these populations of students. The study found community colleges are relying on faculty members who are viewed, in some instances, as advanced high school teachers with fewer qualifications compared to university level faculty (Flynn et al., 2017). Diverse student engagement is necessary to develop a positive college-going experience for students with difficulties. Also, community colleges must elect to restructure if student completion remains on the agenda (Bailey, 2016).

Additional Concerns

When adult learners fail to complete in workforce certificate programs, the availability of skilled workers entering the job market is decreased, and increased debt is added to the students' financial status (Shaffer, 2014). The debt is either owed to the college or department of education without the potential for a career change or wage increase which leads to an improved quality of life (Shaffer, 2014). The amount of student loan debt across the nation reached 1.2 trillion dollars, and in 2008, 38% of community college graduates had student loan debt, which averaged $7,000 (Denhart, 2013). Findings remain unclear to determine if student loans facilitate or impede students' ability to complete educational goals (McKinney & Burridge, 2015). Students who do not complete college workforce certificate programs may have student loan debt supporting the need for strategies to help reduce the 31% of community college borrowers who drop out and default on these loans within 15 years of repayment (McKinney, Mukherjee, Wade, Shefman, & Breed, 2015).

For the past 250 years, society has used higher education to improve self-sufficiency (Holmquist, 2013). Community colleges, regardless of location have the opportunity to provide education to improve the skills of employees will contribute in a positive way to the local economies and increase the incomes of graduates (Calwell, 2014). Understanding the needs of community college adult students is the gateway to higher completion rates. This population is typically more diverse, academically challenged, and falls into the low socioeconomically disadvantaged category which can lead to low persistence (Richart-Mayfield, 2016). The lack completion leads to varying problems such as fewer graduates entering the workforce with the skills needed for business and industry, students failing to meet personal and financial goals, in addition to the loss of revenue for colleges when success points are awarded for funding along with contact hour reimbursement (Riddick, 2014). A recent report by the American Institute for Research found the state of Texas ranked #3 in the nation for total state resources spent on first-year dropouts at universities and colleges, totaling $470,500,000 over five years (Texas Higher Education Coordinating Board, 2018d).

The ability to access the necessary resources to develop and implement new student success measures is difficult for community colleges because relying on state funding, grant opportunities, and taxes are necessary for operational expenses. With state funding cuts, the challenge of serving the majority of students in need will be a considerable additional expense. Most community colleges provide support resources, and Bailey (2016) alleges in most cases the need for assistance is left up to the student to realize and locate resources on campus. Monitoring student success as progress is occurring is minimal at most institutions (Bailey, 2016). Students need to feel connected to the college and the chosen field of study throughout enrollment, not just during a pilot or trial student success initiative (Flynn et al., 2017).

Community college instructors/faculty who teach vocational/workforce programs are struggling with the need to assist academically underprepared students with the potential of a variety of personal barriers, and the obligations to employers within the institution's community (Harbour & Wolgemuth, 2015). Employers look to community colleges to provide skilled graduates and continuous training opportunities for existing employees as technology changes. Workforce/vocational educators are often considered less educated than academic faculty. In addition, administrators tend to ignore the need to become aware of the programs on an individual basis to understand the needs of each instructor/faculty member. Many programs, depending on safety, and hands-on learning requirements are short staffed adding an even heavier burden on the instructor/faculty member (Harbour & Wolgemuth, 2015). Students and employers alike will feel more connected in the specific fields of study/programs if a dynamic and complete experience exists to include smaller class sizes, and appropriate instructional and staffing accommodations (Flynn et al., 2017; Harbour & Wolgemuth, 2015).

Chapter Summary

Completion in Level I workforce certificate programs across the nation is an under-researched topic; although, persistence and completion at the state and national level are increasingly important for two and four-year degree-seeking students and are being studied consistently. Workforce certificates, particularly Level I certificates were not a stand-alone population in past completion studies. Workforce Education, also referred to as vocational education at the beginning of this type of education's existence, is a vital part of business and industry at the national and state level. With open admission policies in Texas and lack of enrollment requirements for Level I certificate programs, there was a need to study completion with this population of students.

Adult students often enroll with challenges outside of college courses. Some can be classified as carrying three or more life roles outside of student such as employee, spouse, parent, or caregiver (Chen, 2014). These were some of the reasons demographic research was needed to develop and implement student support models and provide resources to assist adult students with completion. Erikson's identity theory addresses the phases of life students may or may not have developed at specific ages. Knowing the phases will assist in awareness and development of persistence models for Level I certificate-seeking nontraditional/adult students. Nontraditional students are also categorized as lifelong learners, second chance learners, deferrers, recurrent learners, returners, refreshers, and learners later in life (Zawacki-Richter, Müskens, Krause, Alturki, & Alaiweesh, 2015).

Erikson (1963) focused on psychosocial identities to lead adults to success, and Tinto explained persistence relies on student integration into college (Spannagel, 2016). The idea of Erikson's theory was for each stage of life to build upon the next to develop into a functioning adult person (Dunkel & Harbke, 2017). Both theories can be viewed as groundwork for improvement in completions. Improving a student's self-value (sense of duty), assisting with resources, and providing emotional support when needed are steps toward improving persistence. Completion in Level I workforce certificate programs is necessary for Texas and the nation to remain competitive in a global market with skilled workers in business and industry (Shaffer, 2015). Skilled labor, contrary to past beliefs, is no longer associated with poor performing students (Frangenberg, 2017).

The nature of jobs today requires a high level of skills to perform to include some level of education beyond high school (Frangenberg, 2017). According to the Texas Higher Education Coordinating Board (2018e), only 6% of students in 1995 earned a certificate and 15% earned a

degree. A significant focus on persistence and completion with associate degrees has been in

place for some years, although completion studies for Level I certificates have been minimal.

Community colleges have focused on enrollment increases for funding purposes for decades.

With the change in funding structure emphasizing completion leading to success points now

leading to funding, community colleges are paying attention to those who complete. A study on

workforce Level I certificate completion is timely.

Support services, additional resources to assist with transportation, childcare, and food

insecurities are a few of the areas needed to help students at community colleges succeed and

overcome the challenges faced while enrolled. Providing support services and resources to adult

students enrolled in Level I certificate programs will improve completion, increase the number of

skilled employees entering the workforce, assist students in developing self-sufficiency, and

provide the necessary tools for a better quality of life. The purpose of this quantitative research

study was to discover to what extent significant correlations exist in completion rates between

adult students in Level I workforce certificate-programs based on gender, race/ethnicity, and

college from rural east Texas community colleges during the years 2014-2017. The following

chapter will provide the research methodology used in determining if significant correlations exist

between adult students in completion from Level I workforce certificate-programs by gender and

ethnicity/race from rural east Texas community colleges during the years 2014-2017 from four,

rural, east Texas community colleges. This study will provide information for future research

projects.

The following chapter includes the methodology to be used in this proposal. The research

procedures, including the sample and population sizes, will be explained in Chapter 3. In

addition, data collection and analysis procedures will be presented. Reliability, validity, and

ethical procedures will also be presented in detail.

Chapter 3: Methodology

A shortage of skilled technical workers exists in the Texas workforce with available candidates lacking the required technical skills to fill available positions (Texas Association of Workforce Boards, 2014). Collaboration between the states and the community colleges can help in finding solutions to fill in the increasing skills gap in the job environment (Shaffer, 2015). The purpose of this quantitative research study was to discover to what extent significant correlations exist in completion rates by gender, race/ethnicity, and college for adult students in Level I workforce certificate-programs at rural east Texas community colleges from 2014-2017.

Chapter three consists of the research methods and design used in this study. The purpose statement, research questions, and hypotheses are included as references for the reader(s). The chapter also includes a detailed explanation of the population and sampling methods used in the study. Subtopics include instrumentation, data collection, data preparation, analysis, reliability, validity, and ethical procedures. The following research questions served as a guide in the quantitative study of completion rates by gender, race/ethnicity, and college in Level I workforce certificate programs at four, rural, east Texas community colleges.

Research Question 1: To what extent is there a significant correlation between completion rates and gender for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017?

Research Question 2: To what extent is there a significant correlation between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017?

Research Question 3: To what extent is there a significant correlation between completion rates and college for adult students who participated in Level I workforce certificate programs at

rural, east Texas community colleges from 2014-2017?

Research Hypotheses:

$H1_o$: No significant correlation exists between completion rates and gender for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

$H1_a$: A significant correlation exists between completion rates and gender for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

$H2_o$: No significant correlation exists between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

$H2_a$: A significant correlation exists between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

$H3_o$: No significant correlation exists between completion rates and college for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

$H3_a$: A significant correlation exists between completion rates and college for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

Research Design and Rationale

A quantitative methodology was chosen to analyze completion rates for adult students who participated in Level I workforce certificate programs from four community colleges in rural east Texas between 2014 and 2017. Completion from a Level I workforce certificate program was the independent variable for the study. There were seven dependent variables: (1) male, (2) female, (3) African American, (4) Hispanic, (5) White, (6) other, and (7) college. The secondary data reported to the Texas Higher Education Coordinating Board (THECB) by designated officials at the community colleges in Texas was needed for this study. The data were collected from the Texas Higher Education Coordinating Board's public database on the THECB's accountability webpage. The research study was designed to determine if significant correlations exist in completion rates between the variables containing gender, race/ethnicity, and college groups.

A quantitative correlational research design was the most appropriate design since a large sample of archival data was available for collection from the Texas Higher Education Coordinating Board. Quantitative methods involved reviews of archival data and utilizing the appropriate statistical testing procedures (Creswell, 2015). The data was collected and sorted on a nominal scale to conduct the testing to find answers to the research questions in the study (Ma, 2015). Quantitative research is usually deductive and allows for the prediction of trends and/or generalization from large sample sizes (Ma, 2015). This research study consisted of investigating past experiences having already occurred and cannot be manipulated or controlled by the researcher making the correlational design the most appropriate research method (Ögeyik, 2016). The data collected were representative of students enrolled and completed a Level I workforce certificate program at one of four community colleges across

rural, east Texas from 2014-2017. Qualitative methods were not feasible for this study

because student access was difficult to obtain to conduct observations, surveys, or focus group

procedures to analyze completion rates of adult students who participated in Level I certificate

programs.

Research Procedures

Descriptive and significance testing for categorical data were used to provide answers

to the research questions in this quantitative study. A p-value ≤ .05 was used for significance

testing to reject the null hypotheses representing the maximum probability of committing a

Type I error. Committing a Type I error occurs if the researcher rejects the hypothesis when the

hypothesis proves to be true (DeMoulin, 2014). Significance testing for categorical data

provided the opportunity to test the hypotheses and make generalizing predictions for the

population of adult Level I workforce certificate-seeking students for comparison from the

descriptive data in each category by gender, race/ethnicity, and college. Charts and graphs will

be presented to represent descriptive statistics and trends based on the differences in the data

analyzed.

The scope of this study was to determine if significant correlations exist in completion

rates by gender, race/ethnicity, and college for adult students who participated in Level I

workforce certificate programs at rural, east Texas community colleges from 2014-2017.

Persistence in associate and bachelor's degrees has been studied previously with a sparse

concentration on certificate programs (Texas Higher Education Coordinating Board, 2018d).

The focus of this study was to determine which group(s) of students demonstrate the lowest

completion rates to support the need for specialized student support services for these lower-

performing groups based on the results.

Population and Sample Selection

The research population for this study was approximately 470,000 adult students

previously enrolled in a Level I workforce certificate program, also referred to as vocational

students, at nonprofit, community colleges across Texas from 2014-2017. The sample was

generated from archived data of completion rates representative of a large, accessible

population of students who participated in Level I workforce certificate program from 2014-

2017 allowing for more robust results (Demoulin & Kritsonis, 2009). Four, rural, east Texas

community colleges were included in the study. The study included completion rates for adult

students who participated in Level I workforce certificate programs at four rural east Texas

community colleges from 2014-2017. The state database is a matter of public record providing

no identifying student information outside of the demographics and data needed for this study.

The student-level data collected included gender, race/ethnicity, and college.

Instrumentation

Community colleges in Texas are required to submit student-level data following each

semester to the Texas Higher Education Coordinating Board. Community college employees

have access to the database housing the archival data as well as the ability to request additional

student-level data without identifiers as needed from the THECB data collection department.

Analyzing secondary data was acceptable since the data needed to answer the research

questions were available (Grady, Cummings, & Hulley, n.d.). The data collected was

representative of enrollment and completion rates by gender, race/ethnicity, and college for

adult students who participated in Level I workforce certificate programs from 2014-2017 and

compiled into a Microsoft Excel spreadsheet for analysis. The four community colleges in the

study were coded as A, B, C, and D utilizing a nominal scale for anonymity to eliminate any

potential harm to the colleges about completion rates from Level I workforce certificate programs at the various colleges.

The archival demographic data were coded numerically by gender, race/ethnicity, and college using a nominal scale, then analyzed using the VassarStats online software. Measures of central tendency were used to determine the mode of the groups tested (DeMoulin, 2014). The numerical data from the raw data were used in statistical testing. Group frequencies and mode were the variables of gender, race/ethnicity, and college data to be presented in charts and graphs from the raw data collected in this study (Creswell, 2014).

Data Collection

Following approval by the Institutional Review Board (IRB), the collection of secondary data began. The steps of collecting the data establish the boundaries for the research study (Creswell, 2014). The data collected was organized, grouped, and filtered when extracted from THECB's Accountability Database online in Excel format. The student enrollment, demographics, and completion data from 2014 through 2017 was extracted for Level I certificate-seeking students and sorted accordingly. All Texas community colleges are required to submit a variety of reports each semester for certification to THECB before being available online (THECB, 2018). The level of enrollment and completion were selection/filter options to allow the researcher to focus on Level I certificate-seeking students from specific colleges.

The data was filtered from the THECB's interactive accountability website and downloaded into a Microsoft Excel spreadsheet, then entered in the VassarStats online software for statistical testing. For this research, archival data were collected for a sampling consisting of completion rates for adult students who participated in Level I workforce certificate

programs at four, rural, east Texas community colleges from 2014-2017. The data collected

from the Texas Higher Education Coordinating Board's database were categorized by gender

(male and female), race/ethnicity (African American, Hispanic, White, and other), and college

in Microsoft Excel. The data did not include student identifying information to ensure

anonymity and protection of the students. The four community colleges were coded in

Microsoft Excel as A, B, C, and D utilizing a nominal scale for anonymity regarding the

number of adult students who participated and completed a Level I workforce certificate

program from 2014-2017.

Data Preparation

Data for this study were collected from the Texas Higher Education Coordinating

Board's Interactive Accountability System website and downloaded into a Microsoft Excel

spreadsheet. The data were carefully organized and prepared for analysis without distortion.

The data was filtered by category to best answer the research questions to ensure accuracy.

Errors found in the data collected from the database is unlikely since the error-proofing

process takes place before the publication of data. Careful analysis and sorting were required

by the researcher to ensure the most valid results were obtained (Talla, 2015).

Students earning a Level I certificate during the time of focus were sorted, filtered, and

categorized by gender, race/ethnicity, and college to measure completion. Once categorized

by group, the data were filtered and sorted for the proper statistical procedures using the

VassarStats online software to determine the highest frequency of students completing among

gender, race/ethnicity, and college groups. The collection and analysis were conducted using

a personal computer and saved with an encrypted passcode for security purposes (Brooks,

2018). The data collection was completed within the seven to 10-day window described in the

study design, and the analysis was completed within three weeks. Charts and graphs were

created to represent the measurements for gender, race/ethnicity, and college for analysis.

Data Analysis

Data analysis compared completion for males and females in Level I workforce

certificate programs from 2014-2017. The analysis also compared completion by race/ethnicity

groups (African American, Hispanic, White, and other), and determined which group represents

the highest completion rates from Level I workforce certificate programs. Data cleaning and

screening procedures were used to search for missing values to prevent damage to the analysis

and outcomes before testing (Talla, 2015). If missing values such as data entry errors about

gender, race/ethnicity, college, or duplication of the same student data were found, the

abnormal data was extracted and eliminated from the study for reliability. Measures of central

tendency were used to determine the mode of the groups tested.

Univariate statistics used included frequencies and percentages. To answer the three

research questions (completion rate by gender, race/ethnicity, and college), a series of three chi-

square tests were used. In 2015, Sharpe wrote, "chi-square tests are by far the most popular of

the non-parametric or distribution-free tests and the default choice when applied psychological

researchers analyze categorical data" (p.7). Along with the chi-square test of independence,

Cramer's V tests (Pearson correlations between two categorical variables) were included as

measures of the strength of the relationship/effect size (Shih & Fay, 2017). Pearson's chi-

square test (X^2) has been widely used in testing for association between two categorical

responses (Shih & Fay, 2017). The probability alpha value for this study was set at $p \leq .05$ to

test the null hypotheses with a 95% probability factor. Given this study used aggregated data

from the Texas Higher Education Coordinating Board's Interactive Database online, the VassarStats online software was used (VassarStats, 2018).

Descriptive statistics, taking raw data and describing the data, along with significance testing for categorical data, allowed for the results to be inferred using defined rules and assumptions appropriate for this study (Lund Research Ltd., 2018). Descriptive statistics were used to summarize archival data collected from the Texas Higher Education Coordinating Board's Interactive Database online for Level I workforce certificate-seeking adult students completing from 2014-2017 at four, rural, east Texas community colleges. Descriptive statistics allowed the researcher to summarize using methods to describe the mode about gender, race/ethnicity, and college for students by enrollment and completion from Level I workforce certificate programs.

Significance testing for categorical data involved taking the results from descriptive statistics and utilizing the appropriate significance testing to infer results. Significance testing for categorical data provided ways to test the hypotheses to determine if a significant correlation exists between the categories of adult Level I workforce certificate-seeking students by gender, race/ethnicity, and college. The correlational study provided the opportunity to analyze archival data then describe a situation as it naturally occurred after the proper statistical testing had been conducted (Creswell, 2014).

Reliability and Validity

Interaction and history of treatment is a type of external validity possible to occur in this study if the time frame of the results cannot be generalized for future years (Creswell, 2014). The four rural east Texas colleges remained confidential in the study by using designated coding (A, B, C, and D). Internet access to collect data, and website access was

considered a threat in the event access is limited or nonexistent. Late reporting by the

community colleges to THECB was viewed as a possible threat to the study because all

possible student data may not be included in the raw data for testing. Researcher error in

testing the data while using the VassarStats online software was also considered to be a

potential threat.

Ethical Procedures

Ethical concerns or feasibility issues were minimal with this type of research because

student identifiers are not collected in the data. Based on the 1979 Belmont Report,

researchers will demonstrate respect for persons, beneficence, and justice (The United States

Government, 2017). This quantitative study involved collecting existing public data for

analysis with no threat of identification or harm to a person or persons. Student anonymity is

valued and managed by the Texas Higher Education Coordinating Board's data department.

The information needed was extracted and sorted from the state's database. Student data were

categorized by gender, race/ethnicity, and college based on completion from Level I certificate

programs between 2014 and 2017. The group of participants were over the age of 17 and

community college students who participated in Level I workforce certificate programs at four

rural east Texas community college from 2014-2017.

Student information such as gender, race/ethnicity, and college were collected and

tested to determine which groups had higher completion rates without names or other personal

identifiers being present. The integrity of the data made available by the Texas Higher

Education Coordinating Board was collected, maintained, and secured by the THECB

technology department (THECB, 2018). Archival data collected was secured and stored

appropriately. The data will be kept for three years following the study before destroying

through deletion. The community colleges in the study were coded as A, B, C, and D for anonymity, and student identifiers were not available through the THECB's Interactive Accountability System website. The researcher is the only person who will have access to the data through a secure password created for all spreadsheets and files saved on external devices or computer hard drives. The transfer of data electronically included encrypted passwords to be accessed on by the researcher (Brooks, 2018).

Chapter Summary

A quantitative correlational study allowed the researcher to analyze data using descriptive and significance testing inclusive of raw archival data representing demographic characteristics of the sample such as gender, race/ethnicity, and college. Descriptive statistics allowed the researcher to summarize using methods to describe the mode about completion rates by gender, race/ethnicity, and college for adult students participating in Level I workforce certificate programs at four, rural, east Texas community colleges from 2014-2017. Significance testing on categorical data involved taking the results from descriptive statistics utilizing the appropriate statistical procedure to infer the results to generalize the completion rates for the population of students in Level I workforce certificate programs by gender and ethnicity/race from community colleges across Texas (DeMoulin, 2014). The purpose of this quantitative research study was to discover to what extent significant correlations exist in completion rates between adult students in Level I workforce certificate-programs based on gender, race/ethnicity, and college from rural, east Texas community colleges during the years 2014-2017. Chapter 4 will include the results of the data analysis explained in this chapter, in addition to charts and graphs for visual presentation.

Chapter 4: Research Findings and Data Analysis Results

The problem studied is that low completion rates in Level I workforce certificate programs at community colleges across Texas contributes to the increasing shortage of available skilled workers to fill vacated and new positions in business and industry. The purpose of this quantitative research study was to discover to what extent significant correlations exist in completion rates by gender, race/ethnicity, and college for adult students in Level I workforce certificate-programs at rural, east Texas community colleges from 2014-2017. Understanding which demographic group of adult students are completing compared to those who are not completing will help to develop support services needed to increase persistence for low-performing groups. The research questions presented in this study served as a guide in the quantitative study of completion rates by gender, race/ethnicity, and college in Level I workforce certificate programs at four, rural, east Texas community colleges.

Cohen (1988) suggested some guidelines for interpreting the strength of linear correlations. He suggested a 'weak correlation' typically had an absolute value of $r = .10$ (about one % of the variance explained), a 'moderate correlation' typically had an absolute value of $r = .30$ (about nine % of the variance explained), and a 'strong correlation' typically had an absolute value of $r = .50$ (about 25 % of the variance explained). These guidelines can be applied to assess the strength and magnitude of the correlations from the following bivariate chi-square tests. Cramer's V is used as a post-test to determine the strengths of the association after chi-square has determined significance.

Chapter 4 includes a summary of the data collection process used in this study. Demographic data were collected from the Texas Higher Education Coordinating Board's interactive database online about students at four, rural, east Texas community colleges who

enrolled and failed to complete a Level I workforce certificate program. A summary of the results of the statistical testing as described in Chapter 3 will be provided in this chapter. The results will also be discussed to address the research questions posed and hypotheses presented in the study.

Data Collection

The study sample of students who enrolled and failed to complete a Level I workforce certificate from four, rural, east Texas community colleges between 2014 and 2017 was extracted from the Texas Higher Education Coordinating Board's online database. A total population sampling method was used for enrollment and completion data. A total of 22,925 records were available in the public domain database for the study to test completion for gender and college. A total of 22,949 records were available in the public domain database to test completion for race/ethnicity. In addition, of those 22,949 records, 24 records selected in race/ethnicity were classified as 'other' and eliminated from the study leaving the three large race/ethnicity categories of African American, Hispanic, and White. The data found in the 'other' category were minimal and created no issues or concerns with the results of testing.

The research population for this study was significantly larger than anticipated with approximately 23,000 adult students previously enrolled in a Level I workforce certificate program, also referred to as vocational students, at nonprofit, community colleges across rural east Texas from 2014-2017. The sample collected and examined over four days was generated from archived data representative of a large population of students who participated in Level I workforce certificate program from 2014-2017 allowing for more robust results (Demoulin & Kritsonis, 2009). The community colleges in the study were labeled as A, B, C, and D for anonymity. The study also includes completion rates for adult students who participated in Level I workforce certificate programs at four, rural, east Texas community colleges from

2014-2017. The state database is a matter of public record providing no identifying student

information outside of the demographics and data needed for this study. The student-level data

for students enrolled in Level I certificates, but failed to complete, included gender,

race/ethnicity, and college. The increase in the amount of data available on the Texas Higher

Education Coordinating Board's website was the only significant circumstance encountered

during the data collection process.

Data Analysis and Results

Research Question 1 was 'To what extent is there a significant correlation between

completion rates and gender for adult students who participated in Level I workforce certificate

programs at rural, east Texas community colleges from 2014-2017?' The related null hypothesis

was H_0: 'No significant correlation exists between completion rates and gender for adult students

who participated in Level I workforce certificate programs at rural, east Texas community

colleges from 2014-2017'. To answer Research Question 1, Table 2 has the bivariate chi-square

test results for associating the students' rates of graduation with gender, based on whether the

certificate program was completed. Inspection of the table found the correlation in program

completion rates and gender was significant at the $p = .001$ level (Cramer's $V = .35$). Specifically,

male students had moderately higher rates of program completion (46.8%) than did female

students (14.8%). The answer for Research Question 1 provided support to reject the null

hypothesis as presented in Table 2.

Table 2

Correlation of Certificate Program Completion by Completion Rates and Gender

Completion Rates (N = 22,925)

		Certificate Program			
		Did Not Complete		Completed	
Item	Category	*n*	%	*n*	%
Gender [a]					
	Male	4,841	53.2	4,267	46.8
	Female	11,769	85.2	2,048	14.8

[a] χ^2 (1, $N = 22,925$) = 2,819.54, $p = .001$. Cramer's $V = .35$.

Research Question 2 was 'To what extent is there a significant correlation between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017 ?' The related null hypothesis was H_0: 'No significant correlation exists between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017'. To answer Research Question 2, Table 3 has the bivariate chi-square test results for associating the students' rates of graduation with race/ethnicity, based on whether the certificate program was completed. Inspection of the table found the correlation in favorability ratings was significant at the $p = .001$ level (Cramer's $V = .05$). Specifically, Hispanic students had slightly higher rates of program completion (31.9%) than white students (26.6%) or

African American students (24.7%). The answer for Research Question 2 provided support to reject the null hypothesis as presented in Table 3.

Table 3

Association of Certificate Program Completion by Completion Rates and Race/Ethnicity

Completion Rates (N = 22,949)

		Certificate Program			
		Did Not Complete		Completed	
Item	Category	*n*	%	*n*	%
Race [a]					
	White	10,600	73.4	3,837	26.6
	African American	4,260	75.3	1,399	24.7
	Hispanic	1,943	68.1	910	31.9

[a] χ^2 (2, N = 22,949) = 50.61, p =.001. Cramer's V =.05.

Research Question 3 was 'To what extent is there a significant correlation between completion rates and college for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017?' The related null hypothesis was H_0: 'No significant correlation exists between completion rates and college for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.' To answer Research Question 3, Table 4 has the bivariate chi-square test results for associating the students' rates of graduation with college attended, based on Level I certificate program completion. Inspection of the table found the correlation in favorability

ratings was significant at the $p =.001$ level (Cramer's $V =.31$). Specifically, students at College D

had moderately higher rates of program completion (52.4%) than students at College C (29.2%),

College B (18.6%), and College A (15.8%). The answer for Research Question 3 provided

support to reject the null hypothesis as presented in Table 4.

Table 4

Association of Certificate Program Completion by Completion Rates and College Attended

Completion Rates (N = 22,925)

| | | Certificate Program | | | |
| | | Did Not Complete | | Completed | |
Item	Category	n	%	n	%
College [a]					
	A	4,432	84.2	831	15.8
	B	6,121	81.4	1,395	18.6
	C	3,754	70.8	1,549	29.2
	D	2,303	47.6	2,540	52.4

[a] χ^2 (3, $N = 22,925$) = 2,180.48, $p =.001$. Cramer's $V =.31$.

Research Questions and Hypotheses

As previously stated, the purpose of this quantitative research study was to discover to

what extent significant correlations exist in completion rates by gender, race/ethnicity, and

college for adult students in Level I workforce certificate-programs at rural, east Texas

community colleges from 2014-2017. The problem was that low completion rates in Level I

workforce certificate programs at community colleges across Texas contributes to the increasing

shortage of available skilled workers to fill vacated and new positions in business and industry

The following research questions guided the research in achieving the purpose of the study:

Research Question 1: To what extent is there a significant correlation between completion rates and gender for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017?

Research Question 2: To what extent is there a significant correlation between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017?

Research Question 3: To what extent is there a significant correlation between completion rates and college for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017?

The following hypotheses were used to answer the research questions:

$H1_o$: No significant correlation exists between completion rates and gender for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

$H1_a$: A significant correlation exists between completion rates and gender for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

$H2_o$: No significant correlation exists between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

$H2_a$: A significant correlation exists between completion rates and race/ethnicity for adult students who participated in Level I workforce certificate programs at rural, east Texas

community colleges from 2014-2017.

H3$_o$: No significant correlation exists between completion rates and college for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

H3$_a$: A significant correlation exists between completion rates and college for adult students who participated in Level I workforce certificate programs at rural, east Texas community colleges from 2014-2017.

Reliability and Validity

This study is reliable because the results can be reproduced by testing the same data using the same measurement tool creating consistency of a measure (Heale & Twycross, 2015). Chi-square tests are considered to be the most popular to use when analyzing catagorical data (Sharpe, 2015). Strong correlations indicate high reliability and weak correlations may prove to be unreliable. Reliability and validity are the major criteria for evaluating quantitative research instruments. The instrument used was appropriate for providing answers to the research questions. An external validity threat could occur from the use of archival data, and the decision to use specific college and student data limiting the ability to generalize to larger populations.

Researcher bias did not exist because there was no personal contact with participants and all archival data were extracted from the Texas Higher Education Coordinating Board's online interactive database. The large sample size available for the study will minimize Type I and Type II errors. VassarStats online software is widely used as a statistical instrument testing for correlation (Suma & Suresh, 2016).

Chapter Summary

In summary, the sample for this study consisted of 22,949 students used to discover to what extent correlations exist in completion rates by gender and college for adult students in Level I workforce certificate-programs at rural, east Texas community colleges from 2014-2017. The race/ethnicity data consisted of 22, 925 students used to discover to what extent relationships existed in completion rates by race/ethnicity for adult students in Level I workforce certificate-programs at rural, east Texas community colleges from 2014-2017. The data collected for this quantitative correlational study served the purpose of determining if demographic characteristics, such as gender, race/ethnicity, and college influenced completion. Research hypothesis one (completion rates and gender) was supported (Table 1). Research hypothesis two (completion rates and race/ethnicity) was supported (Table 2). Research hypothesis three (completion rates and college) was supported (Table 3). In Chapter 5 of this research study, these findings will be compared to the literature so conclusions and implications can be analyzed, and a series of recommendations can be suggested for community college leaders and future researchers.

Chapter 5: Discussion, Conclusions, Recommendations

Low completion rates from Level I workforce certificate programs at community colleges across Texas and the increasing shortage of available skilled workers to fill vacated and new positions in business and industry is a growing problem. The findings of this study will benefit business and industry seeking to hire skilled graduates of certificate programs, the students, and families, in addition to community colleges based on the importance of persistence to completion at the state and national levels. The purpose of this quantitative research study was to discover to what extent significant correlations exist in completion rates by gender, race/ethnicity, and college for adult students in Level I workforce certificate-programs at rural, east Texas community colleges from 2014-2017. Community colleges willing to adopt and implement the recommendations derived from this study could produce higher skilled graduates increasing the number of employable people to help close the skilled labor gap. The results of this study will lead to guidance in improving the areas of student services needing to be improved to increase the rate of completion and employment for students enrolling in Level I workforce certificate programs at community colleges across rural east Texas. This study will also help to guide community colleges in designing student support services appropriate to meet the various needs of Level I workforce certificate-seeking students such as (1) childcare, (2) food insecurities, (3) utility assistance, and (4) transportation to name a few.

This subject was chosen because of the emerging issue continues to be of concern for stakeholders such as business and industry leaders, economic developers, government officials, and Texas Workforce Commission as examples of some of the stakeholders. When economic growth occurs in a region, new positions can be added to existing businesses or industries, or positions may become available because of those who retire. Without a pool of applicants to

choose from with the necessary skills business and industry cannot expand and could relocate to an area seeking an abundance of potential employees. Community colleges play a large role in providing solutions for business and industry needing skilled employees. Community colleges should offer high-quality certificate programs with updated technology to meet the needs of potential employers. College administrators should create and provide a 'holistic' student support service model for adult students to be equipped with the tools needed to commit and complete Level I certificate programs leading to employment and higher wages. These efforts would also contribute to the economic health of the communities served.

The literature review in Chapter 2 focused on community college success and recommended improvements. The contents of the literature review included (1) literature search strategies, (2) workforce education in community colleges, (3) community college students, (4) barriers to college enrollment and completion, (5) workforce certificate programs, (6) remediation in college, (7) additional comments, and (8) summary. The literature is filled with community college completion information in general. The overwhelming consensus in the literature is the need to improve completion rates in higher education. Recommendations for student success and remediation is mentioned throughout the research with little emphasis on Level I certificate programs or certificates in general, and most studies with research including community college completion rates combined degrees and certificates. The issue of concern with the data was Level I certificate-seeking students are not required to demonstrate college readiness in any academic area. Some colleges will require reading/math assessments to determine the level of basic academic skills a student might have, although denying enrollment is not an option.

Chapter 3 detailed the quantitative methodology chosen to analyze completion rates for adult students who participated in Level I workforce certificate programs from four community

colleges in rural east Texas between 2014-2017. Completion from a Level I workforce certificate

program was the independent variable for the study with six dependent variables: (1) male, (2)

female, (3) Black, (4) Hispanic, (5) White, and (6) college. The secondary data reported to the

Texas Higher Education Coordinating Board by designated officials at the community colleges in

Texas was needed for this study. The data were collected from the Texas Higher Education

Coordinating Board's public interactive database from the website. This research study was

designed to determine if significant correlations exist in completion rates and the variables

containing gender, race/ethnicity, and college groups.

The data collected and summarized in Chapter 4 included demographic information about

students who enrolled and failed to complete a Level I workforce certificate from four community

colleges in rural east Texas. The findings of this study revealed a significant correlation in the

moderate range for the completion rates between males and females. Testing for completion with

ethnicity/race also showed a correlation, although based on the results, is considered a small or

weak correlation. The location of the community college in rural east Texas also showed a

significant correlation with college D representing a 50% completion rate. The statistical testing

provided answers to all three research questions, and the null hypotheses were rejected.

Chapter 5 provides a discussion of the findings, interpretations, and conclusions for the

study. Limitations will also be discussed with recommendations and implications for community

college administrators, faculty, and future researchers. New information found in this research

study will be presented in Chapter 5.

Findings, Interpretations, Conclusions

The purpose of this quantitative research study was to discover to what extent significant

correlations exist in completion rates by gender, race/ethnicity, and college for adult students in

Level I workforce certificate-programs at rural, east Texas community colleges from 2014-2017.

The findings from this study provided new information about Level I workforce certificate

completions in rural east Texas. The findings also supported some of the research previously

conducted about community college completion nationally and across Texas. Each of the three

research questions resulted in one finding following analysis and statistical testing. This chapter

will consist of a discussion of the theoretical framework and study findings.

   To provide answers to the hypotheses, a series of three chi-square tests for independence

were used, and statistical testing was conducted using the procedures explained in Chapter 3. The

independent variable for this study was completion from a Level I workforce certificate program.

The dependent variables were : (1) male, (2) female, (3) Black, (4) Hispanic, (5) White, and (6)

college.

   For Research Question 1, the results from testing show the correlation in program

completion rates by gender are significant at the $p = .001$ level (Cramer's V = .35).

Specifically, male students have moderately higher rates of program completion (46.8%) than

female students (14.8%). These results provided support to reject the null hypothesis for
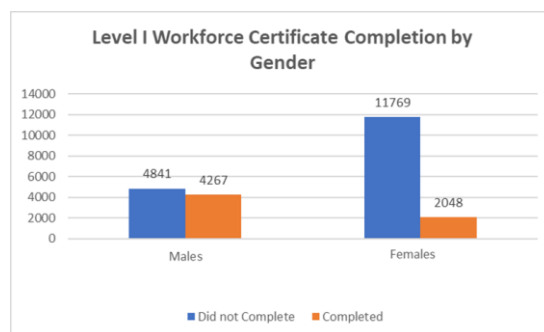
Research Question 1.

Figure 3. Completion by gender

For Research Question 2, the results from testing show the correlation in ethnicity/race favorability ratings are significant at the p = .001 level (Cramer's V = .05). Specifically, Hispanic students have slightly higher rates of program completion (31.9%) than white students (26.6%) or black students (24.7%). These results provided support to reject the null hypothesis for Research Question 2.
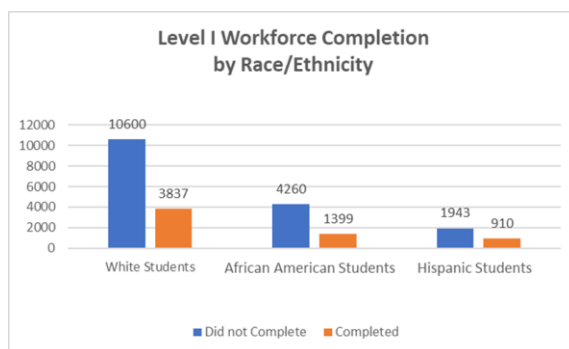

Level I Workforce Completion by Race/Ethnicity

Figure 4. Completion by race/ethnicity

For Research Question 3, the results from testing show the completion by college correlation is significant at the p = .001 level (Cramer's V = .31). Specifically, students at College D have moderately higher rates of program completion (52.4%) than students at College C (29.2%), College B (18.6%), and College A (15.8%). These results provided support to reject the null hypothesis for Research Question 3.
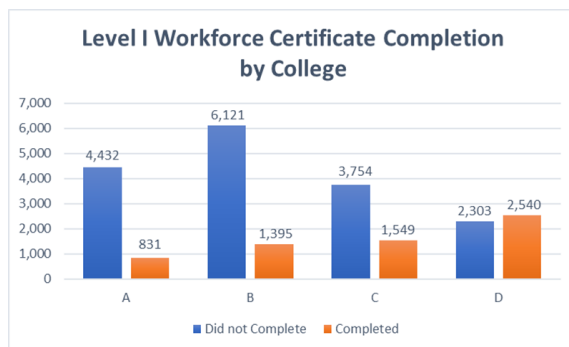

Level I Workforce Certificate Completion by College

Figure 5. Completion by college

Interpretation of Findings

The results of this study were consistent with some of the literature presented in the literature review. Statistical testing on the data for this study revealed positive correlations between the independent variable of completion and the different variables representing gender, race/ethnicity, and college. The correlations, according to Cohen (1988) vary in strength from a weak correlation to a strong correlation. Testing for Research Questions 1 and 3 resulted in a strong correlation meaning the relationships were significant. Testing for Research Question 2 resulted in a weak correlation meaning while the relationship is much smaller there was still a relationship to support rejecting the null hypotheses.

Completion in a Level I workforce certificate program is a stepping stone to an occupation or career. The findings of this study showed completion to be positively correlated with gender, while not all the prior studies offer the same results. This study also showed males completed Level I workforce certificate programs in rural east Texas at a significantly higher rate (46.8%) than females (14.8%). Ray, Galvan, and Zarestky (2018) discovered the need for more gender-inclusive workforce programs since most programs are targeted toward males creating enrollment and completion barriers for females. In contrast, a study conducted by Juszkiewicz (2016) showed women completed at 41.5% and men completed at 35.7%.

The ethnicity/race data tested for completion in a Level I workforce certificate program also revealed a positive correlation with a smaller significant effect. A 10-year study conducted by Rankin, Scott, and Kim (2015) found no significant difference in completion rates between African Americans, Hispanics, or white students refuting the results found in this study. This study revealed a small significance effect and white students completed at a slightly higher rate than Hispanics or African Americans. McKinney and Hagedorm (2017) combined ethnic/racial

groups with low-income students in a study finding the need to support enrollment and completion among these groups. Sáenz, García-Louis, Drake, and Guida (2018) researched Latino males at seven community colleges in Texas finding first-generation college students typically work full-time and attended college part-time causing low persistence and completion rates among this group. In contrast, this study found Hispanics completed at a higher rate than African Americans and not far behind white students.

The data collected and tested about college location from four rural east Texas community colleges for this study also revealed a significant positive correlation. The community colleges in the study were coded as A, B, C, and D for anonymity to eliminate any potential harm to the colleges about completion rates from Level I workforce certificate programs. The study revealed a significant correlation between completion and college D having a 52.4% completion rate compared to the other three colleges. Harrill, Lawton, and Fabianke (2015) found the need for rural institutions to provide highly qualified student support staff and services to meet the needs of adult learners and contribute to persistence and completion. Consistently, community college students were deemed more likely to withdraw from college than university level students because of barriers to include work, lack of educational support services, and family obligations (Harbour & Wolgemuth, 2015). Scott, Miller, and Morris (2016) explained rural community college students in weak economies, without institutions of higher education located nearby face obstacles students in larger communities do not face, supporting the need for this study and further studies to be conducted in the future.

Conclusions

The data analyzed for this study provided definitive answers to the research questions about correlations existing between completion and gender, race/ethnicity, and college. The

results were slightly different from those found in the literature in some cases. In other cases, the results were similar. The results showed a definite problem with completion rates in all areas of Level I workforce certificate programs, although slightly better in some areas. The outcomes of the study support the need for additional student support services for varying populations of students while enrolled in Level I workforce certificate programs. This study contributed much-needed data and information to the help close the gap in the literature explicitly about completion in Level I workforce certificate programs at community colleges in Texas.

Limitations

This study was limited to community college students enrolled in Level I workforce certificate programs who failed to complete from only four rural east Texas community college between 2014-2017. The sample consisted of 22,949 students enrolled in Level I workforce certificate programs from 2014-2017 at one of the four rural east Texas community colleges. Generalization may be limited to small or medium-sized rural community colleges in Texas. Also, community colleges offer programs suitable for college district job markets and communities which prove to be different across the state. The study was limited to quantitative statistical testing without observations, interviews, or any other type of qualitative measurements. Workforce education varies by state, and the findings of this study may not generalize across state lines based on those differences.

The validity and reliability of the data collected to use in this study were discussed in Chapter 3. The data collected from the Texas Higher Education Coordinating Board's interactive database on the website were generally found to be reliable and valid and frequently used in other studies for research and by college administrators. The electronic testing instrument located on the Vassarstat website is widely used for statistical testing although human error is possible. As a

rule, erroneous data submitted to the Texas Higher Education Coordinating Board by community college representatives during mandatory reporting periods are returned to the colleges for correction before publication making the available data valid and reliable.

Recommendations

Additional research should explore the lack of entrance testing requirements for Level I workforce certificate programs, the reading levels of textbook materials, and the amount of student loan debt students acquire who fail to complete and obtain employment leading to higher wages and benefits. Further research should be conducted as either quantitative, qualitative, or mixed methods. Future research could analyze enrollment in specific programs and seek to find answers to why the students chose those programs. Additional research is needed to understand the characteristics of community college students statewide. Community colleges have proven economic value to the communities served, and with the demand for higher levels of education for employment, completion will continue to be a concern. Understanding the needs of students, and the differences between community college students are beneficial for persistence and completion in Level I workforce certificate programs. Many students fail to understand what the level of expectations or the degree of involvement (physical and academic) required when enrolling in Level I workforce education programs.

A qualitative research study could be beneficial if students were interviewed to determine specific barriers present at the beginning of the first semester of enrollment in a Level I workforce certificate program. Community colleges in Texas and state legislators should plan to provide funds to support increasing completion rates and stop focusing on enrollment numbers when completion rates are low across the state. The disconnect between the students and specific program Level Information can happen at the beginning of the enrollment process or later.

Students need to be better informed by admissions staff and recruiters about enrolling in Level I workforce certificate programs even though pre-enrollment testing is not required. The state legislature should adopt and implement reading comprehension testing on the adult basic education level as a requirement for college-Level I certificate coursework and require adult basic education coursework as a corequisite. Workforce education programs include college-level textbooks and materials; many students are not academically prepared to participate and succeed. Also, these students are unaware of the difficulty in the coursework until after student loans are obtained and classes have begun leading to another topic of concern: student loan debt and default.

Additional studies could investigate whether the same results would occur from other colleges to include both rural and urban institutions. College administrators involved in Level I workforce certificate programs should routinely access the Texas Higher Education Board's interactive database to examine enrollment and completion data to explore possible best practices with peers from colleges demonstrating higher completion rates. Administrators from rural institutions should invest in improved students support services for adult students enrolling in Level I workforce certificate programs to address academic and personal barriers inhibiting completion. While there is no 'quick-fix' to this problem, grant opportunities are available to develop strong student support services. Partnering with civic organizations is also a way to provide services students may need such as food or clothing.

Government funded organizations and churches are usually willing to help students in need. Community colleges will need to hire the right people, such as success coaches and adult basic education certified educators, to develop and implement a student support services department for Level I certificate-seeking students. Over time, students will begin to reap the

benefits of the department, and colleges will benefit, and most importantly business and industry seeking trained skilled employees will benefit.

Implications for Leadership

This study is significant to leaders in community colleges, economic development, and business and industry. Community college leaders have been provided with evidence of the need to improve completion in Level I workforce certificate programs. These leaders have also been provided with evidence of positive correlations between completion and demographics from four rural east Texas community colleges. A study conducted by Riddick (2014) researched ethnicity and completion in North Carolina community colleges similar to this study with race being defined as a single independent variable including Black, White, Asian, American, and 'other' with the result showing no significant relationship existed. Implementing the recommendations of this study and continuing to research completion in community colleges based on the type of certificate or degree has future benefits for students, college administrators, economic development organizations, and business and industry across Texas.

Community College Leaders

Community colleges receive funding in Texas based on enrollment/contact hours, success point funding connected to completion, enrollment costs and fees, tax base funds, endowment funds/donations, and grants. Completion in a Level I certificate can range from 15-42 semester credit hours depending on the program. The majority of Level I workforce certificates are 40-42 semester credit hours and require up to one year to complete.   Administrators at community colleges are responsible for adding and maintaining programs to meet communities' needs based on population and industry-based jobs. For example, program demands are based on the job market where the community colleges are located in Texas.

Some areas of Texas have a high demand for employees in the hospitality industry, and others may have high demands for industrial manufacturing or health care. College administrators and local business and industry leaders work together to develop plans to meet the needs of employers. Community college leaders and legislators need to increase investments in this population of community college students. These leaders and individuals may have a better understanding of the support services and academic assessments needed for students enrolling in Level I workforce certificate programs if completion and employment are on the main agenda. The students enrolling in Level I workforce certificate programs will gain the most benefit from these recommendations if supported academically, and personally while enrolled to cross the finish line of completion.

Economic Development

Community college administrators and program leaders are actively involved in economic development. Searching for the best location to include incentives provided by local governments and grant funds often occurs through economic development organizations and may include the local Chamber of Commerce office from the area under consideration. Industry representatives will work through a checklist of items when considering a new location. In most cases, two of the top five items on the checklist are (1) the availability of skilled employees produced by a local community college or university programs, and (2) access to continued training for employees after hired. The investment needed to expand or relocate a business or industry is costly and a considerable amount of time is invested beforehand to ensure the best location is selected. Community colleges should be willing to adapt and invest in programs to support local business and industry needs in order to thrive and survive long-term. If status quo continues with the low number of students completing Level I workforce certificate programs, the local, regional, and

national economies will continue to suffer, and jobs may be relocated to other areas of the United States or abroad.

Business and Industry Needs

Business and industries located within a community college tax base are large contributors to the funding structure of the college. Business and industry leaders are optimistic the local colleges will be able to provide a pool of skilled applicants to be hired. Human resources representatives also include local community college administrators to arrange contracts for additional employee training as the need arises. These representatives will present a list of positions and job requirements for each position so college administrators can either provide training immediately or begin to develop programs to meet the needs. Community colleges rely on business and industry to hire graduates, and business and industry rely on community colleges to produce graduates with training using the latest technology.

The goal for all involved is to support the needs of communities and offer affordable educational opportunities leading to good-paying jobs to offer a higher quality of life for individuals and families living in these communities. The blue-collar worker is the heartbeat of America in many ways and is often referred to as the skilled-collar worker (Wilkie, 2019). The reason for the change in terminology is the high level of technology used in most business and industries today. Technology will continue to evolve, and community colleges will be expected to evolve at the same time to support the job market in America.

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Chapter Summary

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Chapter 5 presented a review of the previous chapters in this study. The problem examined in the study, the purpose, the methodology, research questions, and hypotheses were briefly summarized in this chapter. This study revealed a significant correlation between

completion rates by gender with males completing at higher rates than females from four, rural, east Texas community colleges between 2014-2017. Significant correlations also existed between completion and race/ethnicity, and college between 2014-2017 at the same four community colleges. The limitations were also discussed in this chapter about data and data analyses. The literature review and theoretical framework guiding the study were also briefly discussed.

Generalization was limited with this study because only four, rural, east Texas community colleges were included in the data collection process. Although generalization was limited, this study examined data from a unique geographical area with an even more unique population and sample. This study will contribute to the growing interest and research about the shortage of skilled workers in Texas and how community colleges can assist with the shortage of 'job ready' candidates. This chapter provided specific recommendations for future researchers looking to contribute to the literature and findings surrounding this topic. Understanding the needs of students, and the differences between community college students are beneficial for completion in Level I workforce certificate programs, which in turn will address the problem of a shortage of skilled employees available to business and industry.

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Appendix A:

Criteria for Reviewing Data

Complete	Criteria	Notes
Completed	Gather data from the Texas Higher Education Coordinating Board's Interactive Accountability Database using the dependent and independent variables by year from 2014-2017.	
Completed	Download the results and extract data for analysis in Excel by coding colleges and independent variables for anonymity, in addition to applying inclusion and exclusion criteria before testing.	
Completed	Conduct statistical testing using the VassarStats online statistical program.	
Completed	Identify conclusions to provide answers to hypotheses; create output reports via charts and graphs; and summarize conclusions.	