

DIFFERENCES IN TEXAS COMMUNITY COLLEGE CERTIFICATE
COMPLETION RATES BY ETHNICITY/RACE, GENDER, AND INSTITUTION
ENROLLMENT

A Dissertation

Presented to

The Faculty of the Department of Educational Leadership
Sam Houston State University

In Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

by

Scott Godley

May, 2017

DIFFERENCES IN TEXAS COMMUNITY COLLEGE CERTIFICATE
COMPLETION RATES BY ETHNICITY/RACE, GENDER, AND INSTITUTION
ENROLLMENT

by

Scott Godley

APPROVED:

Dr. George W. Moore
Dissertation Chair

Dr. John R. Slate
Committee Member

Dr. Matt B. Fuller
Committee Member

Approved:

Dr. Stacey L. Edmonson
Dean, College of Education

DEDICATION

I have been fortunate to have the constant support of many individuals throughout this journey, but I would not be putting the words on the pages of this dissertation without the constant love and guidance of the person who shares the bed with me every night, Abbey Godley. From the beginning, we started discussing the idea of going back to school, and she was willing to make whatever sacrifices were necessary to ensure I would get across the graduation stage. Knowing that this process was going to be a marathon and not a sprint, we discussed all of the events that life might throw at us during this time, such as the addition of a child (which happened) or the changing of a job (which sort of happened). I was able to meet my goal of graduating in three and a half years because of her, and I will always be grateful for that support.

I also want to dedicate this research study to my family and in-laws, who command the work ethic and values that I try to embody on a daily basis. I can attribute most of my professional and personal successes to the examples that they have set for me. They are the most underrated aspect of my life, in that I do not tell them enough how much I care and appreciate everything that they do. Over the past few years, they have continuously done the little things to allow me the time/space to complete this endeavor.

Lastly, I want to dedicate this paper to Dad, Bill Godley. For several years, he was battling pulmonary fibrosis, an irreversible disease of the lungs that gradually limited his ability to breathe. On Thanksgiving of 2014, he had a hospital visit related to this disease that resulted in him permanently being on oxygen once he finally was allowed to return home. Shortly before this past Super Bowl, I received word from my family that he was back in the hospital with a potential respiratory infection. Within a few days, his

long-time doctor was recommending immediate hospice care as they believed his health would decline quickly in the coming days. That news hit me hard. I was able to get to the hospital that Wednesday and spend a couple hours with my dad, during which time I was able to tell him how much I loved and admired him as my father and as a human being. I will always cherish those moments, as his health and lucidity would quickly go downhill in the coming days. He returned home that Thursday night and was able to see his whole family before being moved to the bedroom and provided medication to address his discomfort. My dad passed away that Saturday, Feb. 11, 2017 surrounded by his family. It was tough for me to refocus on my dissertation following his passing, but I knew pushing forward to meet my original graduation deadline is what would have had him most proud. I love and miss him every day.

ABSTRACT

Godley, Scott, *Differences in Texas community college certificate completion rates by ethnicity/race, gender, and institution enrollment*. Doctor of Education (Educational Leadership), May 2017, Sam Houston State University, Huntsville, Texas.

Purpose

The purpose of the first study within this journal-ready dissertation was to determine the extent to which ethnicity/race-based differences were present in Texas community college completion rates specifically within workforce certificate programs. Regarding the second study, the purpose was to determine the extent to which gender differences were present in the Texas community college completion rates specifically within workforce certificate (i.e., non-degree) programs. The purpose of the third study was to investigate the extent to which differences in enrollment size influenced the Certificate I and Certificate II completion rates among different ethnic/racial groups.

Method

In this causal comparative study, archival data from the Texas Higher Education Coordinating Board were analyzed to determine the extent to which differences were present in workforce certificate programs (i.e., Level 1 Certificate and Level II Certificate). Completion rate data also were collected regarding gender, ethnicity/race, and student enrollment. These student outcomes were analyzed for the 2005-2006, the 2010-2011, and 2014-2015 academic years.

Findings

The only ethnic/racial group to yield statistically significant results for Level I Certificate and Level II Certificate completion rates for all years analyzed were Hispanic community college students. They had the greatest percentage point growth in Level I

Certificate and Level II Certificate attainment compared to the remaining ethnic/racial groups. The statistically significant completion rates for White students decreased by more than 10 percentage points for both credentials over the 10-year period. Male students represented the majority of Level I Certificate completers for nine of the 10 years associated with this study. The completion rates for male community college students increased to 56.75% by the 2014-2015 academic year. The percentage of male community college students who obtained a Level II Certificate credential steadily increased over the 10-year period; however, female students still represented the majority of completers (i.e., 58.70%) by the 2014-2015 academic year. Certificate completion rates for both credentials among Hispanic students gradually increased across all institution sizes between the 2005-2006 academic year and the 2014-2015 academic year. Meanwhile, the Level I Certificate and Level II Certificate completion rates among White students decreased across all institution sizes.

KEY WORDS: Community college, Workforce certificate, Ethnicity/Race, Gender, Completion

ACKNOWLEDGEMENTS

First, I want to acknowledge Dr. George W. Moore for his guidance and patience with me throughout the dissertation process. He has been the face of the doctoral experience over the final year of my studies, starting with the proposal course in the summer of 2016. I know for a fact that I have sent Dr. Moore updated drafts of my dissertation that still included some of the “stay-away” items that he preached over and over again in the classroom, via Zoom meetings, or through email. Through it all, he showed tremendous patience with me throughout this process. He also was supportive during the time in which I lost my father, and I really appreciate his kindness during that difficult time. It is obvious that his expertise and guidance is the reason why I was able to meet my desired graduation timeline.

I also want to acknowledge Dr. John R. Slate and Dr. Matthew B. Fuller for not only their guidance as my dissertation committee members, but their tremendous support of my cohort throughout the program. I learned a lot about this industry as well as research methods from both instructors, and they’ve really helped to make my experience within this program a positive one. I also want to thank Dr. Slate specifically for helping to run the data in SPSS. If you are asking me, his expertise as it relates to research and hyper-marathons is second to none.

I also want to acknowledge Dr. Madeline Burillo for introducing me to the Educational Leadership program at Sam Houston State University. She has supported my growth at Houston Community College since my first role at the 2-year institution as a Student Recruiter, and she has provided great insight into her experience in this program while also helping me to understand the criteria that should be critical to this

final decision. She has constantly asked about my progress in the program, and I will be happy to tell her that Dr. Godley finally is becoming a reality.

Last, but definitely not least, I want to acknowledge all of the members of my cohort: Danielle, Dorothy, Jeff, Kelly, Kim, Rene, and Sheldon. It did not take us long to develop a family-like bond once we started the program back in January 2014. I am excited to share the graduation stage with some of my team, and I know the rest of them will not be too far behind us. We kept each other motivated and focused on those long Tuesday nights. I am going to miss those end-of-semester gatherings at Guadalajara, where we would constantly make each other laugh while rehashing the experience of the previous 16 weeks. I will miss Cohort 31, but I know we will cross paths again.

TABLE OF CONTENTS

	Page
DEDICATION	iii
ABSTRACT	v
ACKNOWLEDGEMENTS.....	vii
TABLE OF CONTENTS.....	ix
LIST OF TABLES	xii
CHAPTERS	
CHAPTER I: INTRODUCTION.....	1
Statement of the Problem.....	5
Purpose of the Study	7
Significance of the Study	8
Definition of Terms.....	8
Delimitations.....	11
Limitations	11
Assumptions.....	12
Organization of the Journal Ready Dissertation	12
CHAPTER II: DIFFERENCES IN TEXAS COMMUNITY COLLEGE	
CERTIFICATE COMPLETION RATES BY ETHNICITY/RACE	14
Abstract.....	15
Method	23
Results.....	24
Discussion.....	36
Conclusion	42

References.....	43
CHAPTER III: DIFFERENCES IN TEXAS COMMUNITY COLLEGE	
CERTIFICATE COMPLETION RATES BY GENDER.....	60
Abstract.....	61
Method.....	69
Results.....	70
Discussion.....	77
Conclusion.....	82
References.....	84
CHAPTER IV: DIFFERENCES IN TEXAS COMMUNITY COLLEGE	
CERTIFICATE COMPLETION RATES BY STUDENT ENROLLMENT.....	95
Abstract.....	96
Method.....	105
Results.....	106
Discussion.....	119
Conclusion.....	125
References.....	126
CHAPTER V: DISCUSSION, IMPLICATIONS, AND	
RECOMMENDATIONS.....	137
Summary of Results.....	137
Connection to the Existing Literature.....	138
Implications for Policy and Practice.....	139
Recommendation for Future Research.....	141

Conclusion	142
REFERENCES	144
APPENDIX.....	150
VITA.....	151

LIST OF TABLES

TABLE	Page
2.1 Ethnic/Racial Diversity of Students Who Obtained a Level I Certificate at Texas Community Colleges for the 2005-2006 Through the 2009-2010 Academic Years	46
2.2 Ethnic/Racial Diversity of Students Who Obtained a Level I Certificate at Texas Community Colleges for the 2010-2011 Through the 2014-2015 Academic Years	47
2.3 Ethnic/Racial Diversity of Students Who Obtained a Level II Certificate at Texas Community Colleges for the 2005-2006 Through the 2009-2010 Academic Years	48
2.4 Ethnic/Racial Diversity of Students Who Obtained a Level II Certificate at Texas Community Colleges for the 2010-2011 Through the 2014-2015 Academic Years	49
2.5 Descriptive Statistics for the Percentage of Asian Students Who Obtained a Level I Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years.....	50
2.6 Descriptive Statistics for the Percentage of Asian Students Who Obtained a Level II Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years.....	51
2.7 Descriptive Statistics for the Percentage of Black Students Who Obtained a Level I Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years.....	52

2.8 Descriptive Statistics for the Percentage of Black Students Who Obtained a Level II Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years.....	53
2.9 Descriptive Statistics for the Percentage of Hispanic Students Who Obtained a Level I Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years.....	54
2.10 Descriptive Statistics for the Percentage of Hispanic Students Who Obtained a Level II Certificate at Texas Community Colleges Between 2005-2006 and 2014-2015 Academic Years.....	55
2.11 Descriptive Statistics for the Percentage of White Students Who Obtained a Level I Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years.....	56
2.12 Descriptive Statistics for the Percentage of White Students Who Obtained a Level II Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years.....	57
3.1 Descriptive Statistics by Gender of Students Who Obtained a Level I Certificate at Texas Community Colleges for the 2005-2006 Through the 2014-2015 Academic Years	87
3.2 Descriptive Statistics by Gender of Students Who Obtained a Level II Certificate at Texas Community Colleges for the 2005-2006 Through the 2014-2015 Academic Years.....	88
3.3 Descriptive Statistics for the Percentages of Male Students Who Obtained a Level I Certificate at Texas Community Colleges Between the	

2005-2006 and 2014-2015 Academic Years.....	89
3.4 Descriptive Statistics for the Percentage of Male Students Who Obtained a Level II Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years.....	90
3.5 Descriptive Statistics for the Percentage of Female Students Who Obtained a Level I Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years.....	91
3.6 Descriptive Statistics for the Percentage of Female Students Who Obtained a Level II Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years.....	92
4.1 Descriptive Statistics for the Percentage of Asian Students Who Obtained a Level I Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years.....	129
4.2 Descriptive Statistics for the Percentage of Black Students Who Obtained a Level I Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years	130
4.3 Descriptive Statistics for the Percentage of Hispanic Students Who Obtained a Level I Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and the 2014-2015 Academic Years	131

4.4 Descriptive Statistics for the Percentage of White Students Who Obtained a Level I Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years.....	132
4.5 Descriptive Statistics for the Percentage of Asian Students Who Obtained a Level II Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years.....	133
4.6 Descriptive Statistics for the Percentage of Black Students Who Obtained a Level II Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years.....	134
4.7 Descriptive Statistics for the Percentage of Hispanic Students Who Obtained a Level II Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years.....	135
4.8 Descriptive Statistics for the Percentage of White Students Who Obtained a Level II Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years	136

CHAPTER I

Introduction

The origins of community colleges and their respective credentials extend back to the 19th century, when they operated as small, rural, and locally controlled institutions that were not required to adhere to any form of national policy or program (Callan, 1997). These institutions became more formalized in 1901, when former University of Chicago president William Rainey Harper fostered the launching of Joliet Junior College as the feeder institution to the University of Chicago. Over the next 20 years, an additional 16 junior colleges began offering students an Associate degree credential (Parnell, 1985). Subsequently, by 1925 there were 47 community colleges governed by public school boards as well as departments of neighboring high schools. Consequently, curriculum for several community colleges during this timeframe was dictated by the respective secondary school (Callan, 1997).

Community colleges continued to be an afterthought for the federal government leading up to the Great Depression. However, the stock market crash in 1929 led to an array of New Deal programs in which the emphasis was placed on rehabilitating the nation's economy. Among these programs was the Federal Emergency Relief Administration that helped to fund *Emergency Colleges* managed by local universities while serving as extensions of high school. In contrast to the traditional 2-year institution, these Emergency Colleges did not offer any workforce or vocational classes (Witt et al., 1994). However, around this same time the topic of occupational education and terminal degrees became a critical point of discussion for the American Association of Junior Colleges (AAJC). The AAJC eventually developed in 1939 a commission on

junior college terminal education that explored the role of vocational or workforce programs, which encompassed one out of every three community college courses offered at that time. Five years later, the National Education Association's Commission on Educational Policies publicly declared the need for vocational programs that could be completed in two years or less (Parnell, 1985).

Beginning in the late 1950s, the Associate degree was recognized by most states as a legitimate academic credential. With this validation, the number of Associate in Arts (AA), Associate in Science (AS), and Associate in Applied Science (AAS) degrees awarded increased in subsequent years (Parnell, 1985). By the 2013-2014 academic year, the number of Associate degrees conferred had increased to 1,003,400 (National Center for Education Statistics, 2016).

Thirty years after being validated as a credential, vocational education would be a topic for national attention again when Congress approved the Job Training Partnership Act of 1982. Stressed in this legislation was the need for community colleges to collaborate with the private sector to provide comprehensive training designed to prepare individuals who were economically disadvantaged or had special needs for employment. Community college leaders believed the Job Training Partnership Act was a reaction to Japan's growing influence in the American marketplace. They believed the United States would have difficulty maintaining its dominance as a global powerhouse if its colleges did not emphasize teaching advanced technology (Parnell, 1985).

In July of 1985, The National Council on Occupational Education announced several recommendations for the Associate in Applied Science degree, including a blueprint in which 50% to 75% of the course credits was connected to the technical

specialty that would prepare students for immediate employment. Additional recommendations for the AAS degree included minimum admissions criteria along with the need for at least 25% of the classes to align with general education coursework. At the time, the National Council on Occupational Education also confirmed that the AAS degree should encompass 60-to-72 semester credit hours (Ignash, 1997).

Ignash (1997) surveyed officials from 22 state agencies to understand their policies related to AAS degree. From that participant group, 13 states emphasized credit hour minimums for general education coursework, and only seven states had similar recommendations for technical/professional specialty coursework. The higher education leadership from seven states established policies requiring community colleges to include transferable general education courses within their AAS degrees. Texas was the only surveyed state encouraging colleges to integrate academic and technical instruction into the AAS degree (and certificate) program designs. The state also established a coherent sequence of technical and general education/academic courses spanning both secondary and higher education that taught students math, science, critical thinking, and communication skills along with technical and academic skills relevant to the workplace (Ignash, 1997).

These efforts to strengthen the curriculum associated with workforce (i.e., vocational) programming within Texas community colleges is critical given the changing shape of the state's labor market. According to the Texas Comptroller's first Weekly Economic Outlook report for 2016, the state economy was making positive strides within many segments of the employment sector by adding jobs in nine of the 11 major industries over the previous year (The Texas Economy, 2016). Industry clusters

experiencing growth during this timeframe such as transportation, health services, and construction were consistent with the finding from a report generated by former Texas Governor Rick Perry's office that identified critical growth sectors for the state. Perry (2014) noted the driving force for the state's economic growth in the 21st century would be aerospace/defense, biotechnology, chemical/petroleum refining, energy, information technology, and manufacturing.

To address these labor market needs, the Texas Higher Education Coordinating Board (THECB) administrators incorporated feedback from business leaders and higher education administrators in their 2015-2030 strategic plan, *60x30TX* (Watkins, 2015). The overarching goal for this 15-year plan involves having 60% of Texans between 25 and 34 years old secure a postsecondary degree or certificate by 2030. Meeting this goal requires the state of Texas to award at least 550,000 students within this age range a certificate, Associate, Bachelor's, or Master's degree by 2030.

The 2015 progress report for *Closing the Gaps by 2015*, the strategic plan that served as the precursor to *60x30TX*, implied Texas was making positive strides in terms of student participation and completion of a Bachelor's degree, Associate degree, or certificate (BACs). The goal of *Closing the Gaps by 2015* was the awarding of 210,000 BACs among all age groups by 2015. Postsecondary institutions within Texas would surpass this measure by the 2011 fiscal year (221,538 BACs) and increase the number of completers to 246,500 by 2014. The most substantial growth happened for Hispanic students and Black students, which accounted for increases of 246% and 175% from 2000 to 2014, respectively (THECB, 2015b). Student participation within public 2-year colleges dramatically increased during the 21st century, growing from 467,041 students

in Fall 2000 to 759,247 students in Fall 2014, an increase of 62.6%. Fall enrollment in public, independent, and career institutions as a percentage of the state's overall population also increased during this same timeframe from 5.0% to 6.1% (THECB, 2015b).

Statement of Problem

The central goal of the *60x30TX* strategic plan is to produce more college graduates to address the state's workforce needs. The number of credentials associated with this goal (i.e., at least 550,000 degrees or certificates to students ranging from 25 to 34 years old by 2030) confirms higher education institutions have to more than double the current output to support this completion goal. Even with the increases in completion rates, Texas has experienced a decline in educational attainment among this younger population when analyzed from a global perspective (THECB, 2015b).

Texas legislators have attempted to address this issue by placing more attention on improving community college student retention and completion by linking institutional funding to achievement of Student Success Points. This college appropriation strategy rewards community colleges for meeting one of many different student completion benchmarks. Included in these benchmarks are students earning a degree or certificate along with passing their first reading, writing, or mathematics class.

The 83rd Texas Legislature appropriated \$172 million for the 2014 and 2015 fiscal years to community colleges that achieved various student persistence or completion measures from the 2010 to the 2012 fiscal years (Texas Association of Community Colleges, 2014). Student success outcomes were weighted differently based on the criteria disseminated by the THECB. For example, community colleges received

0.5 success points for each student who completed a developmental reading course, whereas 2-year institutions accumulated two points for any student who earned an Associate degree or a Level I or Level II Certificate during the fiscal year (Texas Association of Community Colleges, 2014).

Texas legislators also adopted House Bill 5, an initiative in which stronger collaboration was encouraged between community colleges and school districts while also modifying graduation requirements to address the skills gap in the workforce. The focus of House Bill 5 is to improve student retention by reducing end-of-course testing while expanding career and technical education pathways to allow students the opportunity to select a “track” or “endorsement” as they strive to obtain a high school diploma (Texas Association of Workforce Boards, 2014, p. 7). This new initiative also allows for more dual credit collaboration between postsecondary institutions and high schools to accelerate the process of completing a workforce certificate or degree by starting the college coursework at a younger age.

Educators hope these K-12 initiatives can present the foundation for more purposeful educational pathways for students. The upsurge in employment opportunities requiring a postsecondary credential related to the industry clusters targeted by Texas legislators presents several challenges to higher education leaders within the state. However, starting high school students on college coursework to meet the workforce needs of Texas becomes more challenging considering the number of high school graduates within an increasingly diverse state who are entering college with reading and mathematics deficiencies (Barnes & Slate, 2014).

According to Barnes and Slate, only 53.91% of high school seniors were deemed college ready in reading during the 2008-2009 academic year. College readiness results in mathematics for the same timeframe were comparable, as 54.08% of high school seniors met the college readiness standards. Hispanic students had reading and mathematics college readiness rates of 47.86% and 48.31%, respectively. College readiness rates in reading and mathematics for Black students was 44.48% and 38.41%, respectively, during the 2008-2009 academic year (Barnes & Slate, 2014). The subpar college readiness data are concerning given that Hispanics represented 37.6% of the Texas population in 2010, second only to White residents (45.3%). Black residents account for 11.8% of the population, followed by Asians at 3.8% (U.S. Census Bureau, 2016).

Community colleges do provide a viable solution to this problem in the form of a Level I and Level II Certificate credential. Students who do not meet the college readiness standards for reading, writing, or mathematics in Texas are eligible to complete all courses related to a Level I Certificate. The Level II Certificate credential does require students to meet college readiness standards. However, most classes aligned with the Level I Certificate are part of the Level II Certificate, thus creating a situation where students can complete a full year's worth of college courses while addressing deficiencies related to reading, writing, or mathematics.

Purpose of the Study

The purpose of the first study within this journal-ready dissertation was to determine the extent to which ethnicity/race-based differences were present in Texas community college completion rates specifically within workforce certificate programs.

Regarding the second study the purpose was to determine the extent to which gender differences were present in the Texas community college completion rates specifically within workforce certificate (i.e., non-degree) programs. The purpose of the third study was to investigate the extent to which differences in enrollment size influenced the Certificate I and Certificate II completion rates.

Significance of the Study

Numerous researchers (e.g., Crisp & Delgado, 2013; Derby, 2007; Kotamraju & Blackman, 2011) have examined college readiness and based their analysis around an arbitrary number of courses completed or the completion of a 2-year degree. Very few scholars, particularly in the state of Texas, have focused their research on outcomes specific to workforce or technical programs that can be completed in one semester or two years. Individuals who review this journal-ready dissertation will be provided with increased insight into student completion trends for state-recognized credentials that take less than two years to complete. Readers also will be able to view completion of workforce credentials from a linear perspective, thus allowing them to understand where certain student groups may be persisting or faltering as they work to complete a 2-year credential.

Definitions of Terms

The following definitions apply to key terminology incorporated into this journal-ready dissertation.

60x30TX

The Texas higher education strategic plan through 2030 that is focused on four primary goals related to obtaining a credential (e.g., degree or certificate) or minimizing

student loan debt. The first state-level goal involves having at least 60% of 25-to-34 year olds obtain a certificate or degree by 2030. Similarly, the second goal entails having at least 550,000 students secure a certificate, Associate, Bachelor's or Master's degree by that same year. The plan includes a milestone in which college graduates from Texas will have completed a marketable skills program. The final goal of the 60x30TX strategic plan is to ensure student loan debt for undergraduate students does not surpass 60% of first-year earnings for graduates of Texas public institutions (THECB, 2015a).

Asian

These citizens have origins to Southeast Asia, the Far East, or the Indian subcontinent, which includes China, India, and Vietnam (Texas Higher Education Coordinating Board, 2012).

Black

Any resident with origins from any Black racial groups of Africa is aligned with this identifier (Texas Higher Education Coordinating Board, 2012).

Hispanics

This label applies to anybody identified as Mexican, Puerto Rican, Cuban, or any other Hispanic, Latino, or Spanish origin (Texas Higher Education Coordinating Board, 2012).

Level I Certificate

According to the THECB, all workforce education programs consisting of 15-to-42 semester credit hours meet the Level I Certificate definition. These programs of study are exempt from the general requirements of the Texas Success Initiative (TSI), but “all

certificate programs must provide for local assessment and remediation of students” (THECB, 2012, p. 17).

Level II Certificate

These workforce education programs, which involve 43-to-59 semester credit hours of coursework, must meet the Texas Success Initiative standards (THECB, 2012, p. 17).

Texas Success Initiative (TSI)

The TSI, which was legislatively mandated on Sept. 1, 2003, provides public higher education institutions greater flexibility in ensuring student success in the classroom. The TSI requires “testing of students’ academic skills upon entry into public higher education and appropriate counseling, advice, and opportunities... for improving those skills” (THECB, 2012, p. 64).

Student Success Points

The definitions for student success points are limited to the Texas Success Points relevant to this report.

Earn degree or certificate. The higher education institution receives two points for an individual who completes a degree, certificate or core curriculum completer (CCC). The focus is unduplicated certificates and degrees awarded in the fiscal year (Texas Association of Community Colleges, 2014).

Complete 15/30 semester credit hours. Institutions receive one point for each student who obtains 15 completed hours at same institution over a 4-year period. Institutions receive one point for each student who accumulates 30 completed hours at same institution over a 4-year period (Texas Association of Community Colleges, 2014).

Delimitations

Given that archival data were analyzed in this journal-ready dissertation for all three research studies, the delimitations include the ethnic/racial categories provided by the THECB. The focus for this research study was completion data for Level I Certificate and Level II Certificate public community colleges in Texas for a 6-year period. To observe results closely aligned with the launch of the educational policies and initiatives (i.e., House Bill 5 and Texas Success Points), only data from the 2005-2006 through the 2014-2015 academic years were examined.

Limitations

The data shared through the THECB Interactive Accountability System are collected and validated by each 2-year and 4-year institution before being submitted to the THECB. The potential for inaccurate data that can affect the internal validity of this study remains present. However, analyzing enrollment and persistence data for students from all public community colleges in Texas produced a substantial sample size for each ethnic group. The use of these data minimized internal validity concerns related to inaccurate compiling and reporting of data. External validity concerns also exist that can affect the interpretation of the participation and completion data presented through the THECB Interactive Accountability System. Additionally, validity may be influenced by the fact the results from this investigation are limited to community college participants in a singular state. The curriculum design associated with certificate-based workforce programs in Texas as well as the instruction quality can influence the persistence data for different ethnic groups. Readers also should note that non-academic variables such as

family support, particularly for first-generation college students, might influence the external validity related to this research study (Reid & Moore, 2008).

Assumptions

The assumption was made for this journal-ready dissertation that the ethnicity/race, gender, and institution-based completion data related to Level I Certificates and Level II Certificates were accurately reported to the THECB. Another assumption is that the ethnicity/race and gender of Texas community college students have been accurately labeled in each 2-year institution's database. Any modifications to these assumptions may lead to inaccurate data and conflicting findings.

Organization of the Journal-Ready Dissertation

In this investigation, three journal-ready studies were completed. In the first proposed study, research questions that were analyzed were related to Level I Certificate and Level II Certificate completion rates for Texas community college students as a function of ethnicity/race. In the second study, research questions were addressed related to the non-degree completion rates of male and female community college students in Texas. In the third journal-ready study, research questions related to Level I Certificate and Level II Certificate completion rates as a function of institution size were examined.

This journal-ready dissertation is composed of five chapters. Chapter I includes background information pertinent to the three studies along with the statement of the problem, purpose of this study, significance of the study, definitions of terms, assumptions, delimitations, and limitations. Chapter II is a report of the first empirical research investigation. The second empirical research study is the focus of Chapter III. In Chapter IV, the third empirical research investigation related to certificate completion

as a function of institution size was analyzed. Chapter V is a summary of the findings from the previous three studies.

CHAPTER II

DIFFERENCES IN TEXAS COMMUNITY COLLEGE CERTIFICATE

COMPLETION RATES BY ETHNICITY/RACE

This dissertation follows the style and format of *Research in the Schools (RITS)*.

Abstract

The purpose of this study was to examine the extent to which ethnic/racial differences might be present in the workforce certification completion rates in Texas community colleges. Participants in this research study were Asian, Black, Hispanic, and White students who had completed either a Level I or a Level II certificate at a Texas community college between the 2005-2006 and 2014-2015 academic years. Level I Certificate completion rates for Asian and Black community college students remained consistent, whereas Hispanic students experienced growth and White students experienced decreases in completion rates over the 10-year period. Level II Certificate completion rates for Black students were slightly greater than their year-to-year Level I Certificate completion rates. The shifts in Level II Certificate completion rates among Hispanic and White community college students during the 10-year period were comparable to the changes in their Level I Certificate completion rates. Implications and recommendations are presented.

Keywords: Ethnicity/Race, Workforce, Certificate, Texas Community College, Level I Certificate, Level II Certificate

DIFFERENCES IN TEXAS COMMUNITY COLLEGE CERTIFICATE
COMPLETION RATES BY ETHNICITY/RACE

Job prospects within Texas remain strong even with economic stagnation within critical industries (e.g., chemical/petroleum refining) at the national and state level. As reported in 2016 by the Texas Workforce Commission, the state added jobs in all but one month between March 2015 and June 2016. During the latter month, Texas employers added jobs in nine of 11 critical industries. The strength of the Texas economy also is reflected in a seasonally adjusted unemployment rate for June 2016, which remained below the national average (Texas Workforce Commission, 2016). Texas officials indicated several industries project employment growth of more than 30% from 2012 to 2022, including *Computer Systems Design & Related Services* and *Home Health Care Services* (Texas Workforce Commission, 2016).

The economic growth within the state of Texas has placed more pressure on postsecondary institutions to graduate students with the minimum academic credentials related to these career fields. Seven of the 10 fastest growing occupations from 2012 to 2022 require job applicants to have at least an Associate degree (Texas Workforce Commission, 2013). An analysis of Texas employment data for this 10-year timeframe has prompted state officials to emphasize the need for increased participation and completion of a postsecondary credential.

Recent shifts in the racial/ethnic composition of Texas residents have led to similar changes within the student body at public community colleges. According to the Texas Higher Education Coordinating Board (2016), the number of Hispanics attending 2-year institutions more than doubled between Fall 2000 (125,222 students) and Fall

2015 (294,406 students). In the process, Hispanic students surpassed White students as the largest participant group in Texas community colleges. No racial/ethnic group represented more than 50% of the overall student population in 2015, which is reflective of the increased diversity of Texas citizens within these institutions.

Given the changing composition of the student body, higher education leaders believe new secondary education curriculum policies coupled with alterations to Texas' community college funding model may lead to better degree/certificate completion results that address voids within the workplace. The Texas legislature passed House Bill 5 during its 2013 Regular Session. This student retention initiative altered high school graduation requirements and reduced end-of-course testing of students while encouraging greater collaboration between school districts and community colleges in developing and implementing career and technical education courses and programming (Texas Association of Workforce Boards, 2014). During this same timeframe, the 83rd Texas Legislature earmarked \$172 million for the 2014 and 2015 fiscal years for postsecondary institutions that met student persistence or completion measures from the 2010 to 2012 fiscal years (i.e., the Student Success Points model). For example, community colleges were rewarded when an individual completed a developmental reading course (0.5 point/course), accumulated 15 semester credit hours of coursework (1 point), or secured an Associate Degree, which equates to two points per credential (Texas Association of Community Colleges, 2014).

One of the quicker pathways to Student Success Points at 2-year public institutions in Texas are *Level I Certificate* and *Level II Certificate* programs. Any student completing a Level I Certificate workforce credential within a community college

does not need to meet the college readiness requirements outlined in the Texas Success Initiative (TSI). Adopted in 2003, the TSI requires the testing of academic skills of all college-going students, yet still allowing postsecondary institutions to implement their own college readiness standards. According to the Texas Higher Education Coordinating Board (2012), a Level I Certificate is a credential from a workforce education program where students earn from 15 to 42 semester credit hours. Level II Certificates are associated with 43 to 59 semester credit hours of coursework (THECB, 2012). These non-degree credentials link to technical programs within Texas community colleges and typically operate as the initial layers of courses for an Associate of Applied Science (AAS) degree. In these instances, all courses within a Level I Certificate are part of the Level II Certificate, which includes workforce classes that are fully transferable into the AAS degree. The product is a *stackable* workforce credential.

Whether these workforce certificates generated better earnings opportunities for community college students was investigated by Xu and Trimble (2016) in their 2-state study. They utilized administrative data sets (e.g., student demographics, transcript info, credentials received) associated with the Virginia Community College System, which encompasses 23 community colleges, and the North Carolina Community College System, which includes 58 community colleges. Xu and Trimble focused on the 2006-2007 and 2007-2008 first-time student cohorts from North Carolina with earnings data extending from 2005 to 2012. The analysis related to Virginia encompassed three student cohorts (2006-2007, 2007-2008, and 2008-2009) and eight years of earnings data (2005 to 2013). Xu and Trimble agreed that obtaining a certificate in North Carolina or Virginia improved an individual's chance for employment, especially in the allied health

and nursing fields. However, they did acknowledge the difference in program content, rigor, and/or labor market alignment can lead to different employment outcomes within the same industry cluster. They also concluded that North Carolina had a stronger emphasis on long-term non-degree vocational certificates whereas most long-term certificates in Virginia are structured to push students to continue their education as opposed to entering the workforce.

Bahr (2014) reported most cohort-term CTE certificates and about one half of the long-term CTE certificates awarded in the California Community College system generated positive returns that often times matched, if not exceeded, Associate degrees returns for the same workforce discipline. He analyzed data from three different sources: (a) California Community College system database managed by the Chancellor's Office; (b) California Community College enrollment data for students completing classes at postsecondary institutions outside of the CCC system; and (c) quarterly unemployment insurance earnings data provided by the California Employment Development Department. His participant group encompassed first-time college students with a valid social security number entering any community college within the California Community College system from Fall 2002 through Summer 2006. Bahr posited students would experience labor market returns that correspond to their completed coursework if these returns relate to the human capital acquired within the classroom. Although the return to credits in several CTE fields was positive, Bahr (2014) indicated the labor market returns to credits in non-CTE disciplines within his study tended to be negative.

Burillo (2012) took a different approach by analyzing the demographic completion trends for students participating in a Marketable Skills programs at Texas

community colleges from 2002 to 2010. Marketable Skills Achievement Awards (MSAA) are short-term credentials that often time represent the first set of course credits within a Level I Certificate, Level II Certificate, or Associate degree program. In addition to earning college credit, MSAA programs can provide students occupational skills sought by employers. Included within this study were enrollment data for 50 accredited public community colleges in Texas. Burillo discovered six of the 27 colleges participating in this quantitative study represented 71% of MSAA completers in 2010. The total number of Asian, Black, Hispanic, and White community college students securing a MSAA credential increased from 2002 to 2010. Hispanic students experienced the largest gains during this timeframe, accounting for 1,207 completers in 2010 compared to 191 MSAA completers in 2002. However, Burillo reported a statistically significant increase did not occur during this same timeframe in the average number of racial/ethnic-based MSAA completers at each 2-year institution.

Perrakis (2008) analyzed factors associated with academic success for Black and White men attending Los Angeles Community College District. This quasi-experimental, quantitative study involved the collection of data from 5,000 surveys. Perrakis concluded the higher GPAs obtained by White men on the nine sampled campuses was a result of having better academic preparation and performance. For instance, twice as many White men completed Calculus when compared with Black men from Los Angeles Community College District. Perrakis (2008) also contended that academic preparation, not ethnicity/race or gender, was a more likely indicator of positive academic outcomes.

Opp (2002) examined the variables affecting program completion rates for community college students of color by constructing a 60-item questionnaire that was

circulated to campuses where the average program completion rate for minority students (i.e., Black, Hispanic, Asian American, and American Indian) was 21.7%. Poor persistence rates could be contributed to the fact personnel at these colleges did not value ethnic/racial diversity among their students. Additionally, Opp suggested higher completion rates for students of color could be connected to institutions with higher percentages of minority faculty, staff, and peer tutors.

Meeuwisse, Severiens, and Born (2010) took a different approach with their study by using a survey instrument to determine the withdrawal reasons for 1,017 non-completers. Using student departure theory as their basis, the researchers constructed a questionnaire on 45 reasons for withdrawal from higher education. By weighting participant responses by field of education, ethnicity, and gender, the researchers concluded different ethnic/racial groups leave higher education for the same reasons. Meeuwisse et al. determined students of all ethnic/racial groups primarily drop out of school because of poor education quality as opposed to a lack of ability.

Purpose of the Study

The purpose of this study was to determine the extent to which ethnic/racial differences were present in the Texas community college completion rates specifically within workforce certificate programs. By analyzing the four largest ethnic/racial groups in Texas (i.e., Asian, Black, Hispanic, and White), the ethnic/racial diversity of community college students who completed either a Level I or a Level II certificate can be determined. Finally, the extent to which the ethnic/racial composition of community college students who completed either a Level I or a Level II changed from the 2005-2006 academic year to the 2014-2015 academic year was ascertained.

Significance of the Study

Several researchers (e.g., Crisp & Delgado, 2013; Derby, 2007; Kotamraju & Blackman, 2011) have analyzed college persistence and completion through degree attainment (e.g., Associate, Bachelor's). Only a few researchers (Burillo, 2012) have addressed outcomes specific to workforce/technical programs at Texas community colleges that are designed to be completed in less than two years. Furthermore, few researchers (Meeuwisse et al., 2010; Perrakis, 2008) have separated completion data by ethnicity/race to confirm the presence of any trends. Community college administrators may use the results of this study to reassess their retention practices to improve the completion rates for certain racial/ethnic groups. Community college administrators may determine more academic or student support services specific to underperforming racial/ethnic groups need to be integrated into specific workforce programs (e.g., Mentoring program for Hispanics completing Health Science certificate). Similarly, institutional leaders may consider restructuring their advising model to provide additional services for specific racial/ethnic groups.

Research Questions

In this study, the following research questions were addressed for the 2005-2006 through the 2014-2015 academic years: (a) What is the ethnic/racial diversity of Texas community college students who obtained a Level I Certificate?; (b) What is the ethnic/racial diversity of Texas community college students who obtained a Level II Certificate?; (c) What difference is present in the ethnic/racial diversity of Texas community college students who obtained a Level I certificate between the 2005-2006 academic year and the 2010-2011 academic year, between the 2010-2011 academic year

and the 2014-2015 academic year; and between the 2005-2006 and the 2014-2015 academic year?; (d) What difference is present in the ethnic/racial diversity of Texas community college students who obtained a Level II certificate between the 2005-2006 academic year and the 2010-2011 academic year, between the 2010-2011 academic year and the 2014-2015 academic year; and between the 2005-2006 and the 2014-2015 academic year?; (e) What trend, if any, is present in the ethnic/racial diversity of Texas community college students who obtained a Level I certificate from the 2005-2006 through the 2014-2015 academic year?; and (f) What trend, if any, is present in the ethnic/racial diversity of Texas community college students who obtained a Level II certificate from the 2005-2006 through the 2014-2015 academic year?

Method

Research Design

For this investigation, a causal comparative research design was present. This research design is most appropriate for non-experimental quantitative research associated with archival data. In such cases, the independent and dependent variables cannot be manipulated (Lodico, Spaulding, & Voegtle, 2006). Texas community college certificate (i.e., Level I and Level II) completion constituted the dependent variable of interest. The independent variable was the ethnic/racial composition (i.e., Asian, Black, Hispanic, and White) of Texas community college students who obtained either a Level I or a Level II certificate. Both the independent variable and dependent variables had already occurred prior to the initiation of this empirical, multiyear investigation.

Participants and Instrumentation

Participants whose data were analyzed in this research study were Texas community college students who had completed either a Level I or a Level II certificate in the 2005-2006 to the 2014-2015 academic years. The ethnicity/race of all participants was based on data provided by public community colleges to the THECB. Native Americans were not part of the analysis because they represented a very small percentage of the overall college-going population in Texas. The general availability of student data through the THECB is part of a larger scale effort to improve student participation and persistence within higher education institutions across Texas.

Completion data related to this research study were retrieved from the THECB interactive accountability database. The multiyear Workforce Certificate completion rates for different ethnic/racial groups from Texas public community colleges were compiled into a Microsoft Excel spreadsheet and subsequently downloaded to the Statistical Package for the Social Sciences, Version 22.0. Data were re-coded and merged as necessary for analysis.

Results

For this study, descriptive and inferential statistics were used to address the six research questions. Prior to conducting inferential statistics to determine whether statistically significant differences were present, checks were completed to determine the extent to which the data were normally distributed. Parametric dependent samples *t*-tests were conducted to answer these research questions because most of the standardized skewness coefficients (i.e., the skewness value divided by its standard error) and the standardized kurtosis coefficients (i.e., the kurtosis value divided by its standard error)

were within the limits of normality, +/- 3 (Onwuegbuzie & Daniel, 2002). The following presentation of the results is organized by research question. Tables and figures are provided to present the descriptive statistics and the trends.

Research Question 1

Based on data retrieved from Texas community colleges, the percentage of Asian students compared to the remaining ethnic/racial groups (i.e., Hispanics, Blacks, and Whites) who completed a Level I Certificate during the 2006-2011 and the 2011-2015 and 2006-2015 academic years was similar. The percentage of Black community college students in Texas who completed a Level I Certificate during these academic years, as compared to the other three ethnic/racial groups, increased by less than one percentage point. Hispanic community college students had the greatest percentage point growth in Level I Certificate attainment compared to the remaining ethnic/racial groups (i.e., Asians, Blacks, and Whites), increasing from 27.32% in the 2005-2006 academic year to 35.79% in the 2014-2015 academic year. Table 2.1 contains the descriptive statistics for the ethnic/racial diversity of Level I Certificate completers from the 2005-2006 through the 2009-2010 academic years related to this analysis.

Insert Table 2.1 about here

The Level I Certificate completion rates for White students enrolled in Texas community colleges decreased by more than 10 percentage points over the 10-year period. Certificate completion rates for White students, as compared to the remaining ethnic/racial groups, decreased from 54.25% to 43.20% from the 2005-2006 through the

2014-2015 academic years, respectively. Descriptive statistics for the Level I Certificate completion rates of the four ethnic/racial groups as it relates to the remaining five academic years analyzed in this study (i.e., 2010-2011 through 2014-2015) are presented in Table 2.2.

Insert Table 2.2 about here

Research Question 2

The percentage of Asian and Black students compared to the remaining ethnic/racial groups (i.e., Hispanic and White students) who completed a Level II Certificate from the 2005-2006 academic year to the 2014-2015 academic year remained relatively consistent. Asian students enrolled in a Texas community college represented 2.82% of Level II Certificate completers in the 2005-2006 academic year compared to 3.58% completers of this same credential by the 2014-2015 academic year. Black students had a slight increase in enrollment of less than 1 percentage point when compared to the remaining ethnic/racial groups (i.e., Asian, Hispanic, and White) for this same 10-year timeframe. The Level II Certificate completion rates for Black students were 13.75% in the 2005-2006 academic year and 14.13% in the 2014-2015 academic year. The ethnic/racial diversity from the 2005-2006 through the 2009-2010 academic years related to this analysis is presented in Table 2.3.

Insert Table 2.3 about here

The ethnic/racial group that had the largest percentage point gain were Hispanic students, who comprised 24.91% of the Level II Certificate completers in the 2005-2006 academic year and 32.93% of the Level II Certificate completers in the 2014-2015 academic year. The percentage point increases in Level II Certificate completers over the 10 academic years for the Hispanic students were offset by the percentage point decreases in White students. White student completion rates decreased from 56.05% to 44.99% for these academic years. Table 2.4 contains the descriptive statistics of the ethnic/racial diversity completion data for the 2010-2011 through the 2014-2015 academic years related to this analysis.

Insert Table 2.4 about here

Research Question 3

To answer the research question regarding the ethnic/racial diversity of Texas community college students between the three academic years mentioned previously, a parametric dependent samples *t*-test was used for each ethnic/racial group (i.e., Asian, White, Hispanic, and White). With respect to Asian students, the parametric dependent samples *t*-test did not reveal a statistically significant difference in the percentage of Asian students who completed a Level I Certificate between the 2005-2006 and the 2010-2011 academic years, $t(66) = -1.25, p = .22$. The percentages for these academic years were similar at 2.40% and 2.83%, respectively. Regarding the 2010-2011 academic year and the 2014-2015 academic year, a statistically significant difference was not present for the Percentage of Asian students who completed a Level I Certificate, $t(67) = 0.65, p =$

.52. For these two academic years, similar percentages (i.e., 2.78% to 2.56%) of Asian students earned the Level I Certificate. Finally, for the 2005-2006 and the 2014-2015 academic year comparisons, a statistically significant difference was not yielded in the percentage of Asian students who completed a Level I Certificate, $t(66) = -0.38, p = .70$. The Level I Certificate attainment for Asian community college students was consistent in these two academic years, with averages of 2.40% to 2.50%. Readers are directed to Table 2.5 for the descriptive statistics concerning these analyses.

Insert Table 2.5 about here

With regard to Black students, the parametric dependent samples *t*-test did not reveal a statistically significant difference in the percentage of Black students who obtained a Level I Certificate between the 2005-2006 and the 2010-2011 academic years, $t(66) = -0.20, p = .84$. The completion percentages for the 2005-2006 and the 2010-2011 academic years were comparable, at 12.24% and 12.36%, respectively. Similarly, a statistically significant difference was not present for the Percentage of Black students who completed a Level I Certificate between the 2010-2011 and the 2014-2015 academic years, $t(67) = -1.14, p = .26$. Level I Certificate attainment for Black students was consistent at 12.34% in the 2010-2011 academic year and 12.91% in the 2014-2015 academic year. For the final multi-year comparison (i.e., the 2005-2006 and the 2014-2015 academic years), a statistically significant difference was not present in the percentage of Black students enrolled in a Texas community college who completed a Level I Certificate, $t(66) = -0.91, p = .36$. The Level I Certificate completion percentages

for Black students remained fairly consistent with averages of 12.24% to 12.86%.

Descriptive statistics concerning these analyses are provided in Table 2.6.

Insert Table 2.6 about here

The parametric dependent samples *t*-test for Hispanic students resulted in a statistically significant difference in the percentage of Hispanic community college students who completed a Level I Certificate between the 2005-2006 and the 2010-2011 academic years, $t(66) = -3.38, p < .001$. This difference represented a below small effect size (Cohen's *d*) of 0.15 (Cohen, 1988). Hispanic students had an increase in completion rates for these academic years, growing from 27.32% to 30.50%, respectively.

Concerning Hispanic students who completed a Level I Certificate between the 2010-2011 and 2014-2015 academic years, a statistically significant difference was evident, $t(67) = -4.76, p < .001$. According to Cohen (1988), this difference was reflective of a small effect size (Cohen's *d*) of 0.26. The Level I Certificate completion rate for Hispanic community college students increased from 30.28% to 35.82% between these two academic years.

For the 2005-2006 and the 2014-2015 academic year comparisons, a statistically significant difference was present in the percentage of Hispanic students who completed a Level I Certificate, $t(66) = -8.86, p < .001$. This result represented a small effect size (Cohen's *d*) of 0.39 (Cohen, 1988). For these two academic years, the Level I Certificate completion percentages for Hispanic students increased by almost 10 percentage points. Descriptive statistics concerning these analyses are detailed in Table 2.7.

Insert Table 2.7 about here

Concerning White students, the parametric dependent samples *t*-test revealed a statistically significant difference in the percentage of community college students in Texas who completed a Level I Certificate between the 2005-2006 and the 2010-2011 academic years, $t(66) = 5.98, p < .001$. This difference represented a small effect size (Cohen's *d*) of 0.32 (Cohen, 1988). The completion rates for White students decreased from 54.25% in the 2005-2006 academic year to 47.88% in the 2010-2011 academic year.

A statistically significant difference was also present for the Percentage of White community college students in Texas who completed a Level I Certificate between the 2010-2011 and the 2014-2015 academic years, $t(67) = 4.28, p < .001$. This difference also reflected a small effect size (Cohen's *d*) of 0.26 (Cohen, 1988). The Level I Certificate completion rate for White students decreased from 48.26% to 43.18%.

For the final multi-year comparison (i.e., the 2005-2006 and the 2014-2015 academic years), a statistically significant difference was present in the percentage of White students who completed a Level I Certificate while enrolled in a Texas community college, $t(66) = 8.54, p < .001$. Cohen's *d* for this analysis was 0.55, a medium effect size (Cohen, 1988). The completion rates for White students decreased by more than 10 percentage points between these two academic years. Descriptive statistics concerning these analyses are revealed in Table 2.8.

Insert Table 2.8 about here

Research Question 4

A parametric dependent samples *t*-test was used for each ethnic/racial group (i.e., Asian, White, Hispanic, and White) to determine the possibility of ethnic/racial-based differences in the Level II Certificate completion rates among Texas community college students between the 2005-2006 and 2010-2011 academic years, the 2010-2011 and 2014-2015 academic years; and the 2005-2006 and 2014-2015 academic years. With regard to Asian students, the parametric dependent samples *t*-test did not reveal a statistically significant difference in the percentage of Asian students who completed a Level II Certificate between the 2005-2006 and the 2010-2011 academic years, $t(47) = -0.74, p = .46$. The completion percentages for these academic years were comparable at 2.88% and 3.45%, respectively. With respect to the 2010-2011 academic year and the 2014-2015 academic year, a statistically significant difference was not present for the Percentage of Asian students who completed a Level II Certificate, $t(52) = -0.26, p = .80$. Similar percentages of Asian students (i.e., 3.16% to 3.40%, respectively) secured the aforementioned workforce credential for these two academic years. Additionally, a statistically significant difference was not yielded in the percentage of Asian students who completed a Level II Certificate for the 2005-2006 and the 2014-2015 academic year comparisons, $t(47) = 0.00, p = 1.00$. The Level II Certificate attainment for Asian community college students for both academic years, as compared to the three remaining

ethnic/racial groups (i.e., White, Hispanic, and White), was consistent, holding at 2.88%. Descriptive statistics concerning these analyses are presented in Table 2.9.

 Insert Table 2.9 about here

Similarly, the parametric dependent samples *t*-test did not result in a statistically significant difference in the percentage of Black students who completed a Level II Certificate between the 2005-2006 and the 2010-2011 academic years, $t(47) = 1.29, p = .20$. The completion percentages for Black students during these academic years were similar, 13.50% and 11.47%, respectively. With respect to the 2010-2011 and the 2014-2015 academic years, a statistically significant difference was again not present in the percentage of Black students who completed a Level II Certificate, $t(52) = -1.14, p = .26$. Level II Certificate completion rates for Black students were again similar, 11.80% in the 2010-2011 academic year and 14.00% in the 2014-2015 academic year. Similar results were present in the final multi-year comparison (i.e., the 2005-2006 and the 2014-2015 academic years). A statistically significant difference was not present in the percentage of Black community college students in Texas who secured a Level II Certificate, $t(47) = -0.56, p = .58$. The certificate completion percentages for Black students during this 10-year period were similar, 13.50% and 14.44%, respectively. Readers are directed to Table 2.10 for the descriptive statistics concerning these analyses.

 Insert Table 2.10 about here

With respect to Hispanic community college students in Texas, the parametric dependent samples *t*-test yielded a statistically significant difference in the percentage of Hispanic students who completed a Level II Certificate between the 2005-2006 academic year and the 2010-2011 academic year, $t(47) = -2.27, p = .03$. According to Cohen (1988), this difference represented a small effect size (Cohen's *d*) of 0.23. The Level II Certificate completion rates for Hispanic students increased during this 5-year period from 25.31% to 31.22%, respectively.

With regard to the 2010-2011 and the 2014-2015 academic years, the parametric dependent samples *t*-test also resulted in a statistically significant difference in the percentage of Hispanic students enrolled in a Texas community college who completed a Level II Certificate, $t(52) = -1.89, p = .05$. This difference also represented a below small effect size (Cohen's *d*) of 0.16 (Cohen, 1988). The certificate completion rate for Hispanic community college students steadily increased from 29.73% to 33.66% during this 5-year period.

Finally, a statistically significant difference was present in the percentage of Hispanic community college students in Texas who completed a Level II Certificate from the 2005-2006 academic year to the 2014-2015 academic year, $t(47) = -3.92, p < .001$. This result was also reflective of a small effect size (Cohen's *d*) of 0.35 (Cohen, 1988). The Level II Certificate completion percentages for Hispanic students, as compared to the remaining ethnic/racial groups, increased by almost 10 percentage points between the 2005-2006 and 2014-2015 academic years. Descriptive statistics related to these analyses are revealed in Table 2.10.

Insert Table 2.11 about here

With regard to White community college students, the parametric dependent samples t -test did not yield a statistically significant difference at the conventional level of .05 in the percentage of students in Texas who obtained a Level II Certificate between the 2005-2006 and the 2010-2011 academic years, $t(47) = 1.90, p = .06$. The completion percentages for White students decreased during these academic years from 55.80% to 50.23%, respectively. With regard to the 2010-2011 academic year and the 2014-2015 academic year comparison, a statistically significant difference was evident for the Percentage of White students who secured a Level II Certificate, $t(52) = 2.44, p = .02$. This difference represented a small effect size (Cohen's d) of 0.26 (Cohen, 1988). The Level II Certificate completion rate for White community college students in Texas decreased from 51.12% to 44.58% during this period.

For the final multi-year comparison (i.e., the 2005-2006 and the 2014-2015 academic years), a statistically significant difference was present in the percentage of White students who completed a Level II Certificate while enrolled in a Texas community college, $t(47) = 4.60, p < .001$. This difference resulted in a small effect size (Cohen's d) of 0.46 (Cohen, 1988). The completion rates for White students during this 10-year period dropped from 55.80% in the 2005-2006 academic year to 43.47% in the 2014-2015 academic year. Readers are directed to Table 2.12 for descriptive statistics concerning these analyses.

Insert Table 2.12 about here

Research Question 5

The Level I Certificate completion rates for Asian and Black community college students in Texas remained consistent during the first five academic years associated with this study (i.e., 2005-2006 to 2009-2010). Completion rate changes among White and Hispanic students also were minimal during this 4-year period. The completion rates for this ethnic/racial group remained below 50% for the duration of this study. With regarding to Hispanic community college students, the Level I Certificate completion rates increased by more than eight percentage points during this same 6-year period (i.e., 2009-2010 to 2014-2015 academic years). Hispanic students exceeded a 30% completion rate, as compared to other ethnic/racial groups, for the first time in the 2010-2011 academic year. Figure 2.1 is a representation of changes in Level I Certificate completion rates for Asian, Black, Hispanic, and White students for the 2005-2006 through the 2009-2010 academic years.

Insert Figure 2.1 about here

Research Question 6

The completion trends related to the Level II Certificate credential included more variability than the Level I Certificate completion rates for the four ethnic/racial groups whose data were analyzed herein. Completion rates among Asian students, as compared

to other ethnic/racial groups, more than doubled in the 2008-2009 academic year as compared to the 2005-2006 academic year. However, the overall Level II Certificate completion trends were comparable to the Level I Certificate completion rates. That is, Hispanic community college students had a greater percentage of the overall completion rates whereas White students experienced a similar decline during this 10-year period. The completion rates for Asian and Black community college students in Texas changed by less than one percentage point during this 10-year period. Represented in Figure 2.2 is the change in Level II Certification completion rates for Asian, Black, Hispanic, and White students.

Insert Figure 2.2 about here

Discussion

The purpose of this investigation was to determine the degree to which differences were present in the Level I Certificate and Level II certificate completion rates for the four largest ethnic/racial groups (i.e., Asian, Black, Hispanic, and White) enrolled in Texas community colleges. Ten years of statewide completion data from the 2005-2006 academic year to the 2014-2015 academic year was obtained for this quantitative study. Statistically significant results were limited to certificate completion rates for Hispanic and White community college students. Following the statistical analyses, the consistencies and differences in the completion rates of these ethnic/racial groups now will be discussed. The next section includes a summary of these results.

Summary of Results for Level I Certificate Completion Rates

During the 10-year period associated with this investigation, the Level I Certificate completion rates for Asian and Black community college students remained consistent. Compared to the remaining two ethnic/racial groups (Hispanic and White students), their completion rates accounted for less than 19% of completers during any point from the 2005-2006 academic year to the 2014-2015 academic year. When compared to relevant state-level census data, the aforementioned combined completion rate is consistent with the overall state population rates for both ethnic/racial groups. For instance, Black citizens represented 11.8% of the Texas population in 2010 whereas Asians accounted for 3.8% (U.S. Census Bureau, 2016).

Similar consistencies between the state's overall population and Level I Certificate completion rates was evident among Hispanic and White community college students in Texas. According to the U.S. Census Bureau (2016), the estimated Texas population for White residents as of July, 2015 (i.e., 43.00%) was only 0.20% below the Level I Certificate completion rate for this ethnic/racial group during the 2014-2015 academic year. The estimated state population for Hispanic residents during this time period was 38.8%, which was slightly greater than the Level I Certificate completion rate (i.e., 35.79%) for the 2014-2015 academic year.

Summary of Results for Level II Certificate Completion Rates

The Level II Certificate completion rates for Asian and Black community college students in Texas also did not translate to statistically significant results for any of the 10 academic years related to this quantitative study. When analyzed on a year-to-year basis, the completion rates for Asian students increased by less than one percentage point.

However, when analyzing the 2005-2006 academic year against the 2014-2015 academic year, the completion rates for Asian students as compared to other ethnic/racial groups (i.e., Black, Hispanic, and White students) were the same at 2.88%. With the exception of the 2010-2011 academic year, the annual Level II Certificate completion rates for Black students, as compared to other ethnic/racial groups, during this 10-year period was slightly greater than their year-to-year Level I Certificate completion rates. Additionally, the completion rates of Black community college student during the final academic year associated with this study (i.e., 2014-2015) exceeded their estimated share in 2015 of the state's overall population (U.S. Census Bureau, 2016).

The shifts in Level II Certificate completion rates among Hispanic and White community college students during the 10-year period were comparable to the changes in the Level I Certificate completion rates between these ethnic/racial groups from the 2005-2006 academic year to the 2014-2015 academic year. In summary, the completion rates trended downward for White students, decreasing more than 10 percentage points to less than 50% of the overall completers by the final year of the study. Meanwhile, the Level II Certificate completion rates among Hispanic students increased from one out of every four Texas community college students to one out of every three community college students. These completion rates were comparable to each ethnic/racial group's estimated percentage of the state's overall population for July 2015 (U.S. Census Bureau, 2016).

Connections with Existing Literature

The findings from this quantitative study align with various results reported by Burillo (2012), who analyzed completion data specific to Marketable Skills Achievement

Awards (MSAA) linked to workforce programs at Texas community colleges. Hispanic students outpaced their peers in terms of increases related to obtaining a MSAA credential (i.e., 1,207 completers in 2010 compared to 191 MSAA completers in 2002) as well as a Level I Certificate and Level II Certificate during the academic years associated with both studies. Similarly, both quantitative studies included racial/ethnic-based data that did not have statistically significant results.

Spangler and Slate (2015) examined persistence and graduation rates of Asian, Black, Hispanic, and White community colleges students in Texas from a slightly different perspective, evaluating the completion rates independent of the other racial/ethnic groups. They reported that Asian students had the highest overall completion rates at 48.89% for the 10-year period analyzed in this study (2000 through the 2010 academic years), and yet this racial/ethnic group represented less than 5% of Level I Certificate and Level II Certificate completers.

Most racial/ethnicity-based literature presented earlier in this study did not have a strong correlation to the community college competition outcomes because the researchers focused on other facets of the students' postsecondary experience. Xu and Trimble (2016) as well as Bahr (2014) concentrated their efforts on career-related outcomes of different racial/ethnic groups after obtaining a postsecondary credential. Other scholars (e.g., Meeuwisse, Severiens, & Born, 2010; Opp, 2002; Perrakis, 2008) focused their efforts on the reasons why different racial/ethnic groups persist or drop out of college. Therefore, Burillo (2012) as well as Spangler and Slate (2015) have the most relevance to the outcomes of this study.

Implications for Policy and Practice

This study included data related to the initial years following the implementation of the statewide Student Success Points model, which awards colleges and universities for meeting various completion measures, and House Bill 5, a statewide initiative that provides high school students greater opportunities to complete college coursework related to a workforce program (Texas Association of Community Colleges, 2014; Texas Association of Workforce Boards, 2014). However, noticeable change was not present in completion rates for Asian, Black, Hispanic, and White students in the last few years of this study (i.e., 2013-2014 and 2014-2015 academic years) to make a judgment regarding these state-level policies. Additional time is needed to determine better whether these programs have any impact on Level I Certificate and Level II Certificate completion rates.

The increases in Level I Certificate and Level II Certificate completion rates for Hispanic students is expected given the steady growth in community college participation among this racial/ethnic group during the 21st century (Texas Higher Education Coordinating Board, 2016). Given that Hispanic students surpassed White students as the largest participant group in Texas community colleges, it would be assumed they also were associated with the largest completion rates among different racial/ethnic groups of a workforce credential (i.e., Level I and Level II Certificates). However, White students still commanded the greatest workforce certificate completion rates by more than five percentage points as of the 2014-2015 school year. Therefore, more efforts are needed to increase the completion rates of Hispanic students. State legislators can focus on additional policies or grant opportunities that incentivize postsecondary institutions to

dedicate more time and resources to Hispanic students. Community college leaders also can use data from this study along with Associate degree completion data to understand better when Asian, Black, Hispanic, and White students are discontinuing their program-specific studies. This information can lead to better interventions for this racial/ethnic group.

Recommendations for Future Research

For this study, differences in racial/ethnicity-based completion rates of Level I Certificates and Level II Certificates among Texas community college students were examined. As previously noted, it is recommended to continue the current study for another five to 10 years to evaluate better the effectiveness of House Bill 5 and the Student Success Point model. Only quantitative data were analyzed in this investigation. Scholars might explore a mixed method research study that adds qualitative data to the archival THECB completion results to provide better clarity of the reasons why students participated in a workforce program and what led to their success. These data can come from college administrators and faculty or students participating in these workforce programs.

Educational researchers may see benefits to a focus on racial/ethnicity-based completion results for different Level I Certificate and Level II Certificate programs to determine which areas and/or institutions are having greater success with different student populations. Researchers reviewing these results may decide to conduct additional interviews of programming personnel to understand better the attributes related to stronger completion rates. Another possible research opportunity is to execute a qualitative study examining how community colleges advise students on these Level I

Certificate and Level II Certificate workforce programs. These researchers can provide better insight into whether students were educated and encouraged to select a certificate as opposed to a degree program, which has implications on the THECB results detailed in this study.

Conclusion

The purpose of this study was to determine the extent to which differences were present in racial/ethnicity-based completion rates of Level I Certificates and Level II Certificates among Texas community college students. Archival data retrieved from the THECB Accountability web site were analyzed for the 2005-2006 through the 2014-2015 academic years. The Level I and Level II Certificate completion rates for Asian and Black students changed minimally over the 10-year period, accounting for less than 19% of completers during any point from the 2005-2006 to the 2014-2015 academic years. In contrast, the completion rates of Hispanic students, as compared to other racial/ethnic groups, increased from an average of 25% percent to one-third of certificate completers.

References

- Bahr, P. R. (2014). *The labor market return in earnings to community college credits and credentials in California*. Ann Arbor, MI: Center for the Study of Higher and Postsecondary Education. Retrieved from http://www.soe.umich.edu/people/profile/peter_riley_bahr/
- Burillo, M. (2012). *Marketable skills achievement awards certificate completer trends by ethnicity and gender at Texas community colleges* (Doctoral Dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3531776)
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Crisp, G., & Delgado, C. (2013). The impact of developmental education on community college persistence and vertical transfer. *Community College Review, 42*(2), 99-117. doi:10.1177/0091552113516488
- Derby, D. C. (2007). Predicting degree completion: Examining the interaction between orientation course participation and ethnic background. *Community College Journal of Research and Practice, 31*, 883-894. doi:10.1080/10668920600859350
- Kotamraju, P., & Blackman, O. (2011). Meeting the 2020 American Graduation Initiative (AGI) goal of increasing postsecondary graduation rates and completions: A macro perspective of community college student educational attainment. *Community College Journal of Research and Practice, 35*, 202-219. doi:10.1080/10668926.2010.526045
- Lodico, M., Spaulding, D., & Voegtle, K. (2006). *Methods in educational research: From theory to practice*. San Francisco, CA: Jossey-Bass.

- Meeuwisse, M., Severiens, S. E., & Born, M. P. (2010). Reasons for withdrawal from higher vocational education: A comparison of ethnic minority and majority non-completers. *Studies in Higher Education, 35*(1), 93-111.
doi:10.1080/03075070902906780
- Onwuegbuzie, A. J., & Daniel, L. G. (2002). Uses and misuses of the correlation coefficient. *Research in the Schools, 9*(1), 73-90.
- Opp, R. D. (2002). Enhancing program completion rates among two-year college students of color. *Community College Journal of Research and Practice, 26*, 147-163. doi:10.1080/106689202753385483
- Perrakis, A. I. (2008). Factors promoting academic success among African American and White male community college students. *New Directions for Community Colleges, 2008*(142), 15-24.
- Spangler, J. M., & Slate, J. R. (2015). Texas community college graduation and persistence rates as a function of student ethnicity. *Community College Journal of Research and Practice, 39*, 741-753. doi:10.1080/10668926.2013.878261
- Texas Association of Community Colleges. (2014). *Student success points*. Retrieved from <http://www.tacc.org/pages/data-and-info/student-success-points>
- Texas Association of Workforce Boards. (2014). *The workforce in Texas: Aligning education to meet the needs of Texas employers*. Retrieved from <http://tawb.org/tawbdocs/TAWB%20white%20paper%202014-3.pdf>
- Texas Higher Education Coordinating Board. (2012). *Glossary of terms*. Educational Data Center. Retrieved from <http://www.thecb.state.tx.us/Reports/PDF/1316.PDF>

- Texas Higher Education Coordinating Board. (2016). *Community colleges performance - participation*. Retrieved from http://www.txhighereddata.org/Interactive/Accountability/CC_Participation.cfm
- Texas Workforce Commission. (2013). *Growth abounds: A forecast of the Texas labor market 2012-2015*. Retrieved from <http://www.doleta.gov/performance/results/AnnualReports/PY2013/GrowthAbounds.pdf>
- Texas Workforce Commission. (2016). *Texas long-term industry projections*. Retrieved from <http://www.tracer2.com/publication.asp?PUBLICATIONID=797>
- U.S. Census Bureau. (2016). *State and county QuickFacts*. Retrieved from <http://www.census.gov/quickfacts/map/INC110213/48/accessible>
- Xu, D., & Trimble, M. (2016). What about certificates? Evidence on the labor market returns to non-degree community college awards in two states. *Educational Evaluation and Policy Analysis*, 38, 272-292.

Table 2.1

*Ethnic/Racial Diversity of Students Who Obtained a Level I Certificate at Texas**Community Colleges for the 2005-2006 Through the 2009-2010 Academic Years*

Academic Year Ethnicity/Race	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Asian	67	2.40	3.21
Black	67	12.24	8.80
Hispanic	67	27.32	22.92
White	67	54.25	21.12
2006-2007			
Asian	67	2.44	2.81
Black	67	12.01	8.89
Hispanic	67	28.36	21.18
White	67	53.64	20.12
2007-2008			
Asian	67	2.68	3.19
Black	67	12.74	8.82
Hispanic	67	28.44	20.85
White	67	53.08	20.00
2008-2009			
Asian	67	2.79	3.40
Black	67	12.71	8.61
Hispanic	67	28.59	21.64
White	67	52.27	20.39
2009-2010			
Asian	68	2.87	3.64
Black	68	12.11	9.18
Hispanic	68	27.36	21.81
White	68	44.71	20.75

Table 2.2

*Ethnic/Racial Diversity of Students Who Obtained a Level I Certificate at Texas**Community Colleges for the 2010-2011 Through the 2014-2015 Academic Years*

Academic Year Ethnicity/Race	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
2010-2011			
Asian	68	2.78	3.93
Black	68	12.34	8.75
Hispanic	68	30.28	20.49
White	68	48.26	19.02
2011-2012			
Asian	68	2.66	3.37
Black	68	12.65	8.97
Hispanic	68	31.80	21.80
White	68	46.74	19.64
2012-2013			
Asian	68	2.66	3.36
Black	68	13.64	9.30
Hispanic	68	33.01	21.67
White	68	45.54	19.54
2013-2014			
Asian	69	2.81	4.22
Black	69	13.68	9.41
Hispanic	69	33.02	21.42
White	69	45.38	18.99
2014-2015			
Asian	69	2.53	3.35
Black	69	13.05	9.10
Hispanic	69	35.79	22.00
White	69	43.20	19.51

Table 2.3

*Ethnic/Racial Diversity of Students Who Obtained a Level II Certificate at Texas**Community Colleges for the 2005-2006 Through the 2009-2010 Academic Years*

Academic Year Ethnicity/Race	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Asian	49	2.82	4.83
Black	49	13.75	16.46
Hispanic	49	24.91	27.36
White	49	56.05	27.99
2006-2007			
Asian	49	4.52	6.71
Black	49	13.83	15.66
Hispanic	49	25.70	27.90
White	49	53.71	28.35
2007-2008			
Asian	49	2.74	4.68
Black	49	13.32	12.91
Hispanic	49	28.16	25.39
White	49	52.62	24.76
2008-2009			
Asian	53	5.69	19.07
Black	53	12.24	15.53
Hispanic	53	24.00	24.50
White	53	54.94	28.11
2009-2010			
Asian	49	3.19	5.20
Black	49	14.39	17.99
Hispanic	49	26.40	26.19
White	49	44.76	24.96

Table 2.4

*Ethnic/Racial Diversity of Students Who Obtained a Level II Certificate at Texas**Community Colleges for the 2010-2011 Through the 2014-2015 Academic Years*

Academic Year Ethnicity/Race	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
2010-2011			
Asian	53	3.16	5.38
Black	53	11.80	14.72
Hispanic	53	29.73	24.49
White	53	51.12	24.72
2011-2012			
Asian	51	1.94	3.09
Black	51	15.96	18.85
Hispanic	51	30.23	25.29
White	51	46.91	25.98
2012-2013			
Asian	55	2.54	4.16
Black	55	12.94	14.34
Hispanic	55	30.26	26.05
White	55	46.73	24.11
2013-2014			
Asian	57	3.98	9.80
Black	57	12.26	13.85
Hispanic	57	35.49	26.78
White	57	43.46	27.14
2014-2015			
Asian	58	3.58	5.71
Black	58	14.13	13.46
Hispanic	58	32.93	25.28
White	58	44.99	25.64

Table 2.5

Descriptive Statistics for the Percentage of Asian Students Who Obtained a Level I

Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015

Academic Years

Academic Year	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
Comparison One			
2005-2006	67	2.40	3.21
2010-2011	67	2.83	3.94
Comparison Two			
2010-2011	68	2.78	3.93
2014-2015	68	2.56	3.36
Comparison Three			
2005-2006	67	2.40	3.21
2014-2015	67	2.50	3.34

Table 2.6

Descriptive Statistics for the Percentage of Asian Students Who Obtained a Level II

Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015

Academic Years

Academic Year	<i>n</i> of colleges	<i>M%</i>	<i>SD%</i>
Comparison One			
2005-2006	48	2.88	4.87
2010-2011	48	3.49	5.56
Comparison Two			
2010-2011	53	3.16	5.38
2014-2015	53	3.40	5.54
Comparison Three			
2005-2006	48	2.88	4.87
2014-2015	48	2.88	4.71

Table 2.7

Descriptive Statistics for the Percentage of Black Students Who Obtained a Level I Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years

Academic Year	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
Comparison One			
2005-2006	67	12.24	8.80
2010-2011	67	12.36	8.71
Comparison Two			
2010-2011	68	12.34	8.65
2014-2015	68	12.91	9.10
Comparison Three			
2005-2006	67	12.24	8.80
2014-2015	67	12.86	9.16

Table 2.8

*Descriptive Statistics for the Percentage of Black Students Who Obtained a Level II**Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015**Academic Years*

Academic Year	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
Comparison One			
2005-2006	48	13.50	16.54
2010-2011	48	11.47	11.94
Comparison Two			
2010-2011	53	11.80	14.72
2014-2015	53	14.00	13.57
Comparison Three			
2005-2006	48	13.50	16.54
2014-2015	48	14.44	13.84

Table 2.9

Descriptive Statistics for the Percentage of Hispanic Students Who Obtained a Level I

Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015

Academic Years

Academic Year	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
Comparison One			
2005-2006	67	27.32	22.92
2010-2011	67	30.50	20.56
Comparison Two			
2010-2011	68	30.28	20.49
2014-2015	68	35.82	22.16
Comparison Three			
2005-2006	67	27.32	22.92
2014-2015	67	36.15	22.16

Table 2.10

Descriptive Statistics for the Percentage of Hispanic Students Who Obtained a Level II

Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015

Academic Years

Academic Year	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
Comparison One			
2005-2006	48	25.31	27.50
2010-2011	48	31.22	24.74
Comparison Two			
2010-2011	53	29.73	24.49
2014-2015	53	33.66	25.29
Comparison Three			
2005-2006	48	25.31	27.50
2014-2015	48	34.52	25.44

Table 2.11

Descriptive Statistics for the Percentage of White Students Who Obtained a Level I Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years

Academic Year	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
Comparison One			
2005-2006	67	54.25	21.12
2010-2011	67	47.88	18.90
Comparison Two			
2010-2011	68	48.26	19.02
2014-2015	68	43.18	19.66
Comparison Three			
2005-2006	67	54.25	21.12
2014-2015	67	42.95	19.71

Table 2.12

Descriptive Statistics for the Percentage of White Students Who Obtained a Level II Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years

Academic Year	<i>n</i> of colleges	<i>M</i> %	<i>SD</i> %
Comparison One			
2005-2006	48	55.80	28.23
2010-2011	48	50.23	24.26
Comparison Two			
2010-2011	53	51.12	24.72
2014-2015	53	44.58	25.27
Comparison Three			
2005-2006	48	55.80	28.23
2014-2015	48	43.47	24.91

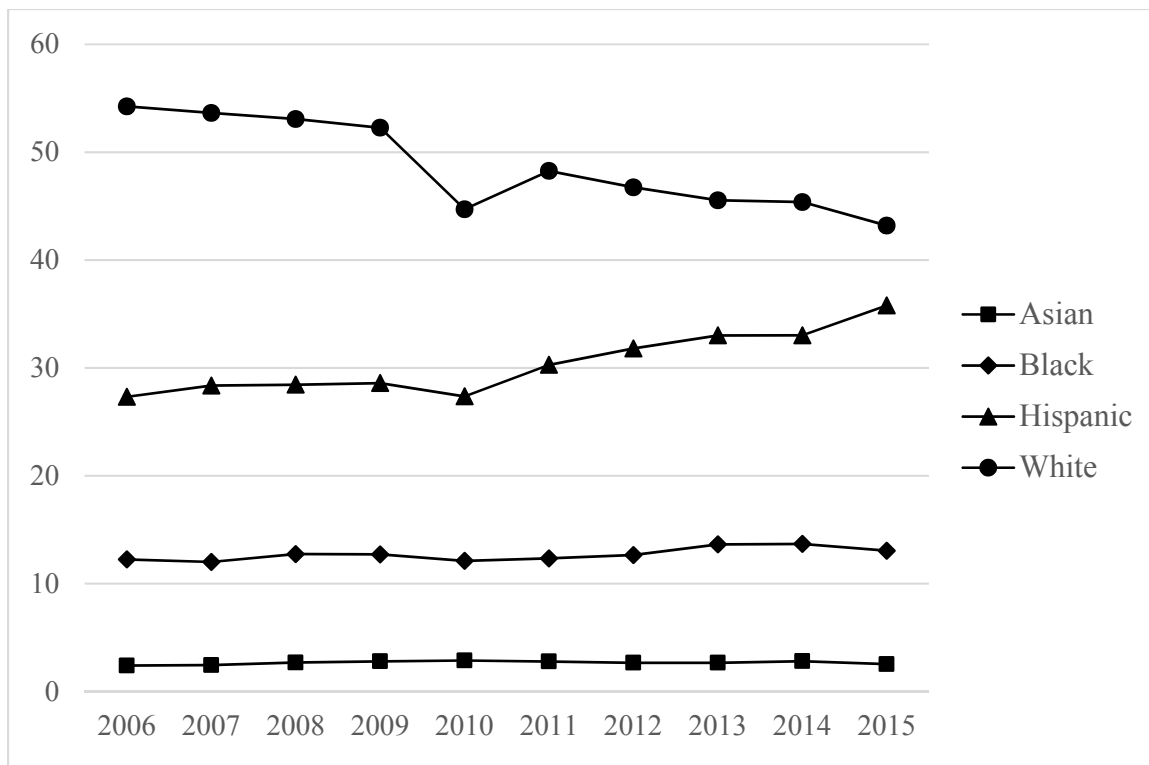


Figure 2.1. Texas Community College Level I Certificate completion rates by ethnicity/race for the 2005-2006 through the 2014-2015 academic years.

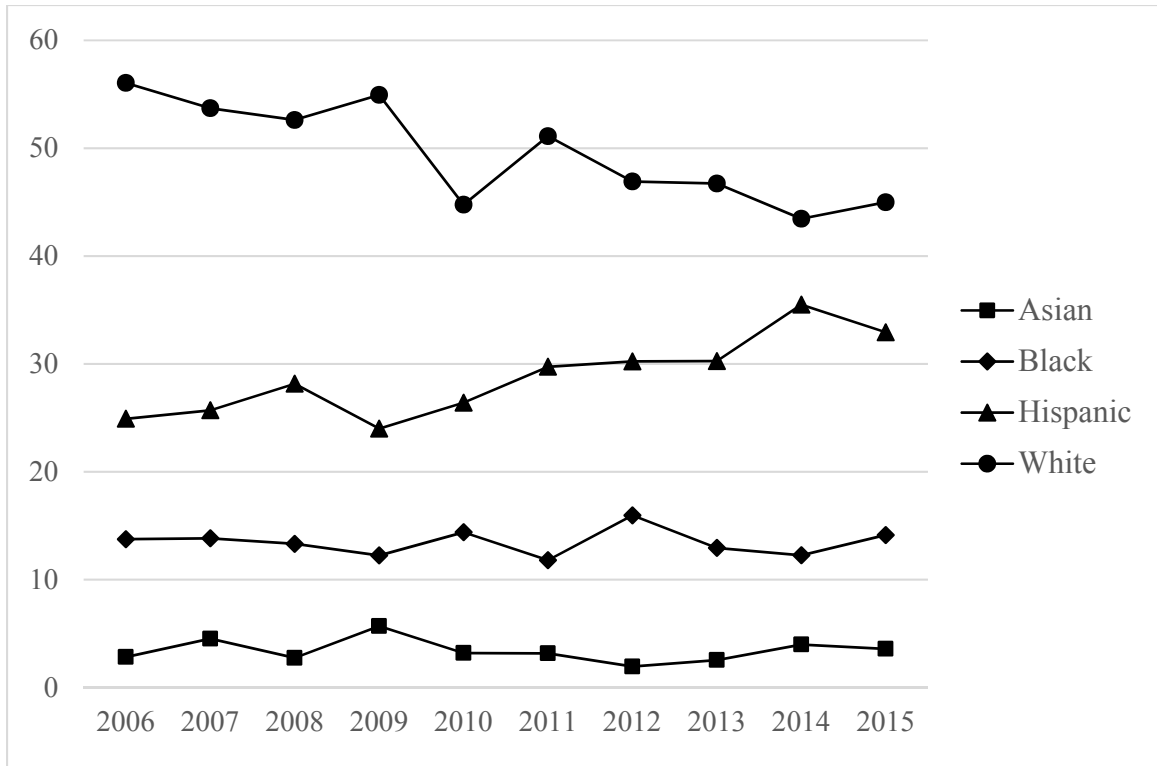


Figure 2.2. Texas Community College Level II Certificate completion rates by ethnicity/race for the 2005-2006 through the 2014-2015 academic years.

CHAPTER III
DIFFERENCES IN TEXAS COMMUNITY COLLEGE CERTIFICATE
COMPLETION RATES BY GENDER

This dissertation follows the style and format of *Research in the Schools (RITS)*.

Abstract

The purpose of this study was to analyze the extent to which gender differences were present in the Texas community college completion rates related to Level I Certificate and Level II Certificate credentials. Participants in this quantitative research study were Texas community college students who completed this workforce certificate from the 2005-2006 academic year to the 2014-2015 academic year. Texas community college completion rates were retrieved from the Texas Higher Education Coordinating Board's Interactive Accountability database. Male community college students represented the majority of Level I Certificate completers for 9 of the 10 years associated with this study, increasing to 56.75% by the 2014-2015 academic year. The percentage of male community college students in Texas who obtained a Level II Certificate credential steadily increased over the 10-year period. Female students still represented the majority of completers by the 2014-2015 academic year at 58.70%.

Keywords: Gender, Workforce, Certificate, Community College

DIFFERENCES IN TEXAS COMMUNITY COLLEGE CERTIFICATE COMPLETION RATES BY GENDER

According to the U.S. Department of Education and the National Student Clearinghouse, community college enrollment and completion data across the nation have been stagnant or on a downward trend since the Fall of 2010 (Juszkiewicz, 2016). The weaker community college participation and completion rates among male students, as compared to female students, may be a contributing factor to the overall weak growth within this sector of higher education. The 6-year completion rate for men who enrolled into a community college in Fall 2009 was 35.7% compared to a 6-year completion rate of 41.5% for women (Juszkiewicz, 2016). State reports generated by the Texas Higher Education Coordinating Board (THECB) have provided similar results. For instance, women represented 57.4% ($n = 402,624$) of community college participants in 2015 compared to 42.6% for males ($n = 298,268$). The gender disparity was also prevalent when assessing completion figures for Texas community colleges, as women accounted for an additional 11,796 of completers in 2015 when compared to men (THECB, 2016).

Females not only outnumber males in community college participation, they also have a greater tendency to complete their degrees. Degree progress data are difficult to obtain for academic-based 2-year credentials (e.g., Associate of Arts or Associate of Science degrees) unless researchers elect to analyze student persistence based on the number of semester credit hours (SCHs) completed. The state of Texas does reward community colleges when students complete 15 SCHs or 30 SCHs (Texas Association of Community Colleges, 2014).

Workforce programs associated with Texas community colleges are typically structured to provide better degree progress data when the program area (e.g., filmmaking, global supply chain management, and health information technology) includes a Level I Certificate and/or Level II Certificate credential. The Level I Certificates often times serve as the first sequence of courses related to an Associate of Applied Science (AAS) degree, ranging from 15 to 42 SCHs (THECB, 2012). According to the THECB, this workforce credential does not require students to meet the postsecondary readiness requirements of Texas Success Initiative (TSI), which mandates all college-going students within the state have to have their academic skills tested. At the same time, colleges or universities have the ability to establish their own college readiness standards. Level II Certificates, which often times serve as the next sequence of courses within an AAS following the completion of a Level I Certificate, encompass 43 to 59 semester credit hours. The primary difference between these non-degree credentials is students must meet TSI requirements to complete a Level II Certificate (THECB, 2012).

Recent state-mandated shifts to the Texas postsecondary funding structure and K-12 curriculum may have implications on gender-based completion data for these non-degree credentials. The 83rd Texas Legislature established a performance-based funding model (i.e., Student Success Points) that would compensate community colleges for meeting certain completion milestones. The number of points awarded depended on the milestone. Institutions received two points for each student who obtained a Level 1 Certificate or Level 2 Certificate while only receiving 0.5 point for each student who completed of a developmental reading course. For the 2014 and 2015 fiscal years, 2-year

institutions had access to \$172 million based on performance data from the 2010 to 2012 fiscal years (Texas Association of Community Colleges, 2014).

The changes to the funding model for community colleges coincided with the introduction of House Bill 5, which altered the graduation requirements for Texas high school students. House Bill 5 led to a reduction in the number of end-of-course exams for students thus revising high school graduation requirements. This state legislation also prompted greater collaboration between school districts and community colleges in helping students exit high school *college ready* and in expanding career and technical education (CTE) programming options. Community college leaders hope these changes also will help their institutions meet the goals outlined in *60x30TX*, the state's strategic plan for 2015-2030 (Watkins, 2015). One of the primary goals of this strategic plan entails having 60% of individual, ages 25 to 34, who complete a higher education degree or certificate by 2030. Executing this task requires Texas postsecondary institutions to award a certificate, associate, bachelor's, or master's degree to more than 500,000 students within this age range by 2030 (THECB, 2015b).

Several researchers (e.g., Gantt, 2010; Jones, 2010; Riegle-Crumb, 2010) have conducted studies regarding the gap in enrollment and completion between males and females. Riegle-Crumb (2010) used data from the Texas Higher Education Opportunity Project to determine what social and academic factors prompted greater matriculation to postsecondary institutions among Hispanic and White female students. She reported high school girls—namely Hispanics—with better grades and academically oriented peer groups had greater attendance at 4-year institutions when compared to their male peers. Furthermore, Hispanic girls had increased participation at 4-year colleges when they

routinely met with their high school counselors to discuss college. However, Riegle-Crumb concluded these same factors contributed less to the greater participation rates of female students at 2-year colleges than at 4-year institutions.

Gantt (2010) uncovered another interesting persistence finding about women when she examined demographic, academic, and nonacademic factors that affect the 3-year graduation rates for technical programs situated in urban locations across Texas. Her longitudinal cohort study encompassed 191 students enrolled in technical programs between Fall 2005 and Fall 2008. Participants associated with the Declaring a Major and Filing a Degree Audit Project completed a 27-question survey focused on the factors contributing to their persistence. Academic factors contributing to student persistence included the time in which they filed a degree plan and declared a major as well as if they had a faculty mentor. Nonacademic factors included the students' job status, role as a caretaker, and their access to student services. Gantt (2010) discovered the community college students most likely to graduate in three years were females and individuals who were between 18 to 35 years old. The most important contributing factor for both student groups was their ability to complete a degree plan in the first two semesters.

Windham, Rehfuss, Williams, Pugh, and Tincher-Ladner (2014) similarly sought to understand student attributes that increased community college retention. In addition to age and participation in a study skills course, they determined being female was linked to higher retention rates. In their study, they analyzed data on 785 male and 938 female students from a three-campus community college who were enrolled as first time, full-time freshman during the 2008, 2009, and 2010 fall semesters. Windham et al. discovered gender represented the highest predictor of retention, which was characterized

as consecutive fall-to-fall enrollment. Windham et al. (2014) reported females had a 94% higher retention rates than males. They theorized that the higher return rates among female students could be attributed to the fact females placed greater value on increased social support provided by community college professionals.

Jones (2010) also confirmed that social integration had a greater influence on institutional commitment and retention for female students when compared to their male counterparts. Jones used seven factors to measure a student's social integration, including the degree to which an individual's interpersonal relationships with classmates influenced his/her intellectual growth along with the degree to which his/her peer friendships would be considered satisfying. He concluded additional research was necessary to understand better which variables have more influence to subsequent institutional commitment of male students.

Burillo (2012) explored gender-specific completion trends related to Marketable Skills Achievement Awards (MSAA) offered at Texas community colleges. These short-term credentials typically can be completed within one year and encompass the first set of courses within a workforce certificate or degree program. The courses within a MSAA often provide students technical competencies desired by employers. Burillo analyzed MSAA completion figures from 2002 to 2010 related to 50 Texas public community colleges. The THECB did not present completion data for the first two years analyzed in this study. Starting in 2004, the total number of males completing a MSAA more than doubled from 1,037 to 2,223 completers over the next six years. This overall increase amounts to an average growth of 30 male students by 2010. The number of females completing a MSAA was minimal until 2009, when the total number of completers

increased by 354 students to 1,405. The total number of MSAA completers increased by a similar amount in 2010 to 1,743 students. Burillo (2012) reported a statistically significant increase was present in the average number of male completers from 2004 to 2010. However, a statistically significant difference was not present in the average number of female MSAA completers during this same timeframe.

Purpose of the Study

The purpose of this study was to determine the extent to which gender differences were present in the Texas community college completion rates specifically within workforce certificate (i.e., non-degree) programs. A second purpose was to ascertain whether year-to-year shifts occurred in gender-based completion rates of non-degree credentials (i.e., Level I and Level II Certificates). Any changes were compared to the time in which the Student Success Points model was implemented in Texas.

Significance of the Study

Several researchers (e.g., Crisp & Delgado, 2013; Derby, 2007; Kotamraju & Blackman, 2011) have analyzed college persistence and completion through degree attainment (e.g., Associate degree). In these empirical research investigations, no attention was focused on gender-specific outcomes for workforce or technical programs structures to be completed in less than two years (Spangler & Slate, 2015). The results from this study could be used by community college administrators to reassess their retention practices, both inside and outside of the classroom, to improve the completion rates for males or females. They may determine more gender-specific academic or student support services need to be integrated into specific workforce programs (e.g.,

male mentoring program). Similarly, institutional leaders may consider restructuring their advising model to provide additional services for specific gender groups.

Research Questions

In this study, the following research questions were addressed for the 2005-2006 through the 2014-2015 academic years: (a) What is the gender composition (i.e., male and female students) of Texas community college students who obtained a Level I Certificate?; (b) What is the gender composition of Texas community college students who obtained a Level II Certificate?; (c) What difference is present in the gender of Texas community college students who obtained a Level I certificate between the 2005-2006 academic year and the 2010-2011 academic year, between the 2010-2011 academic year and the 2014-2015 academic year; and between the 2005-2006 and the 2014-2015 academic year?; (d) What difference is present in the gender of Texas community college students who obtained a Level II certificate between the 2005-2006 academic year and the 2010-2011 academic year, between the 2010-2011 academic year and the 2014-2015 academic year; and between the 2005-2006 and the 2014-2015 academic year?; (e) What trend, if any, is present in the gender composition of Texas community college students who obtained a Level I certificate from the 2005-2006 through the 2014-2015 academic year?; and (f) What trend, if any, is present in the gender composition of Texas community college students who obtained a Level II certificate from the 2005-2006 through the 2014-2015 academic year?

Method

Research Design

For this investigation, a causal comparative research design was used. This research design is most appropriate for non-experimental quantitative research associated with archival data. In such cases, the independent and dependent variables cannot be manipulated (Lodico, Spaulding, & Voegtle, 2006). Texas community college completion rates (i.e., dependent variable) by gender (i.e., independent variable) occurred prior to the commencement of this study. Accordingly, the independent variable and the dependent variables could not be manipulated, as well as any extraneous variables could not be controlled.

Participants and Instrumentation

Participants whose data were analyzed in this research study were students who were enrolled in Texas community colleges in the 2005-2006 to the 2014-2015 academic years as well as those individuals who completed a Level I Certificate and/or a Level II Certificate. The gender of participants was based on data provided by public community colleges to the THECB. The general availability of student data through the THECB is part of a larger scale effort to improve student participation and persistence within higher education institutions across Texas.

The findings for this quantitative study were based on performance data tracked through the THECB Interactive Accountability System. This instrument includes archival data for Texas public universities, community colleges, and health related institutions. It also contains information specific to 4-year, non-public colleges and 2-year career institutions. The archival data for each public community college in Texas

were presented as a *Key Measures* or *Contextual Measures* within one of the following five categories: (a) Participation, (b) Success, (c) Excellence, (d) Institutional Efficiency and Effectiveness, and (e) Success Points. The data relevant to this quantitative study were documented within the Key Measures subcategory for *Success* and *Participation*.

Completion data related to this research study were retrieved from the THECB Interactive Accountability database. The multiyear persistence results for male and female students from Texas public community colleges were compiled into a Microsoft Excel spreadsheet for analysis. Archival data were then coded so that this information can be analyzed in the Statistical Package for the Social Sciences, Version 22.0.

Results

Inferential and descriptive statistics were used to address the six research questions related to this quantitative study. Before conducting inferential statistics to verify the presence of statistically significant differences, checks were completed to determine the extent to which the data were normally distributed. Parametric dependent samples *t*-tests were completed to address these research questions because most of the standardized skewness coefficients (i.e., the skewness value divided by its standard error) and the standardized kurtosis coefficients (i.e., the kurtosis value divided by its standard error) were within the limits of normality, ± 3 (Onwuegbuzie & Daniel, 2002). The following presentation of the results associated with this study is organized by research question. Descriptive statistics and trends are presented via tables and figures.

Research Question 1

As compared to female community college students in Texas, male students represented a greater percentage of Level I Certificate completers for every year

associated with this study except for the 2005-2006 academic year. The percentage of male community college students in Texas who completed a Level I Certificate during this academic year was 49.68% compared to 50.32% for female students. Male students represented a majority of certificate completers the following academic year (i.e., 2006-2007), at 50.76% while female students represented 49.24% of completers that year. The percentage of male community college students in Texas who completed a Level I Certificate increased to 56.75% by the 2014-2015 academic year, whereas the percentage of female students obtaining this credential dropped to 43.25% for this year. Table 3.1 contains the descriptive statistics of the gender diversity from the 2005-2006 through the 2014-2015 academic years.

Insert Table 3.1 about here

Research Question 2

From the 2005-2006 academic year to the 2014-2015 academic year, a greater percentage of female students compared to male students completed a Level II Certificate. However, the percentage point different between the two groups gradually decreased over the 10-year period. Male students represented 27.80% of Level II Certificate completers in the 2005-2006 academic year compared to 72.20% for female students. The percentage of male community college students who obtained this credential increased to 41.30% compared to 58.70% of female students for the 2014-2015 academic year. The gender-specific completion rates from the 2005-2006 through the 2014-2015 academic years related to this analysis are revealed in Table 3.2.

Insert Table 3.2 about here

Research Question 3

Prior to conducting inferential statistics to determine whether a statistically significant difference was present in the gender composition of Texas community college students who obtained a Level I Certificate in the three academic years previously noted (i.e., 2005-2006 and 2010-2011, 2010-2011 and 2014-2015, and 2005-2006 and 2014-2015), checks were completed to confirm the extent to which the data were normally distributed. Although some of the standardized skewness coefficients and some of the standardized kurtosis coefficients) were outside of the limits of normality, ± 3 (Onwuegbuzie & Daniel, 2002), a decision was made to implement the parametric dependent samples *t*-test. Slate and Rojas-LeBouef (2011) suggest this inferential statistical procedure is sufficiently robust enough to withstand these violations.

A parametric dependent samples *t*-test was implemented to answer the research question regarding the gender composition of Texas community college students between the aforementioned academic years. This analysis resulted in a statistically significant difference between the 2005-2006 academic year and the 2010-2011 academic year, $t(66) = -4.45, p < .001$. This difference represented a below small effect size (Cohen's *d*) of 0.17 (Cohen, 1988). The Level I Certificate completion rates for male students increased from 49.68% to 56.00% from the 2005-2006 academic year to the 2010-2011 academic year, respectively. With regard to the 2010-2011 and the 2014-2015 academic years, the parametric dependent samples *t*-test did not reveal a statistically significant difference in

the percentage of male students who completed a Level I Certificate, $t(67) = -0.88, p = .38$. The completion percentages for these academic years were similar, 55.33% to 56.44%, respectively.

The parametric dependent samples t -test yielded a statistically significant difference in the percentage of male community college students who completed a Level I Certificate in the 2005-2006 and 2014-2015 academic years, $t(66) = -4.49, p < .001$. According to Cohen (1988), this difference represented a below small effect size (Cohen's d) of 0.16. The certificate completion rate for male community college students increased from 49.68% to 56.91% during this 5-year period. Descriptive statistics related to these analyses are presented in Table 3.3.

Insert Table 3.3 about here

With regard to female community college students in Texas, the parametric dependent samples t -test produced a statistically significant difference in the percentage of students who obtained a Level I Certificate between the 2005-2006 and the 2010-2011 academic years, $t(66) = 4.45, p < .001$. This statistically significant difference reflected a Cohen's d of 0.35, a small effect size (Cohen, 1988). The completion percentages for female students decreased during these academic years from 50.32% to 44.00%, respectively. A statistically significant difference was not present in the percentage of female community college students in Texas who completed a Level I Certificate during the 2010-2011 and the 2014-2015 academic years, $t(67) = 0.88, p = .38$. The completion

rates for female students during this 5-year period was consistent, at 67% in the 2010-2011 academic year and 43.56% in the 2014-2015 academic year.

With regard to the 2005-2006 academic year and the 2014-2015 academic year comparison, a statistically significant difference was present for the percentage of female students who completed a Level I Certificate, $t(66) = 4.49, p < .001$. A small effect size (Cohen's d) of 0.42 was reflected in this difference (Cohen, 1988). The Level I Certificate completion rate for female students decreased from 50.32% to 43.09% for the 2005-2006 and the 2014-2015 academic years, respectively. Readers are directed to Table 3.4 for descriptive statistics concerning these analyses.

Insert Table 3.4 about here

Research Question 4

A parametric dependent samples t -test was utilized to determine the possibility of gender-based differences in the Level II Certificate complete rates of Texas community college students between the 2005-2006 and 2010-2011 academic years, the 2010-2011 and 2014-2015 academic years and the 2005-2006 and 2014-2015 academic years. With regard to male students, a statistically significant difference was not revealed in the percentage of male students completing a Level II Certificate between the 2005-2006 and the 2010-2011 academic years, $t(47) = -0.81, p = .42$. The completion percentages for male students in these two academic years were similar at 28.07% and 30.95%, respectively. With respect to the 2010-2011 academic year and the 2014-2015 academic year, a statistically significant difference was not yielded in the percentage of male

community college students who completed a Level II Certificate, $t(52) = -1.60, p = .12$. The percentage of male students who secured the aforementioned workforce credential remained consistent, 33.69% to 39.40%, during this 5-year period.

The parametric dependent samples t -test did not yield a statistically significant difference at the conventional level of .05 in the percentage of male community college students in Texas who completed a Level II Certificate for the 2005-2006 and the 2014-2015 academic years, $t(47) = -1.94, p = .06$. The Level II Certificate attainment for male community college students grew from 28.07% to 36.25%, respectively. Descriptive statistics concerning these analyses are revealed in Table 3.5.

Insert Table 3.5 about here

With respect to female students, the parametric dependent samples t -test did not produce a statistically significant difference in the percentage of female community college students who completed a Level II Certificate between the 2005-2006 and the 2010-2011 academic years, $t(47) = 0.81, p = .42$. The completion percentages for female students remained consistent during this 5-year period, 71.93% to 69.05%, respectively. Regarding the 2010-2011 and the 2014-2015 academic years, a statistically significant difference was not yielded for the percentage of female students who completed a Level II Certificate, $t(52) = 1.60, p = .12$. Level II Certificate completion rates for female community college students in Texas decreased from 66.31% in the 2010-2011 academic year to 60.60% in the 2014-2015 academic year. Comparable results were present in the 2005-2006 and the 2014-2015 academic years, as a statistically significant difference was

not presented in the percentage of female community college students in Texas who secured a Level II Certificate, $t(47) = 1.94, p = .06$. The percentage of female students who obtained a Level II Certificate during this 10-year period dropped from 71.93% to 63.75%, respectively. Readers are directed to Table 3.6 for the descriptive statistics related to these analyses.

Insert Table 3.6 about here

Research Question 5

The Level I Certificate completion rates for male community college students in Texas steadily increased during the 10-year period associated this study (i.e., 2005-2006 to 2014-2015) whereas the completion rates for female students gradually decreased during this same period. The completion rate for male students increased by more than one percentage point over the first four academic years (i.e., 2005-2006 to 2009-2010) before dropping slightly during the 2010-2011 and 2011-2012 academic years. Female students represented the majority of Level I Certificate completers for only the first academic year associated with this quantitative study (i.e., 2005-2006). Figure 3.1 is a representation of changes in Level I Certificate completion rates for male and female community college students in Texas.

Insert Figure 3.1 about here

Research Question 6

Gender-based completion trends related to Level II Certificates were comparable to aforementioned Level I Certificate trends, in that male community college students gradually represented a greater percentage of completers over the duration of the study. These students represented more than 40% Level II Certificate completers in the 2014-2015 academic year compared to less than one-third of completers in the 2005-2006 academic year. However, despite the shift in balance between the two groups, female students still represented more than 58% of Level II Certificate completers by the final year of this study. The greatest disparity between both gender was during the 2006-2007 academic year, when female students constituted 75% of Level II Certificate completers. Figure 3.2 represents the gender-specific changes in Level II Certificate completion rates for community college students in Texas.

Insert Figure 3.2 about here

Discussion

The focus of this quantitative study was to examine the differences in the Level I Certificate and Level II certificate completion rates for male and female students enrolled in Texas community colleges. Completion data from the 2005-2006 academic year to the 2014-2015 academic year were utilized for this quantitative study. Statistically significant results were more prevalent for Level I certificate completion rates for both genders compared to Level II Certificate data. Following the statistical analyses, the discussion of the consistencies and differences in the gender-based completion rates will be discussed. The following section includes a summary of these results.

Summary of Results for Level I Certificate Completion Rates

Level I Certificate completion rates for male community college students in Texas increased by more than 7 percentage points during the 10-year period associated with this investigation. Male students maintained the largest share of Level I Certificate completers during the 2014-2015 academic year at 56.75%. Female students represented a majority share of Level I Certificate completers for only the first academic year of the study (i.e., 2005-2006) at 50.32%. Their completion rates related to this credential would drop to 44.16% during the 2009-2010 academic year. This completion percentage did not align with state-level population data for female residents, which was 50.4% as of April, 2010 (U.S. Census Bureau, 2016). Texas population estimates for female students would remain unchanged shifting forward to July, 2015 while their share of Level I Certificate completers dropped to 43.25%.

Summary of Results for Level II Certificate Completion Rates

The Level II Certificate completion rates for male and female community college students in Texas did not result in statistically significant results for any of the three academic time periods related to this investigation. Nevertheless, female students represented close to three-quarters of Level II Certificate completers for the 2005-2006 academic year. Their completion rates related to this study would drop by 13.5 percentage points during the 10-year study, but they still maintained a majority share of community college completers of this credential at 58.70%. These completion figures are greater than the overall percentage of females residing in Texas, which is projected to be 50.4% as of July, 2015 (U.S. Census Bureau, 2016). Meanwhile, Level II Certificate completion rates for male students would increase from 27.80% in the 2005-2006 academic year to 41.30% for the 2014-2015 academic year.

Connections with Existing Literature

The gender-specific Marketable Skills Achievement Awards (MSAA) completion data for Texas community colleges presented by Burillo (2012) reflected similar findings to the Level I Certificate and Level II Certificate data from this investigation. Burillo (2012) concentrated her research efforts on workforce credentials (i.e., MSAA) that typically total 14 or fewer semester credit hours (THECB, 2012). She noted that 2,223 male community college students in Texas completed a MSAA in 2010 compared to 1,743 female students. These results align with the 10-year growth trends related to the Level I Certificate and Level II Certificate credentials, in which male students surpassed or minimized the difference in completion rates between their female counterparts. It should be noted both studies included gender data that lacked statistically significant results.

Ironically, these gender-specific findings are not consistent with the Associate degree attainment trends for 2-year institutions. As of Fall 2009, the 6-year completion rate for men enrolled in a Texas community college was 35.7% compared to 41.5% for women (Juskiewicz, 2016). Additionally, women accounted for an additional 11,796 completers in 2015 when compared to men (THECB, 2016). Other scholars (e.g., Gantt, 2010; Jones, 2010; Riegle-Crumb, 2010) who analyzed gender-specific success at the postsecondary level instead sought to explain the reasons for the disparity in success rates between males and females on a state-level or national scale. These researchers did not expound upon the trends within the completion results of their participant groups, which would be the focus of this study.

Implications for Policy and Practice

The increases in Level I Certificate and Level II Certificate completion rates among male students is unexpected given that female community college students have outpaced their male counterparts in terms of 2-year degree attainment rates during the time period associated with this study (Texas Higher Education Coordinating Board, 2016). These findings should prompt educators to ask why the increases in certificate completion rates also are not reflected in state-level degree data. The sharp increase in Level II Certificate completion rates for male students over the 10-year period related to this study is a positive indicator that a growing number of male community college students are completing more courses related to workforce credentials.

Given that the primary difference between a Level II Certificate and an Associate of Applied Science degree is the presence of transferrable academic courses in the 2-year credential, community college leaders should ensure course scheduling is structured to where these academic courses are offered at the appropriate times and locations to where these classes can easily be completed in conjunction with the workforce courses related to the certificate credential. They also need to evaluate and potentially improve the student and academic support services to ensure the decrease in 2-year degree completion rates among male students is not related to poor advisement or performance in the classroom.

High educators also should explore grant and student scholarship opportunities that can address the gender-specific completion concerns associated with these longitudinal findings. While the abovementioned recommendations are specific male students, equal efforts should be focused on female community college students given

that their Level I Certificate completion rates were less than state-level population data for female residents (U.S. Census Bureau, 2016). Community college leaders should examine their recruitment practices related to workforce credentials to determine if these credentials are not being promoted equally and effectively to both populations.

It is worth noting that this investigation only includes completion data specific to the initial years following the implementation of House Bill 5 and the Student Success Points model. These statewide initiatives provide high school students greater opportunities to complete workforce-specific college coursework and reward postsecondary institutions when they meet various completion measures, respectively (Texas Association of Community Colleges, 2014; Texas Association of Workforce Boards, 2014). Therefore, it may be premature to associate the gender-specific changes in certificate completion rates during the last few years of this study (i.e., 2013-2014 and 2014-2015 academic years) to these state-level policies.

Recommendations for Future Research

For this quantitative study, differences were examined in male and female completion rates of Level I Certificates and Level II Certificates among Texas community college students. Given the newness of the House Bill 5 legislation and the Student Success Points model at the time of this investigation, scholars should examine gender-specific certificate completion results for another five to 10 years (i.e., 2015-2016 to 2019-2020 or 2015-2016 to 2024-2025) to evaluate better the effectiveness of House Bill 5 and the Student Success Point model. Given that this investigation was limited to quantitative data, researchers should explore a mixed method research study that incorporates qualitative findings with the archival THECB completion results. This

output can help educators better understand the reasons why male or female students participated in a workforce program and what led to their success. These data can come from college administrators and faculty associated with these workforce credentials or students participating in these Level I Certificate or Level II Certificate programs.

Another research recommendation is to examine the advising practices related to these Level I Certificate and Level II Certificate workforce programs. By conducting qualitative research, scholars potentially can provide better insight how effectively these workforce certificates are being presented to prospective students. Researchers also can examine gender-specific completion rates for Level I Certificate and Level II Certificate programs aligned with different industry clusters to determine which disciplines or community colleges are successfully transitioning male and female students through these programs. Scholars analyzing these findings can elect to implement a survey or focus group with workforce program personnel to understand their practices that translate to stronger completion rates.

Conclusion

The purpose of this study was to determine the extent to which differences were present in gender-based completion rates of Level I Certificates and Level II Certificates among Texas community college students from the 2005-2006 academic year to the 2014-2015 academic year. Archival data retrieved from the THECB Accountability web site were analyzed. The Level I Certificate completion rates for male students overtook female students following the first academic year (i.e., 2005-2006) of this study. The percentage of males obtaining this credential steadily increased over the 10-year period. The Level II Certificate completion rates for male students increased during the 10-year

period associated with this study, but female students still represented the majority of Level II Certificate completers by the 2014-2015 academic year.

References

- Burillo, M. (2012). *Marketable skills achievement awards certificate completer trends by ethnicity and gender at Texas community colleges* (Doctoral Dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3531776)
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Crisp, G., & Delgado, C. (2013). The impact of developmental education on community college persistence and vertical transfer. *Community College Review, 42*(2), 99-117. doi:10.1177/0091552113516488
- Derby, D. C. (2007). Predicting degree completion: Examining the interaction between orientation course participation and ethnic background. *Community College Journal of Research and Practice, 31*, 883-894. doi:10.1080/10668920600859350
- Gantt, A. J. (2010). Graduation rates of students in technical programs at an urban community college. *Community College Journal of Research and Practice, 34*, 227-239. doi:10.1080/10668920903504992
- Jones, W. (2010). The impact of social integration on subsequent institutional commitment conditional on gender. *Research in Higher Education, 51*, 687-700. doi:10.1007/s11162-010-9172-5
- Juszkiewicz, J. (2016). *Trends in community college enrollment and completion data*. Retrieved from http://www.aacc.nche.edu/AboutCC/Trends/Pages/completion_report.aspx
- Kotamraju, P., & Blackman, O. (2011). Meeting the 2020 American Graduation Initiative (AGI) goal of increasing postsecondary graduation rates and completions: A

macro perspective of community college student educational attainment.

Community College Journal of Research and Practice, 35, 202-219.

doi:0.1080/10668926.2010.526045

Lodico, M., Spaulding, D., & Voegtle, K. (2006). *Methods in educational research:*

From theory to practice. San Francisco, CA: Jossey-Bass.

Onwuegbuzie, A. J., & Daniel, L. G. (2002). Uses and misuses of the correlation

coefficient. *Research in the Schools*, 9(1), 73-90.

Riegle-Crumb, C. (2010). More girls go to college: Exploring the social and academic

factors behind the female postsecondary advantage among Hispanic and White students. *Research in Higher Education*, 51, 573-593. doi:10.1007/s11162-010-

9169-0

Slate, J. R., & Rojas-LeBouef, A. (2011). *Calculating basic statistical procedures in*

SPSS: A self-help and practical guide to preparing theses, dissertations, and manuscripts. Houston, TX: NCPEA Press.

Spangler, J. M., & Slate, J. R. (2015). Texas community college graduation and

persistence rates as a function of student ethnicity. *Community College Journal of Research and Practice*, 39, 741-753. doi:10.1080/10668926.2013.878261

Texas Association of Community Colleges. (2014). *Student success points*. Retrieved

from <http://www.tacc.org/pages/data-and-info/student-success-points>

Texas Higher Education Coordinating Board. (2012). *Glossary of terms*. Educational

Data Center. Retrieved from <http://www.thecb.state.tx.us/Reports/PDF/1316.PDF>

Texas Higher Education Coordinating Board. (2015b). *Closing the gaps 2015 progress*

report. Retrieved from

<http://www.thecb.state.tx.us/reports/PDF/6696.PDF?CFID=43464178&CFTOKE>
N=10459164

Texas Higher Education Coordinating Board. (2016). *Community colleges performance - participation*. Retrieved from

http://www.txhighereddata.org/Interactive/Accountability/CC_Participation.cfm

U.S. Census Bureau. (2016). *State and county QuickFacts*. Retrieved from

<http://www.census.gov/quickfacts/map/INC110213/48/accessible>

Watkins, M. (2015). *A Texas-sized goal: 60 percent of adults with degree by 2030: State striving to boost attainment in 25-34 demographic*. Retrieved from <http://npaper-wehaa.com/ccweek/2015/08/17/#?article=2586427>

Windham, M. H., Rehfuss, M. C., Williams, C. R., Pugh, J. V., & Tincher-Ladner, L.

(2014). Retention of first-year community college students. *Community College Journal of Research and Practice*, 38, 466-477.

doi:10.1080/10668926.2012.743867

Table 3.1

*Descriptive Statistics by Gender of Students Who Obtained a Level I Certificate at Texas**Community Colleges for the 2005-2006 Through the 2014-2015 Academic Years*

Academic Year Gender	<i>n</i> of Colleges	M%	SD%
2005-2006			
Male	67	49.68	18.25
Female	67	50.32	18.25
2006-2007			
Male	67	50.76	18.26
Female	67	49.24	18.26
2007-2008			
Male	67	52.05	18.80
Female	67	47.95	18.80
2008-2009			
Male	67	53.59	18.63
Female	67	46.41	18.63
2009-2010			
Male	68	55.84	19.12
Female	68	44.16	19.12
2010-2011			
Male	68	55.33	18.74
Female	68	44.67	18.74
2011-2012			
Male	68	54.60	17.49
Female	68	45.40	17.49
2012-2013			
Male	68	55.98	16.58
Female	68	44.02	16.58
2013-2014			
Male	69	56.31	16.36
Female	69	43.69	16.36
2014-2015			
Male	69	56.75	16.20
Female	69	43.25	16.20

Table 3.2

Descriptive Statistics by Gender of Students Who Obtained a Level II Certificate at Texas Community Colleges for the 2005-2006 Through the 2014-2015 Academic Years

Academic Year Gender	<i>n</i> of Colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Male	49	27.80	25.99
Female	49	72.20	25.99
2006-2007			
Male	49	24.43	27.46
Female	49	75.57	27.46
2007-2008			
Male	49	29.84	25.59
Female	49	70.16	25.59
2008-2009			
Male	53	33.43	29.93
Female	53	66.57	29.93
2009-2010			
Male	49	28.88	24.16
Female	49	71.12	24.16
2010-2011			
Male	53	33.69	28.37
Female	53	66.31	28.37
2011-2012			
Male	51	31.48	25.64
Female	51	68.52	25.64
2012-2013			
Male	55	36.20	29.15
Female	55	63.80	29.15
2013-2014			
Male	57	37.59	28.04
Female	57	62.41	28.04
2014-2015			
Male	58	41.30	28.37
Female	58	58.70	28.37

Table 3.3

Descriptive Statistics for the Percentage of Male Students Who Obtained a Level I Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015 Academic Years

Academic Year	<i>n</i> of Colleges	<i>M</i> %	<i>SD</i> %
Comparison One			
2005-2006	67	49.68	18.25
2010-2011	67	56.00	18.05
Comparison Two			
2010-2011	68	55.33	18.74
2014-2015	68	56.44	16.11
Comparison Three			
2005-2006	67	49.68	18.25
2014-2015	67	56.91	15.77

Table 3.4

Descriptive Statistics for the Percentage of Male Students Who Obtained a Level II

Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015

Academic Years

Academic Year	<i>n</i> of Colleges	<i>M%</i>	<i>SD%</i>
Comparison One			
2005-2006	48	28.07	26.20
2010-2011	48	30.95	23.53
Comparison Two			
2010-2011	53	33.69	28.37
2014-2015	53	39.40	28.27
Comparison Three			
2005-2006	48	28.07	26.20
2014-2015	48	36.25	27.17

Table 3.5

Descriptive Statistics for the Percentage of Female Students Who Obtained a Level I

Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015

Academic Years

Academic Year	<i>n</i> of Colleges	<i>M%</i>	<i>SD%</i>
Comparison One			
2005-2006	67	50.32	18.25
2010-2011	67	44.00	18.05
Comparison Two			
2010-2011	68	44.67	18.74
2014-2015	68	43.56	16.11
Comparison Three			
2005-2006	67	50.32	18.25
2014-2015	67	43.09	15.77

Table 3.6

Descriptive Statistics for the Percentage of Female Students Who Obtained a Level II

Certificate at Texas Community Colleges Between the 2005-2006 and 2014-2015

Academic Years

Academic Year	<i>n</i> of Colleges	<i>M%</i>	<i>SD%</i>
Comparison One			
2005-2006	48	71.93	26.20
2010-2011	48	69.05	23.53
Comparison Two			
2010-2011	53	66.31	28.37
2014-2015	53	60.60	28.27
Comparison Three			
2005-2006	48	71.93	26.20
2014-2015	48	63.75	27.17

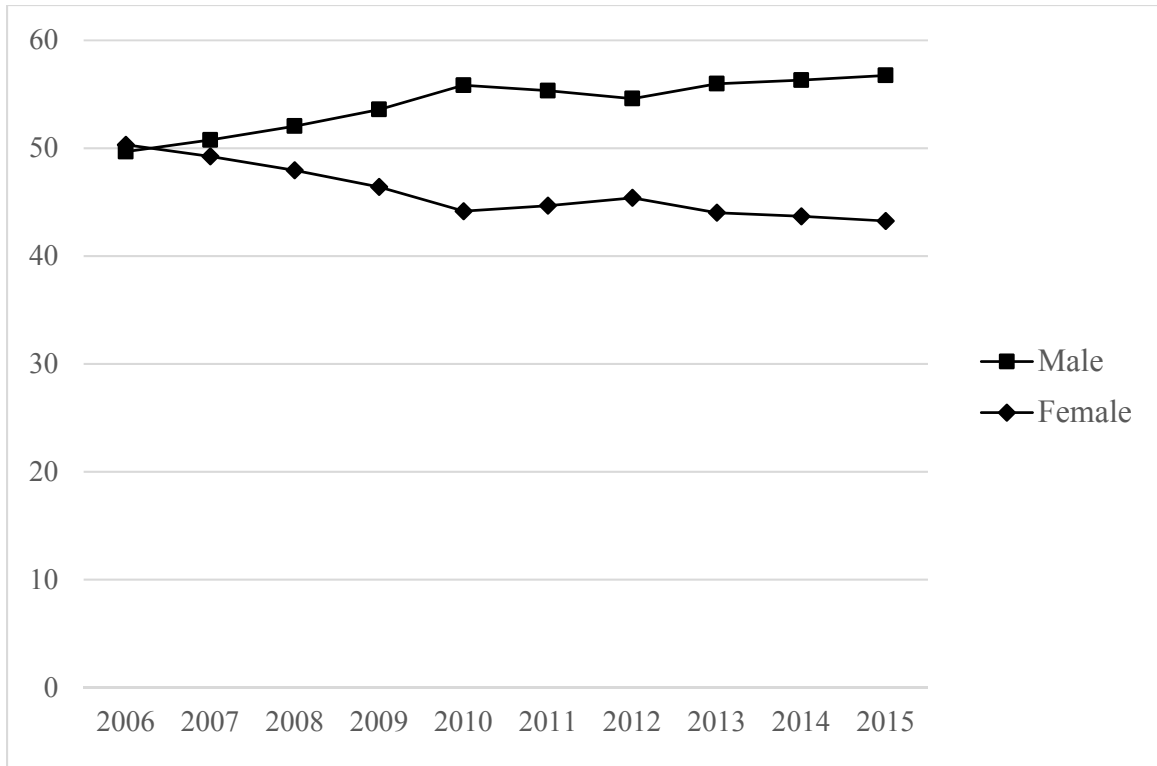


Figure 3.1. Texas Community College Level I Certificate completion rates by gender for the 2005-2006 through 2014-2015 academic years.

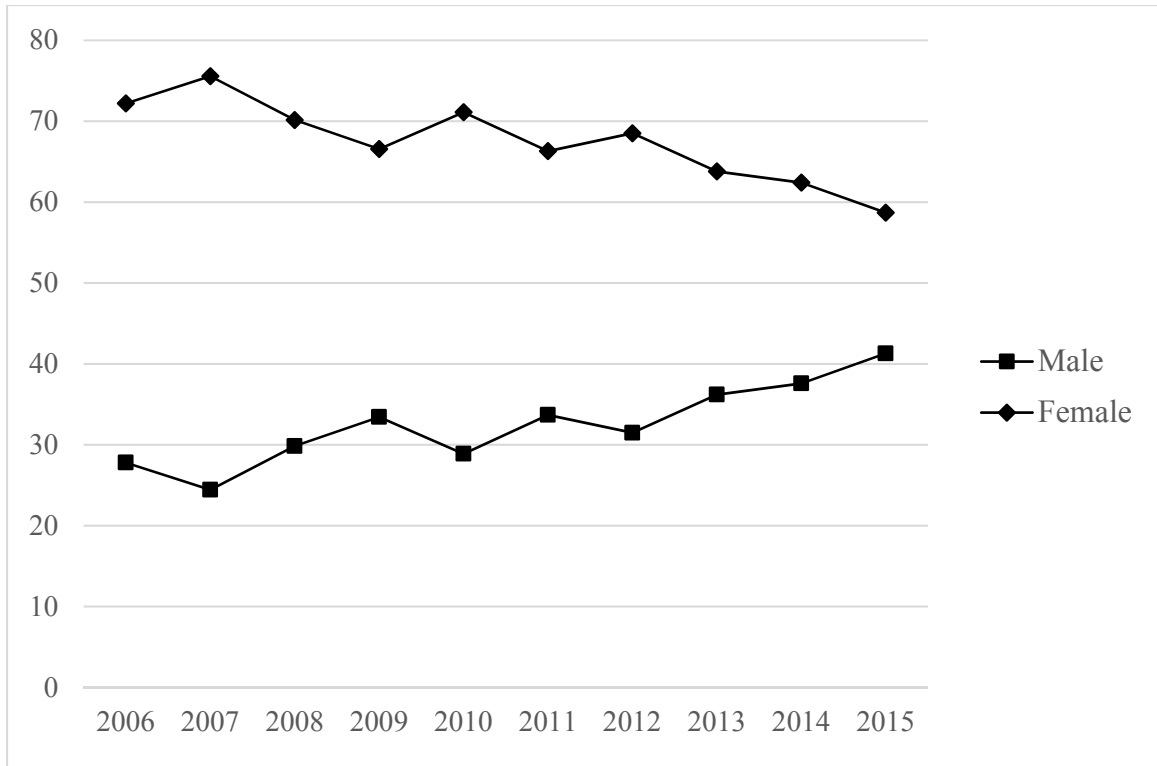


Figure 3.2. Texas Community College Level II Certificate completion rates by gender for the 2005-2006 through 2014-2015 academic years.

CHAPTER IV
DIFFERENCES IN TEXAS COMMUNITY COLLEGE CERTIFICATE
COMPLETION RATES BY STUDENT ENROLLMENT

This dissertation follows the style and format of *Research in the Schools (RITS)*.

Abstract

The purpose of this study was to determine the extent to which ethnic/racial differences were present in completion rates for these workforce programs as a function of student enrollment. Participants in this study were Asian, Black, Hispanic, and White community college students in Texas who completed a Level I or Level II certificate from the 2005-2006 academic year to the 2014-2015 academic year. Level I Certificate and Level II Certificate completion rates for Asian and Black community college students were higher at very large institutions as compared to all other institution sizes (i.e., large, medium, and small). Certificate completion rates among Hispanic students for both credentials gradually increased across all institution sizes during this 10-year period. The Level I Certificate and Level II Certificate completion rates among White students decreased across all institution sizes from the 2005-2006 academic year to the 2014-2015 academic year. Implications and recommendation are provided.

Keywords: Ethnicity/Race, Workforce, Certificate, Community College

DIFFERENCES IN TEXAS COMMUNITY COLLEGE CERTIFICATE
COMPLETION RATES BY STUDENT ENROLLMENT

Higher education leaders in Texas understand that numerous employment opportunities exist; however, not enough people have the appropriate postsecondary education to fill those positions (Watkins, 2015). Therefore, in their latest strategic plan for Texas postsecondary institutions, *60x30TX*, the Texas Higher Education Coordinating Board (THECB) focused on student completion goals that could address the aforementioned workplace void. The centerpiece of the 2015-2030 strategic plan is a goal to have 60% of 25 to 34 year-old college students earn a degree or certificate by 2030. This completion rate equates to an estimated 550,000 students earning a certificate, associate, bachelor, or master degree by 2030, which will be challenging given that only 250,000 bachelor's degrees, associate degrees, and certificates were awarded in 2014 (THECB, 2015a).

State officials believe these prospective graduates will play a critical role in addressing the need for more skilled workers in a state that has experienced continued employment growth. The Texas Comptroller's office confirmed in the first 2016 Weekly Economic Outlook Texas jobs were added in 9 of the 11 major industries in the previous year (The Texas Economy, 2016). Texas community colleges will play an important role in meeting this need for more skilled workers in Texas. Between 2000 and 2015, 2-year public institutions experienced an enrollment growth of 62.3% to 700,892 students—representing the largest postsecondary student participant group in Texas. By comparison, student enrollment in 4-year public universities grew by 49.3% during that 15-year period (THECB, 2016).

Community colleges provide students multiple non-degree workforce credentials that can be completed in less than two years, but very few scholars (Burillo, 2012) have focused their research efforts to these data. More specifically, minimal efforts have been directed to investigate non-degree credentials such as *Level I Certificate* and *Level II Certificate* programs. Level I Certificate workforce credentials are earned upon completion of 15 to 42 semester credit hours of coursework. This credential can be completed by a greater percentage of community college students because the Level I Certificate does not include any college readiness standard to be met in reading, writing, or mathematics, as defined by the Texas Success Initiative (TSI). The TSI, which was implemented in 2003, has required the academic aptitude of college students be assessed, however, it provides postsecondary institutions flexibility to implement their own college readiness standards (THECB, 2012). Conversely, the Level II Certificate does include a college readiness requirement and ranges in length from 43 to 59 semester credit hours. Both credentials exclusively align with community college workforce programs in Texas and regularly serve as the initial layers of courses for an Associate of Applied Science (AAS) degree (THECB, 2012).

As Texas community colleges adjust their practices to meet the aforementioned completion goal associated with the *60x30TX* strategic plan, it is important to explore the completion rates for Level I Certificates and Level II Certificates given these credentials typically provide students the necessary training to be employable. Of equal importance is to understand which community colleges are having the greatest success in terms of student completion of these non-degree credentials. Educational leaders focused on the completion goals associated with the *60x30TX* strategic plan will benefit from any

findings that include common characteristics for schools with better than average Level I Certificate and Level II Certificate completion data. Therefore, it will be equally important to explore these non-degree completion trends as they relate to the size of the public community college. At the time of this study, a dearth of research studies are available regarding the relationship of institution size to student completion.

However, several scholars (e.g., Cohen, 2003; Koedel, 2014; Lohman & Dingerson, 2005) have reviewed an assortment of institutional characteristics in relation to participation and persistence. Lohman and Dingerson (2005) examined student persistence by focusing on the quality of occupational-technical certificate programs associated with urban community colleges. They analyzed several variables that influenced retention within these workforce programs, including dispositional and institutional factors. Lohman and Dingerson also gathered data related to the points when students withdrew from a program and abandoned their efforts to obtain a postsecondary credential. Institutional factors were defined to include postsecondary policies affecting participation in educational services, such as enrollment and registration procedures or program flexibility. Participants in this study were 98 non-completers projected to graduate from a certificate program in spring of 1998, 1999, and 2000. More than one half of the students left the program while completing trade courses. Most non-completers left the certificate programs after meeting trade-related needs, which may have included simply upgrading a skill. Several students entering the program unemployed eventually left to enter the workforce before program completion (Lohman & Dingerson, 2005).

Kotamraju and Blackman (2011) addressed the relationship between community college enrollment and graduation rates. Participants for their study were selected from 1,013 public community colleges spanning 44 states. The higher education institutions in this study were required to offer short-term, 1-year, and 2-year Certificates in addition to an Associate degree. They used the Integrated Postsecondary Education Data System to establish projections regarding state-level community college completion rates.

Kotamraju and Blackman recognized an individual's socioeconomic status largely influenced student persistence outcomes, and they further reported a strong correlation between high unemployment rates and low graduation outcomes. They noted this discovery contradicted their assumption that higher unemployment would lead to an increase in community college enrollment and graduation rates. Kotamraju and Blackman concluded a centralized governance structure at the college and strong supportive services for students may lead to better graduation outcomes than postsecondary institutions with a decentralized governance.

Horyna and Bonds-Raacke (2012) examined the connection between the size of a student's high school and their motivational tendencies as compared to their desire to attend college. The high school was defined as *small* if the 9th-12th grade enrollment was below 500 students. Any high school at or above 500 students was categorized as *large*. Participants in their study were 283 undergraduate college students from a small mid-western university. Their student sample ranged from 18 to 49 years of age. Student motivation levels were collected through an instrument designed to assess intrinsic and extrinsic motivation along with motivation related to post-secondary education. The researchers noted that students exhibited greater extrinsic motivation when they attended

larger high schools than those individuals in smaller schools. Horyna and Bonds-Raacke (2012) concluded these students' reasons for attending college were based on receiving some type of means to an end. They also concluded students from larger high schools had greater intrinsic motivation, a finding that contradicted their initial theory about this participant group.

Cohen (2003) focused his efforts on exploring the implications of institution size on various student and faculty characteristics. The enrollment of the 69 colleges associated with his study ranged from 476 to 20,799 students. Cohen organized these institutions into three enrollment categories: low (2,739 or fewer students), medium (2,740 to 6,281 students), and high (6,282 or more students). He determined colleges with higher student enrollments had a greater percentage of students enrolled in traditional liberal arts programs, such as English, humanities, science, social science, and mathematics. These colleges also had a higher percentage of part-time students than did smaller institutions. Funds spent on instruction, per full-time student equivalent, was greater in the smaller colleges participating in this study. Cohen (2003) concluded that this spending behavior may be explained by the curriculum of smaller schools that was linked to occupational or non-liberal arts programs.

Institutional size, as measured by student enrollment, was also a critical point of analysis by Calcagno et al. (2008). They examined the institutional characteristics that produced positive student outcomes (e.g., transferring to a 4-year institution or obtaining a certificate or degree). The college variables that were the focal point of their study included college size, use of adjunct faculty, costs per student, and financial aid levels. Calcagno et al. analyzed enrollment and student data from the National Education

Longitudinal Study of 1988, which included postsecondary transcript information for students who enrolled in college by 2000. They also used statistics from the Integrated Postsecondary Education Data System, which provided enrollment data along with faculty and student profile information. Calcagno et al. reported institutions with more than 1,000 full-time enrolled students were at least 13% less likely to generate a successful outcome compared to colleges with an enrollment of 1,000 or fewer students. In addition to institutional size, the number of part-time faculty and minority student enrollment had negative implications on student success.

Urias and Wood (2014) examined the graduation rates of Black males at 2-year public community colleges. Explored in their research were several different predictors of postsecondary persistence, including institutional size and urbanization. The latter term alludes to the classification of 2-year institutions as rural, town, suburban, or urban based on their proximity to a city center.

The Integrated Postsecondary Education System (IPEDS) was the Data source for the Urias and Wood (2014) study, which provides institutional-level data on postsecondary institutions approved to award students federal financial aid (Urias & Wood, 2014). They focused on the 2008 degree or certificate completion rates of Black male students over a 3-year period. Public community colleges ($n = 646$) associated with this study were assigned to one of five categories based on their full-time enrollment: (a) very small [fewer than 500] (b) small [500-1,999]; (c) medium [2,000-4,999]; (d) large [5,000-9,999] and (e) very large [10,000 or more]. Several statistically significant differences were present in their study. Medium-sized 2-year institutions had higher average graduation rates for Black males when compared to large and very large

institutions. At the same time, small colleges generated higher graduation rates than medium colleges. Urias and Wood (2014) also reported that rural colleges and town colleges had better graduation rates for Black males than higher education institutions defined as suburban and city colleges. They noted that these findings contradicted the suggestions from other researchers (Waller & Tietjen-Smith, 2009) that higher graduation rates were linked to suburban and city colleges.

Koedel (2014) took a somewhat different approach by focusing on student outcomes data related to state-level differences in the institutional structure of public 4-year universities, in part because of their connection to public policy. Koedel used the term *fractionalization* to describe the practice by state legislators to fund multiple small universities or a handful of large postsecondary institutions. He concluded that more fractionalized higher education institutions linked to increased degree attainment at small public universities and lower degree completion rates at large public universities. These higher education structures also were associated with a shift from in-system to out-of-system university attendance. Koedel further acknowledged that he was unable to confirm whether large or small postsecondary institutions were more effective at generating human capital.

Purpose of the Study

The purpose of this study was to determine the extent to which institution size influences the completion rates within workforce certificate (i.e., non-degree) programs offered at Texas community college. Also addressed in this empirical investigation was the degree to which year-to-year changes might have occurred in completion rates of

non-degree credentials (i.e., Level I and Level II Certificates) at different sized institutions. Finally, trends across the academic years were analyzed.

Significance of the Study

Multiple researchers (e.g., Calcagno et al., 2008; Urias & Wood, 2014) have explored and documented the relationship between institutional attributes (e.g., student enrollment) and the completion of a college degree (e.g., Associate, Bachelor.). Very few researchers have addressed the relationship between institution size and workforce programs typically completed in less than two years. After reviewing the findings from this study, community college administrators may be prompted to reassess their retention practices to improve the completion rates for ethnic/racial student groups. Higher education leaders may be encouraged to explore the academic and student support services for workforce programs at peer institutions that have positive Level I Certificate or Level II Certificate completion data. Similarly, institutional leaders may consider improving their advising practices to match the activities of peer institutions with positive non-degree completion results.

Research Questions

In this study, the following research questions were addressed for the 2005-2006 through the 2014-2015 academic years: (a) What is the ethnic/racial diversity of Texas community college students who obtained a Level I Certificate as a function of institution size?; (b) What is the ethnic/racial diversity of Texas community college students who obtained a Level II Certificate as a function of institution size?; (c) What difference is present in the ethnic/racial diversity of Texas community college students who obtained a Level I certificate as a function of institution size for the 2005-2006 academic year, the

2010-2011 academic year, and the 2014-2015 academic year?; (d) What difference is present in the ethnic/racial diversity of Texas community college students who obtained a Level II certificate as a function of institution size for the 2005-2006 academic year, the 2010-2011 academic year, and the 2014-2015 academic year?; (e) What trend, if any, is present in the ethnic/racial diversity of students who obtained a Level I certificate in Texas community colleges as a function of institution size from the 2005-2006 through the 2014-2015 academic year?; and (f) What trend, if any, is present in the ethnic/racial diversity of students who obtained a Level II certificate in Texas community colleges as a function of institution size from the 2005-2006 through the 2014-2015 academic year?

Method

Research Design

The causal comparative design was appropriate for this non-experimental quantitative research study. In these instances, when archival data are used, the dependent and independent variables cannot be manipulated (Lodico et al., 2006). The completion rates (i.e., dependent variable) for different size Texas community colleges (i.e., independent variable) were reported prior to the initiation of this study. As such, neither the independent variable nor the dependent variables could be manipulated, nor controlled for in this ex post facto investigation.

Participants and Instrumentation

Participant data were obtained from the Texas Higher Education Coordinating Board Interactive Accountability System, which contains detailed information on Texas public universities, community colleges, and health related institutions. The state-level accountability web site also contains information specific to 4-year, non-public colleges

and 2-year career institutions. Participants whose data were analyzed in this research study were individuals enrolled in Texas community colleges from the 2005-2006 to 2014-2015 academic years—more specifically the students who obtained a Level I Certificate and/or a Level II Certificate credential. The public community colleges analyzed in this study were assigned to one of the following four categories based on their enrollment: Very Large, Large, Medium, and Small. According to the THECB (2016), 10 community college districts were assigned to the *Very Large* grouping, which included institutions with enrollments ranging from 20,000 to 60,000 students. The Large peer group includes Texas community colleges with enrollment between 7,300 to 14,000 students. The 23 community colleges in the Medium peer group had an average enrollment slightly more than 4,800 students in 2006 compared to an average enrollment of 1,960 students for the nine Small institutions during that same timeframe. The 2-year institutions within both peer groups were primarily located in small cities and medium-sized towns.

Results

An Analysis of Variance (ANOVA) procedure, which is best used to determine if differences exist between three or more groups, was used to establish whether a difference exists in Level I Certificate and Level II Certificate completion rates at Texas community colleges as a function of institution size. The dependent variable in this study was the certificate completion rates. Community college enrollment size was the independent variable investigated.

Prior to calculating any ANOVA procedures, the standardized skewness coefficients and the standardized kurtosis coefficients were calculated to determine

whether they are within range of normality (i.e. ± 3) (Onwuegbuzie & Daniel, 2002). A Levene's Test of Error Variance was analyzed to establish the degree of homogeneity of the data. The ANOVA procedure was justified regardless of whether its assumptions are met, as Field (2009) acknowledged the ANOVA process to be sufficiently robust to use as the statistical procedure.

Research Question 1

Based on completion data obtained from Texas community colleges, the percentage of Asian students who completed a Level I Certificate at a Very Large sized community college between the 2005-2006 academic year and 2014-2015 academic year was consistently around 5%. Completion rates for Asian students at Large, Medium, and Small sized community colleges during this 10-year period were consistently close to 1%. Level I Certificate completion rates for Black students attending Very Large community colleges in Texas slightly increased between the 2005-2006 academic year (i.e., 13.19%) and 2014-2015 academic year (i.e., 16.69%) whereas the completion rates for Large community colleges decreased from 13.11% to 10.19% during this 10-year period. Level I Certificate completion rates for Black students at Medium and Small sized community colleges was consistent between the 2005-2006 and 2014-2015 academic years. Completion rates for Hispanic students increased across all community colleges (i.e., Very Large, Large, Medium, and Small) between the 2005-2006 and 2014-2015 academic years. The greatest percentage of Hispanic students who obtained this credential during the final academic year of this study (i.e., 2014-2015) were associated with Large community colleges (37.80%).

The Level I Certificate completion rates for White students decreased by more than 9 percentage points over the 10-year period at Very Large, Medium, and Small sized community colleges in Texas. The largest percentage point decrease happened within Small community colleges, as certificate completion rates among White students dropped from 67.53% to 53.75%. With regard to Large community colleges, the Level I Certificate completion rates for White students decreased from 52.21% in the 2005-2006 academic year to 46.98% in the 2014-2015 academic year.

Research Question 2

Based on Level II Certificate completion data related to public community colleges in Texas, the percentage of Asian students compared to the remaining ethnic/racial groups (i.e., Hispanics, Blacks, and Whites) who completed this credential at Large, Medium, and Small 2-year institutions remained below 3.5% from the 2005-2006 to the 2014-2015 academic years. Level II Certificate completion rates at Very Large community colleges was consistently around 6% during this 10-year period. The percentage of Black students who completed a Level II Certificate at a Very Large community college from the 2005-2006 academic year to the 2014-2015 academic year remained relatively consistent at just below 20%. Level II Certificate completion rates for this same ethnic/racial group remained consistent around 10% from the 2005-2006 through the 2014-2015 academic years.

Certificate completion rates for Hispanic students enrolled at Large community colleges in Texas increased to more than 50% during the 10-year period. Level II Certificate completion rates among Hispanic students enrolled in Very Large, Medium, and Small sized community colleges during the 10-year period associated with this study

increased by an average of 7 percentage points. Based on the data retrieved from Texas community colleges, the percentage of White students who obtained a Level II Certificate between the 2005-2006 and the 2014-2015 academic years decreased across all four institution sizes. Despite a decrease of 8.47 percentage points during the 10-year period, White students still represented more than 50% of Level II Certificate completers at Medium-sized community colleges during the 2014-2015 academic year.

Research Question 3

Regarding the extent to which differences might be present in the Level I Certificate completion rates of Asian students as a function of institution size during the 2005-2006 academic year, an ANOVA was calculated and revealed a statistically significant difference, $F(3, 62) = 17.22, p < .001, \text{partial } \eta^2 = .46$. The effect size for this statistically significant difference was large (Cohen, 1988). Scheffe` post hoc procedures indicated statistically significant differences in the Level I Certificate completion rates of Asian students, as compared to other ethnic/racial groups, only between Very Large community colleges as compared to Large, Medium, and Small 2-year institutions.

Differences in Level I Certificate completion rates of Asian students in the 2010-2011 academic year as it relates to institutional size were determined to be statistically significant, $F(3, 63) = 12.66, p < .001, \text{partial } \eta^2 = .38$. The effect size for this statistically significant difference was large (Cohen, 1988). Similar to the 2005-2006 academic year, Scheffe` post hoc procedures only demonstrated significant differences in the Level I Certificate completion rates of Asian students during the 2010-2011 academic year between Very Large institutions and the other three institution sizes (i.e., Large, Medium, and Small community colleges).

Concerning the completion rates of Asian students as a function of institution size during the 2014-2015 academic year a statistically significant difference was revealed, $F(3, 64) = 11.21, p < .001$, partial $\eta^2 = .34$. A large effect size was associated with this statistically significant difference (Cohen, 1988). Scheffe` post hoc procedures also indicated statistically significant differences in the completion rates of Asian students enrolled in very large community colleges during the 2014-2015 school year as compared to the other institution sizes. Completion percentages for Asian students enrolled in Very Large community colleges was four times greater (4.8%) than the other three institution sizes analyzed in this study. Readers are directed to Table 4.1 for the descriptive statistics for the Level I Certificate completion rates of Asian students by Texas community college size.

Insert Table 4.1 about here

Regarding the extent to which differences might be present in the Level I Certificate completion rates of Black students at Very Large, Large, Medium, and Small community during the 2005-2006 academic year, the ANOVA was calculated and did not reveal a statistically significant difference, $F(3, 62) = 0.31, p = .82$. The completion rates for Black students at Very Large and Large community colleges during this academic year were similar at 13.19% and 13.11%, respectively. Level I Certificate completion rates at Medium and Small 2-year institutions were approximately 11%.

Similarly, an ANOVA was calculated to determine the extent to which a statistically significant difference might be present in the certificate completion rates of

Black community college students during the 2010-2011 academic year as a function of institutional size. The ANOVA did not reveal a statistically significant difference in the Level I Certificate completion rates, $F(3, 63) = 1.07, p = .37$. The Level I Certificate completion rates at Large, Medium, and Small community colleges were similar, whereas the completion rates at Very Large community colleges were 14.45%.

Concerning the 2014-2015 differences in the Level I Certificate completion rates of Black students as a function of institution size, a statistically significant difference was present, $F(3, 64) = 2.86, p = .04$, partial $\eta^2 = .12$. The effect size for this statistically significant difference was medium (Cohen, 1988). However, the Scheffe` post hoc procedures did not demonstrate statistically significant differences in the Level I Certificate completion rates of Blacks students between any institutional size analyzed in this study. Descriptive statistics for the Level I Certificate completion rates of Black students by Texas community college size are presented in Table 4.2.

Insert Table 4.2 about here

With regard to the Level I Certificate completion rates of Hispanic community college students, as a function of institution size, a statistically significant difference was not present for the 2005-2006 academic year, $F(3, 62) = 0.55, p = .65$. Level I Certificate completion rates at Very Large, Large, and Medium community colleges ranged from 26.80% to 30.80%. The certificate completion rates at Small community colleges during this academic year were 18.51%.

Regarding the extent to which differences might be evident in the Level I Certificate completion rates of Hispanic students for different sized community colleges during the 2010-2011 academic year, a statistically significant difference was not determined, $F(3, 63) = 0.38, p = .77$. Hispanic student Level I Certificate completion rates at Very Large and Large community colleges was similar, at 32.87% and 32.30%, respectively. Certificate completion rates at Medium community colleges for this academic year were similar at 28.74% compared to 25.32% at Small community colleges.

Concerning the Level I Certificate completion rates of Hispanic community college students in Texas, as a function of institution size, statistically significant differences were not present for the 2014-2015 academic year, $F(3, 64) = 0.23, p = .87$. Certificate completion rates for Hispanic students at Very Large and Large institutions were consistent at 37%, whereas the completions rates at Small and Medium community colleges ranged from 30.64% to 33.98%, respectively. Descriptive statistics related to these analyses are presented in Table 4.3.

Insert Table 4.3 about here

Regarding the extent to which differences might be present in the Level I Certificate completion rates of White students at Very Large, Large, Medium, and Small community during the 2005-2006 academic year, the parametric ANOVA resulted in a statistically significant difference, $F(3, 62) = 2.76, p = .05$, partial $\eta^2 = .12$. The effect size for this statistically significant difference was medium (Cohen, 1988). However, the Scheffe` post hoc procedures did not reveal a statistically significant difference in the

Level I Certificate completion rates of White students for this academic year as a function of institution size.

With regard to the Level I Certificate completion rates of White students, as it relates to institution size, a statistically significant difference for the 2010-2011 academic year was not present, $F(3, 63) = 2.48, p = .07$. The largest percentage of White students was reflected in Small community colleges (i.e., 59.05%) compared to 41.59% at Very Large 2-year institutions. Completion rates for White students at Large and Medium community colleges during the 2010-2011 academic year was consistently around 50%.

With regard to the Level I Certificate completion rates of White students, as a function of community college size, resulted in a statistically significant difference for the 2014-2015 academic year, $F(3, 64) = 3.64, p = .02$, partial $\eta^2 = .15$. The effect size for this statistically significant difference was large (Cohen, 1988). Scheffe` post hoc procedures did not yield statistically significant differences in the completion rates of White students enrolled in the four sizes of community colleges (i.e., Very Large, Large, Medium, and Small) during the 2014-2015 academic year. Descriptive statistics related to these analyses of Level I Certificate completion rates are presented in Table 4.4.

Insert Table 4.4 about here

Research Question 4

Regarding the extent to which differences might be present in the Level II Certificate completion rates of Asian students as a function of institution size during the 2005-2006 academic year, the parametric ANOVA was calculated and revealed a

statistically significant difference, $F(3, 45) = 5.29, p = .003, \text{partial } \eta^2 = .26$. The effect size for this statistically significant difference was large (Cohen, 1988). Scheffe` post hoc procedures only yielded statistically significant differences in the completion rates between Very Large and Medium-sized community colleges during the 2005-2006 academic year. Asian students represented nearly 6% of Level II Certificate completers at Very Large community colleges compared to less than 1% of certificate completers at Medium-sized community colleges.

Concerning the Level II Certificate completion rates of Asian students, as it relates to institution size, a statistically significant difference for the 2010-2011 academic year was revealed, $F(3, 49) = 5.11, p = .004, \text{partial } \eta^2 = .24$. A large effect size was associated with this statistically significant difference (Cohen, 1988). Scheffe` post hoc procedures again resulted in statistically significant differences only for the completion rates between Very Large and Medium-sized community colleges during this period. The completion rate among Asian students, as compared to other ethnic/racial groups, was 6.2% at Very Large community colleges compared to 0.5% at Medium sized institutions.

Regarding the Level II Certificate completion rates of Asian community college students, as it relates to institution size, a statistically significant difference for the 2014-2015 academic year was present, $F(3, 54) = 3.76, p = .02, \text{partial } \eta^2 = .17$. A large effect size also was associated with this statistically significant difference (Cohen, 1988). Scheffe` post hoc procedures only indicated statistically significant differences in the completion rates of Asian students enrolled in Very Large institutions compared to Medium-sized community colleges during this academic year. Descriptive statistics

related to these analyses of Level II Certificate completion rates among Asian students are presented in Table 4.5.

Insert Table 4.5 about here

Concerning differences in the Level II Certificate completion rates of Black community college students, as a function of institution size, a statistically significant difference was not present for the 2005-2006 academic year, $F(3, 45) = 1.18, p = .33$. The Level II Certificate completion rates for Black students at Very Large community colleges was 19.25%. Completion rates for this ethnic/racial group at Large, Medium, and Small community colleges during the 2005-2006 academic year was consistently around 10%.

Regarding the extent to which differences might be present in the Level II Certificate completion rates of Black students at different sized 2-year institutions during the 2010-2011 academic year, statistically significant difference was revealed, $F(3, 49) = 3.03, p = .04$, partial $\eta^2 = .16$. A large effect size was associated with this statistically significant difference (Cohen, 1988). However, the Scheffe' post hoc procedures did not reveal a statistically significant difference in the Level II Certificate completion rates of this ethnic/racial group as it relates to this analysis.

Regarding the extent to which differences might be reflected in the Level II Certificate completion rates of Black students at Very Large, Large, Medium, and Small sized institutions during the 2014-2015 academic year, a statistically significant difference was present, $F(3, 54) = 2.97, p = .04$, partial $\eta^2 = .14$. The effect size for this

statistically significant difference was large (Cohen, 1988). Nevertheless, the Scheffe` post hoc procedures did not yield a statistically significant difference in the Level II Certificate completion rates of Black community college students in Texas, as a function of institution size, during this academic year. Readers are directed to Table 4.6 for the descriptive statistics for the Level II Certificate completion rates of Black students by Texas community college size.

Insert Table 4.6 about here

To determine the extent to which differences might be present in the Level II Certificate completion rates of Hispanic students as a function of institution size during the 2005-2006 academic year, an ANOVA was calculated. However a statistically significant difference was not revealed, $F(3, 45) = 0.42, p = .74$. Hispanic students' completion rates at Small community colleges (i.e., 14.69%) was less than one half of their Level II Certificate completion rates at Large community colleges. The completion rates for Hispanic students at Very Large and Medium community colleges during this academic year were approximately 25%.

Concerning the 2010-2011 academic years, a statistically significant difference in Level II Certificate completion rates of Hispanic students was not revealed. $F(3, 49) = 0.66, p = .58$. Hispanic students represented 41.66% of Level II Certificate completers at Large institutions compared to only 22.60% at Small community colleges. The completion rates for this ethnic/racial group was similar within the other two institution sizes (i.e., Very Large and Medium).

Regarding the extent to which differences might be reflected in the Level II Certificate completion rates of this ethnic/racial group as a function of institution size during the 2014-2015 academic year, a statistically significant difference was not determined, $F(3, 54) = 1.43, p = .24$. Completion rates for White students at Large community colleges in Texas was more than 50%, whereas the completion rates at the other three institution sizes ranged between 21.51% and 30.00%. Descriptive statistics for the Level II Certificate completion rates of Hispanic students by Texas community college size are presented in Table 4.7.

Insert Table 4.7 about here

Concerning the Level II Certificate completion rates of White students by institution size for the 2005-2006 academic year a statistically significant difference was not present, $F(3, 45) = 2.34, p = .09$. As it relates to the extent to which differences might be present in the Level II Certificate completion rates of White community college students by institution size during the 2010-2011 academic year, the ANOVA resulted in a statistically significant difference, $F(3, 49) = 2.81, p = .05$, partial $\eta^2 = .15$. The effect size for this statistically significant difference was large (Cohen, 1988). The Scheffe' post hoc procedures did not represent a statistically significant difference in the Level II Certificate completion rates of White students for this academic year as a function of institution size.

Regarding the extent to which differences might be present in the Level II Certificate completion rates of White community college students, as a function of

institution size, during the 2014-2015 academic year a statistically significant difference was revealed, $F(3, 54) = 3.39, p = .02, \text{partial } \eta^2 = .16$. A large effect size was associated with this statistically significant difference (Cohen, 1988). Scheffe` post hoc procedures did not result in statistically significant differences in certificate completion rates of White students for the four institution sizes analyzed in this study. Descriptive statistics for the Level II Certificate completion rates of White students by Texas community college size are presented in Table 4.8.

Insert Table 4.8 about here

Research Question 5

As it relates to Very Large community colleges in Texas, two ethnic/racial groups (i.e., Black and Hispanic students) experienced steady growth in Level I Certificate completion rates from the 2005-2006 academic year to the 2014-2015 academic year. White students enrolled in Very Large Texas community colleges gradually had a smaller percentage share of the Level I Certificate completion data by the final academic year of this study (i.e., 2014-2015). Level I Certificate completion trends for Hispanic and White students also would be evident in Large, Medium, and Small community colleges during the 10 academic years associated with this study. Completion rates for Black students would remain consistent or decrease over the time of this study for the three remaining institution sizes related to this analysis (i.e., Large, Medium, and Small).

Research Question 6

Regarding ethnicity/racial based Level II Certificate completion rates as a function of institution size, Hispanic students experienced increases whereas White students reflected decreases during the 10-year period related to this study (i.e., 2005-2006 to 2014-2015 academic years). However, White community college students in Texas still represented a majority of the Level II Certificate completers at Medium and Small institutions by the final year associated with this study. The completion trends for Asian students, and in some capacities Black students, remained consistent over the 10 years.

Discussion

The purpose of this investigation was to determine the extent to which differences were present in the Level I Certificate and Level II certificate completion rates for the Asian, Black, Hispanic, and White students enrolled in different sized (i.e., Very Large, Large, Medium, and Small) Texas community colleges. An ANOVA procedure yielded statistically significant results for each ethnic/racial group for at least one of the two workforce certificate credentials analyzed in this study. Comparisons were made for the 2005-2006, the 2010-2011, and the 2014-2015 academic years.

Summary of Results for Level I Certificate Completion Rates

Based on the state-level community college completion data from the 2005-2006 academic year to the 2014-2015 academic year, the percentage of Asian students in Texas who obtained a Level I Certificate at a Very Large community college averaged about 5%, whereas the completion percentages for this same ethnic/racial group at all other community colleges in Texas remained around 1%. The Scheffe` post hoc procedures

revealed a statistically significant difference in the completion rates of Asian students enrolled in very large institutions as compared to the other three institution sizes (i.e., large, medium, and small). During this 10-year period, Level I Certificate completion rates for Black community college students yielded a 3 percentage point increase and decrease at Very Large and Large community colleges, respectively.

Level I Certificate completion rates for Hispanic students increased across all four 2-year institution sizes in Texas between the 2005-2006 and 2014-2015 academic years. The highest percentage of Hispanic students who obtained this certificate during the 2014-2015 academic year were associated with Large community colleges in Texas. Conversely, the certificate completion rates of White students decreased by at least five percentage points over the 10-year period at all four institution sizes (i.e., Very Large, Large, Medium, and Small) analyzed in this study.

Summary of Results for Level II Certificate Completion Rates

An analysis of Level II Certificate completion data of Asian students enrolled in a Texas community college from the 2005-2006 academic year to the 2014-2015 academic year confirmed that the completion rates were not greater than 6% over this 10-year period. Scheffe` post hoc procedures related to this ethnic/racial group yielded a statistically significant difference in the Level II Certificate completion rates at Very Large institutions as compared to Medium community colleges in Texas. The percentage of Black students who completed a Level II Certificate at Very Large community colleges during this 10-year period was almost double the completion rates for this same ethnic/racial group at Large, Medium, and Small 2-year institutions.

Level II Certificate completion rates of Hispanic community college students enrolled in Large institutions exceeded 50% from the 2005-2006 to the 2014-2015 academic years. This ethnic/racial group yielded increases of more than 5 percentage points at the remaining institution sizes (i.e., Very Large, Medium, and Small) during the 10-year period related to this study. Meanwhile, the Level II Certificate completion rates for White students enrolled in all four institution sizes related to this study (i.e., Very Large, Large, Medium, and Small community colleges in Texas) decreased between the 2005-2006 academic year and the 2014-2015 academic year. However, White students still represented more than half of Level II Certificate completers at Medium community colleges during the final academic year associated with this study.

Connection to the Existing Literature

Most of the academic research presented earlier in this report did not have a strong connection to the community college competition findings associate with this quantitative study. Koedel (2014), Calcagno et al. (2008), and Kotamraju and Blackman (2011) focused their research on the impact of institutional characteristics on student completion. Their analysis would take into account the structure and/or enrollment size of the public 4-year or 2-year colleges and universities, but they did not detail ethnicity-based completion trends related to the aforementioned institutional characteristics. Similarly, Horyna and Bonds-Raacke (2012) completed a qualitative research study in which the motivation factors of high school students who sought to attend and complete college were examined.

However, the Level I Certificate and Level II Certificate completion trends reported in this study do parallel the completion data related to MSAA credentials

presented by Burillo (2012). Based on data reported to the THECB, Hispanic community college students in Texas yielded the most substantial increases in completion of a non-degree workforce credential (i.e., MSAA, Level I Certificate, or Level II Certificate) for both studies, as compared to the other three ethnic/racial groups. They established five student enrollment categories (e.g., large, medium) for the 646 public community colleges providing 2008 data for this study. Urias and Wood (2014) reported that small 2-year institutions had the highest graduation rates for Black males when compared to medium, large, and very large community colleges. Their findings are not consistent with the results generated by other researchers (Waller & Tietjen-Smith, 2009) as well as the outcomes of this study. According to the data presented by the THECB, Black students at very large institutions represented a greater overall percentage of certificate completers compared to large, medium, and small community colleges in Texas. Level II Certificate completion rates were almost double at very large institutions compared to the other ethnic/racial groups.

Implications for Policy and Practice

The greater certificate completion rates among Asian community college students at very large institutions should be assumed given that they represented a larger percentage of the overall student body population within this enrollment category of community colleges (Texas Higher Education Coordinating Board, 2016). However, the completion rates among Black students at very large community colleges exceeded their participation rates, as compared to other ethnic/racial groups, within this same enrollment category. Therefore, community college leaders at Large, Medium, and Small 2-year institutions in Texas can find value in analyzing the programming at institutions such as

Alamo Community College or Dallas Community College where the increasing participation and completion among minority students is a priority. Community college leaders within these institutions also could assess, and possibly adopt, the resources and support provide by community organizations and local employers (e.g., additional clinical spots for minority students) to see if these endeavors had positive implications on the ethnicity/racial completion rates.

The increases in Level I Certificate and Level II Certificate completion rates for Hispanic students at all institution sizes (i.e., Very Large, Large, Medium, and Small) parallels the statewide population and community college participation growth among this racial/ethnic group during the 21st century (Texas Higher Education Coordinating Board, 2016). Similar decreases were reported among White community college students in Texas across multiple institution sizes. Therefore, existing policy does not appear to be creating any unexpected barriers to completion of a workforce credential for both of these ethnic/racial groups.

Community college leaders also might use the ethnicity- and institution-based data from this quantitative study along with comparable completion data related to Associate degrees to understand when Asian, Black, Hispanic, and White students are discontinuing their program-specific studies. These findings may be used to prepare and deliver interventions for this racial/ethnic group. For instance, community college administrators can lobby for policies or grant opportunities that incentivize postsecondary institutions to dedicate more time and resources to address any completion gaps between a non-degree workforce credential and a 2-year degree. This investigation encompassed completion data from the 2005-2006 academic year to the 2014-2015 academic year that

included a small sample size (i.e., fewer than five years) related to the launching of the Student Success Points model and House Bill 5 initiative (Texas Association of Community Colleges, 2014, Texas Association of Workforce Boards, 2014). Therefore, an analysis of the 10 academic years following the launching of these statewide initiatives potentially can provide better insight into the impact of these policies on Level I Certificate and Level II Certificate completion rates of different ethnic/racial groups as a function of institution size.

Recommendations for Future Research

For this multiyear study, differences in racial/ethnicity-based completion rates of Level I Certificates and Level II Certificates among Texas community college students as a function of institution size were examined. As previously noted, it is recommended to extend the existing quantitative study for another five to 10 years to evaluate better the effectiveness of House Bill 5 and the Student Success Point model. Researchers also should consider mixed method analysis that adds qualitative data to the archival completion results to explain the reasons why students participated in a workforce program and what contributed to their success (e.g., peer mentoring program, block scheduling of classes in the evening). These data can come from community college students participating in these workforce programs as well as administrators facilitating the support services for students.

Educational researchers also might analyze racial/ethnicity-based completion results for different Level I Certificate and Level II Certificate programs (e.g., welding, medical assistant) at different sized institutions to determine which specific disciplines and community colleges are having greater success with Asian, Black, Hispanic, and/or

White students. Upon reviewing these findings, scholars may elect to complete additional qualitative interviews of programming personnel related to these workforce disciplines to understand the attributes related to stronger completion rates. Researchers also may seek to understand the recruitment and advising practices of different sized community college as it relates to these workforce programs. These findings can provide scholars better insight into how students are educated on the workforce degree and certificate program offerings at their respective institution. The outcomes may have implications on the THECB results detailed in this study.

Conclusion

The purpose of this study was to determine the extent to which differences were present in racial/ethnicity-based Level I Certificate and Level II Certificate completion rates at Texas community colleges as a function of institution size. Archival data from the 2005-2006 through the 2014-2015 academic years was obtained from the THECB Accountability web site for this quantitative study. The Level I and Level II Certificate completion rates for Asian and Black students at Very Large institutions exceeded the completion rates for these workforce credentials at Large, Medium, and Small community colleges in Texas over the 10-year period. Meanwhile, certificate completion rates for Hispanic community college students in Texas, as compared to the other ethnic/racial groups, steadily increased at all institution sizes from the 2005-2006 academic year through the 2014-2015 academic year whereas the Level I Certificate and Level II Certificate completion rates for White students decreased at all institution sizes over this 10-year period.

References

- Burillo, M. (2012). *Marketable skills achievement awards certificate completer trends by ethnicity and gender at Texas community colleges* (Doctoral Dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3531776)
- Calcagno, J. C., Bailey, T., Jenkins, D., Kienzl, G., & Leinbach, T. (2008). Community college student success: What institutional characteristics make a difference. *Economics of Education Review, 27*, 632-645.
- Cohen, A. M. (2003). College size as the major discriminator. *New Directions for Community Colleges, 2003*(122), 39-46.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Thousand Oaks, CA: Sage.
- Horyna, B., & Bonds-Raacke, J. M. (2012). Differences in students' motivation to attend college: Large versus small high schools. *Education, 132*(4), 708-724.
- Koedel, C. (2014). Higher education structure and education outcomes: Evidence from the USA. *Education Economics, 22*, 237-256.
doi:10.1080/09645292.2011.616714
- Kotamraju, P., & Blackman, O. (2011). Meeting the 2020 American Graduation Initiative (AGI) goal of increasing postsecondary graduation rates and completions: A macro perspective of community college student educational attainment. *Community College Journal of Research and Practice, 35*, 202-219.
doi:0.1080/10668926.2010.526045

- Lodico, M., Spaulding, D., & Voegtle, K. (2006). *Methods in educational research: From theory to practice*. San Francisco, CA: Jossey-Bass.
- Lohman, E. M., & Dingerson, M. R. (2005). The effectiveness of occupational-technical certificate programs: Assessing student career goals. *Community College Journal of Research and Practice*, 29, 339-355. doi:10.1080/10668920590911850
- Onwuegbuzie, A. J., & Daniel, L. G. (2002). Uses and misuses of the correlation coefficient. *Research in the Schools*, 9(1), 73-90.
- Texas Association of Community Colleges. (2014). *Student success points*. Retrieved from <http://www.tacc.org/pages/data-and-info/student-success-points>
- Texas Association of Workforce Boards. (2014). *The workforce in Texas: Aligning education to meet the needs of Texas employers*. Retrieved from <http://tawb.org/tawbdocs/TAWB%20white%20paper%202014-3.pdf>
- Texas Higher Education Coordinating Board. (2015). *60x30TX: Texas higher education strategic plan: 2015-2030*. Retrieved from <http://www.thecb.state.tx.us/reports/PDF/6862.PDF>
- Texas Higher Education Coordinating Board. (2012). *Glossary of terms*. Educational Data Center. Retrieved from <http://www.thecb.state.tx.us/Reports/PDF/1316.PDF>
- Texas Higher Education Coordinating Board. (2016). *Community colleges performance - participation*. Retrieved from http://www.txhighereddata.org/Interactive/Accountability/CC_Participation.cfm
- The Texas Economy. (2016). *Comptroller's weekly economic outlook*. Retrieved from <http://thetexasconomy.org/economic-outlook/>

- Urias, M. V., & Wood, J. L. (2014). Black male graduation rates in community colleges: Do institutional characteristics make a difference. *Community College Journal of Research and Practice*, 38, 1112-1124. doi:10.1080/10668926.2012.745101
- Waller, L. R., & Tietjen-Smith, T. (2009). *A national study of community college retention rates segmented by institutional degree of urbanization*. Retrieved from <http://knowledgecenter.completionbydesign.org/sites/default/files/294%20Waller%202009.pdf>
- Watkins, M. (2015). *A Texas-sized goal: 60 percent of adults with degree by 2030: State striving to boost attainment in 25-34 demographic*. Retrieved from <http://npaper-wehaa.com/ccweek/2015/08/17/#?article=2586427>

Table 4.1

Descriptive Statistics for the Percentage of Asian Students Who Obtained a Level I Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years

Academic Year Institution Size	<i>n</i> of Colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Very Large	27	5.01	3.64
Large	9	1.00	1.18
Medium	21	0.69	0.78
Small	9	0.20	0.31
2010-2011			
Very Large	28	5.12	4.31
Large	9	1.03	0.56
Medium	21	0.50	0.50
Small	9	1.05	1.33
2014-2015			
Very Large	29	4.82	4.02
Large	9	1.14	1.37
Medium	21	0.97	1.11
Small	9	0.43	0.63

Table 4.2

Descriptive Statistics for the Percentage of Black Students Who Obtained a Level I Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years

Academic Year Institution Size	<i>n</i> colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Very Large	27	13.19	9.22
Large	9	13.11	11.26
Medium	21	10.93	8.15
Small	9	11.26	7.71
2010-2011			
Very Large	28	14.45	8.65
Large	9	9.13	8.74
Medium	21	11.64	8.60
Small	9	11.03	8.94
2014-2015			
Very Large	29	16.69	9.28
Large	9	10.19	8.97
Medium	21	11.10	8.62
Small	9	9.34	7.04

Table 4.3

Descriptive Statistics for the Percentage of Hispanic Students Who Obtained a Level I Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years

Academic Year/Institution Size	<i>n</i> of Colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Very Large	27	29.04	20.46
Large	9	30.80	30.47
Medium	21	26.80	26.79
Small	9	18.51	10.97
2010-2011			
Very Large	28	32.87	18.37
Large	9	32.30	27.23
Medium	21	28.74	23.38
Small	9	25.32	13.54
2014-2015			
Very Large	29	36.60	19.84
Large	9	37.80	29.11
Medium	21	33.98	24.02
Small	9	30.64	13.04

Table 4.4

Descriptive Statistics for the Percentages of White Students Who Obtained a Level I Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years

Academic Year Institution Size	<i>n</i> Colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Very Large	27	47.14	18.73
Large	9	52.21	25.24
Medium	21	59.01	23.18
Small	9	67.53	10.80
2010-2011			
Very Large	28	41.59	16.76
Large	9	50.69	23.03
Medium	21	51.40	19.94
Small	9	59.05	15.41
2014-2015			
Very Large	29	35.78	16.25
Large	9	46.98	22.67
Medium	21	49.37	20.46
Small	9	53.75	8.84

Table 4.5

Descriptive Statistics for the Percentages of Asian Students Who Obtained a Level II Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years

Academic Year/Institution Size	<i>n</i> of Colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Very Large	19	5.85	6.42
Large	7	0.49	1.30
Medium	18	0.76	1.52
Small	5	2.00	3.08
2010-2011			
Very Large	22	6.17	7.22
Large	6	1.71	1.78
Medium	20	0.47	0.92
Small	5	2.42	2.37
2014-2015			
Very Large	27	6.10	7.20
Large	6	1.65	1.54
Medium	20	1.29	2.68
Small	5	1.43	3.19

Table 4.6

Descriptive Statistics for the Percentages of Black Students Who Obtained a Level II Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years

Academic Year/Institution Size	<i>n</i> of Colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Very Large	19	19.25	19.99
Large	7	10.17	16.06
Medium	18	10.57	9.66
Small	5	9.30	20.80
2010-2011			
Very Large	22	18.61	18.80
Large	6	6.04	10.58
Medium	20	6.86	7.11
Small	5	8.51	11.81
2014-2015			
Very Large	27	19.41	15.87
Large	6	7.19	7.23
Medium	20	9.75	8.24
Small	5	11.48	13.82

Table 4.7

Descriptive Statistics for the Percentages of Hispanic Students Who Obtained a Level II Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years

Academic Year/Institution Size	<i>n</i> of Colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Very Large	19	25.59	26.36
Large	7	32.84	35.03
Medium	18	23.96	29.44
Small	5	14.69	9.21
2010-2011			
Very Large	22	30.17	20.04
Large	6	41.66	29.55
Medium	20	27.45	29.68
Small	5	22.60	10.58
2014-2015			
Very Large	27	32.96	22.28
Large	6	50.74	27.97
Medium	20	30.40	29.14
Small	5	21.51	14.22

Table 4.8

Descriptive Statistics for the Percentages of White Students Who Obtained a Level II Certificate at Texas Community Colleges by Institution Size for the 2005-2006, 2010-2011, and 2014-2015 Academic Years

Academic Year/Institution Size	<i>n</i> of Colleges	<i>M</i> %	<i>SD</i> %
2005-2006			
Very Large	19	44.58	25.51
Large	7	55.57	33.46
Medium	18	63.37	26.39
Small	5	74.00	23.79
2010-2011			
Very Large	22	41.90	22.35
Large	6	44.02	22.40
Medium	20	60.03	26.61
Small	5	64.55	12.78
2014-2015			
Very Large	27	36.14	22.11
Large	6	37.25	21.72
Medium	20	54.90	27.84
Small	5	62.36	20.77

CHAPTER V

Discussion, Implications, and Recommendations

At the time of this research study, numerous reports were in circulation with the common theme that the Texas economy was thriving (The Texas Economy, 2016; Texas Workforce Commission, 2016). At the same time, employers were struggling to find candidates with the postsecondary credentials to fill these positions (Watkins, 2015). Texas Higher Education Coordinating Board (THECB) administrators attempted to address this labor market gap in supply and demand through their 2015-2030 strategic plan, *60x30TX* (Watkins, 2015). The primary goal within this plan was to have 60% of Texans between 25 and 34 years old obtain a postsecondary degree or certificate by 2030. This goal translated to awarding a certificate, associate, bachelor, or master degree to at least 550,000 students within the aforementioned age range by 2030. Texas community colleges have offered a viable solution to this goal in the form of Level I Certificate and Level II Certificate programs that typically can be completed within a year by a full-time community college student. The purpose of this journal-ready dissertation was to determine the extent to which ethnicity/race-based and gender-based differences were present in Level I Certificate and Level II Certificate completion rates at Texas community college from the 2005-2006 academic year to the 2014-2015 academic year.

Summary of Results

The changes in the Level I Certificate completion rates for Hispanic and White students over the 10-year period related to this study were consistent with the overall ethnic/racial population shifts within Texas for this same timeframe. According to the U.S. Census Bureau (2016), the estimated Texas population for White residents as of

July, 2015 (i.e., 43.00%) was only 0.20% below the Level I Certificate completion rate for this ethnic/racial group during the 2014-2015 academic year. The estimated state population for Hispanic residents during this time period was 38.8%, which was slightly greater than the Level I Certificate completion rate (i.e., 35.79%) for the 2014-2015 academic year. The shifts in Level II Certificate completion rates among Hispanic and White community college students during the 10-year period were comparable to the changes in the Level I Certificate completion rates

Level I Certificate completion rates for male community college students in Texas increased by more than 7 percentage points during the 10-year period associated with this investigation. Male students were the largest share (56.75%) of Level I Certificate completers during the 2014-2015 academic year. An analysis of Level I and Level II Certificate completion data of Asian students enrolled in a Texas community college from the 2005-2006 academic year to the 2014-2015 academic year confirmed a statistically significant difference in the completion rates at Very Large institutions as compared to Medium community colleges in Texas.

Connection to the Existing Literature

The certificate completion trends presented in the first and third studies are consistent with the THECB completion data related to Marketable Skills Achievement Awards (MSAA) credentials reported by Burillo (2012). To summarize, Hispanic community college students associated with all three studies yielded the greatest increases in completion of a non-degree workforce credential. According to the U.S. Census Bureau (2016), these increases were aligned with the estimated state population for Hispanic residents during this time period. Similarly, the decreases in the completion

rates of non-degree credentials among White students for these studies were consistent with the changes in the estimated Texas population for this ethnic/racial group.

Ironically, Spangler and Slate (2015) reported that Asian students had the highest overall completion rates at 48.89% for the 10-year period analyzed in this study (2000 through the 2010 academic years) while representing less than 5% of Level I Certificate and Level II Certificate completers for this research study.

The gender-specific Marketable Skills Achievement Awards (MSAA) completion data for Texas community colleges presented by Burillo (2012) reflected similar findings to the Level I Certificate and Level II Certificate data from this investigation, as male students surpassed or minimized the difference in completion rates between their female counterparts. The increases in non-degree credential completion rates among male students is unexpected given that female community college students have outpaced their male counterparts in terms of 2-year degree attainment rates during the time period associated with this study (Texas Higher Education Coordinating Board, 2016).

According to Juskiewicz (2016), the 6-year completion rate for men enrolled in a Texas community college was 35.7% compared to 41.5% for women in Fall 2009. Similarly, women accounted for an additional 11,796 completers in 2015 when compared to men (THECB, 2016).

Implications for Policy and Practice

Community college leaders can use the ethnicity-, gender-, and institution-based data from this quantitative study along with comparable completion data related to Associate degrees to understand when Asian, Black, Hispanic, and White as well as male and female students are discontinuing their program-specific studies. These findings potentially can lead to better interventions for these groups. For instance, community

college administrators can lobby for policies or grant opportunities that incentivize postsecondary institutions to dedicate more time and resources to address any completion gaps between a non-degree workforce credential and a 2-year degree. Given that the primary difference between a Level II Certificate and an Associate of Applied Science degree is the presence of transferrable academic courses in the 2-year credential, community college leaders should ensure course scheduling is structured to where these academic courses are offered at the appropriate times and locations to where these classes can easily be completed in conjunction with the workforce courses related to the certificate credential. They also need to evaluate and improve the student and academic support services to ensure the decrease in 2-year degree completion rates among male students is not related to poor advisement or performance in the classroom. While the previous recommendations are suggested as a target for male community college students in Texas, equal efforts should be focused on female students given that their Level I Certificate completion rates were less than state-level population data for female residents (U.S. Census Bureau, 2016). Community college leaders should examine their recruitment practices related to workforce credentials to determine if these credentials are not being promoted equally and effectively to both populations.

The completion rates of Black students at very large community colleges exceeded their participation rates, as compared to other ethnic/racial groups, within this same enrollment category. Therefore, community college leaders at Large, Medium, and Small 2-year institutions in Texas may find value in analyzing the programming at institutions such as Alamo Community College or Dallas Community College where increasing participation and completion among minority students is the goal. Community

college leaders within these institutions also could assess, and possibly adopt, the resources (e.g., additional clinical spots for minority students) and support provide by community organizations and local employers to see if these endeavors had positive implications on the ethnicity/racial completion rates.

This study included data related to the initial years following the implementation of the statewide Student Success Points model, which awards colleges and universities for meeting various completion measures, and House Bill 5, a statewide initiative that provides high school students greater opportunities to complete college coursework related to a workforce program (Texas Association of Community Colleges, 2014, Texas Association of Workforce Boards, 2014). Given that this investigation encompassed a small sample size (i.e., fewer than five years) related to these statewide initiatives, an analysis of the 10 academic years following the launching of these policies potentially can provide better insight into their impact on gender-based and ethnicity/racial-based Level I Certificate and Level II Certificate completion rates.

Recommendations for Future Research

Only quantitative data were analyzed in this journal-ready dissertation. Scholars could explore a mixed method research study, as they can add qualitative data to the archival THECB completion results to provide better clarity of the reasons for what students participated in a workforce program and what led to their success. These data can come from college administrators and faculty or students participating in these workforce programs. Educational researchers also can analyze completion results for different Level I Certificate and Level II Certificate programs (e.g., welding, medical assistant) at different sized institutions to determine which specific disciplines and

community colleges are having greater success with students. Upon reviewing these findings, scholars may elect to complete additional qualitative interviews of programming personnel related to these workforce disciplines to understand better the attributes related to stronger completion rates. Researchers also can explore the recruitment and advising practices of different sized community college as it relates to these workforce programs. These findings can provide scholars better insight into how students are educated on the workforce degree and certificate program offerings at their respective institution. The outcomes may have implications on the THECB results detailed in this study.

Conclusion

The purpose of this study was to determine the extent to which differences were present in racial/ethnicity- and gender-based Level I Certificate and Level II Certificate completion rates at Texas community colleges. Archival data from the 2005-2006 through the 2014-2015 academic years were obtained from the THECB Accountability website for this quantitative study. Certificate completion rates for Hispanic community college students in Texas, as compared to the other ethnic/racial groups as well as across multiple institution sizes, gradually increased from the 2005-2006 academic year through the 2014-2015 academic year. Conversely, the Level I Certificate and Level II Certificate completion rates for White students decreased during this 10-year period. The certificate completion rates for Asian and Black students was higher at very large institutions as compared to other institution sizes. Additionally, the completion rates for Asian and Black students, as compared to other ethnic/racial groups, remained consistent in Texas over the 10-year period. The certificate completion rates for male community

college students in Texas, as compared to female students, steadily increased over the 10 year period. However, female students still represented a majority of the Level II Certificate completers by the final year of this investigation.

REFERENCES

- Bahr, P. R. (2014). *The labor market return in earnings to community college credits and credentials in California*. Ann Arbor, MI: Center for the Study of Higher and Postsecondary Education. Retrieved from http://www.soe.umich.edu/people/profile/peter_riley_bahr/
- Barnes, W., & Slate, J. R. (2014). College-readiness rates in Texas: A statewide, multiyear study of ethnic differences. *Education and Urban Society, 46*(1), 59-87. doi:10.1177/0013124511423775.
- Burillo, M. (2012). *Marketable skills achievement awards certificate completer trends by ethnicity and gender at Texas community colleges* (Doctoral Dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3531776)
- Calcagno, J. C., Bailey, T., Jenkins, D., Kienzl, G., & Leinbach, T. (2008). Community college student success: What institutional characteristics make a difference. *Economics of Education Review, 27*, 632-645.
- Callan, P. (1997). Stewards of opportunity: America's public community colleges. *Daedalus, 126*, 95-112.
- Cohen, A. M. (2003). College size as the major discriminator. *New Directions for Community Colleges, 2003*(122), 39-46.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.

- Crisp, G., & Delgado, C. (2013). The impact of developmental education on community college persistence and vertical transfer. *Community College Review, 42*(2), 99-117. doi:10.1177/0091552113516488
- Derby, D. C. (2007). Predicting degree completion: Examining the interaction between orientation course participation and ethnic background. *Community College Journal of Research and Practice, 31*, 883-894. doi:10.1080/10668920600859350
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Thousand Oaks, CA: Sage.
- Gantt, A. J. (2010). Graduation rates of students in technical programs at an urban community college. *Community College Journal of Research and Practice, 34*, 227-239. doi:10.1080/10668920903504992
- Horyna, B., & Bonds-Raacke, J. M. (2012). Differences in students' motivation to attend college: Large versus small high schools. *Education, 132*(4), 708-724.
- Ignash, J. (1997). *Results of an investigation of state policies for the A.A.S. Degree*. Illinois State Board of Higher Education. Retrieved from <http://eric.ed.gov/?id=ED405051>
- Jones, W. (2010). The impact of social integration on subsequent institutional commitment conditional on gender. *Research in Higher Education, 51*, 687-700. doi:10.1007/s11162-010-9172-5
- Juszkiewicz, J. (2016). *Trends in community college enrollment and completion data*. Retrieved from http://www.aacc.nche.edu/AboutCC/Trends/Pages/completion_report.aspx

- Koedel, C. (2014). Higher education structure and education outcomes: Evidence from the USA. *Education Economics*, 22, 237-256.
doi:10.1080/09645292.2011.616714
- Kotamraju, P., & Blackman, O. (2011). Meeting the 2020 American Graduation Initiative (AGI) goal of increasing postsecondary graduation rates and completions: A macro perspective of community college student educational attainment. *Community College Journal of Research and Practice*, 35, 202-219.
doi:0.1080/10668926.2010.526045
- Lodico, M., Spaulding, D., & Voegtle, K. (2006). *Methods in educational research: From theory to practice*. San Francisco, CA: Jossey-Bass.
- Lohman, E. M., & Dingerson, M. R. (2005). The effectiveness of occupational-technical certificate programs: Assessing student career goals. *Community College Journal of Research and Practice*, 29, 339-355. doi:10.1080/10668920590911850
- Meeuwisse, M., Severiens, S. E., & Born, M. P. (2010). Reasons for withdrawal from higher vocational education. A comparison of ethnic minority and majority non-completers. *Studies in Higher Education*, 35(1), 93-111.
doi:10.1080/03075070902906780
- National Center for Education Statistics. (2016, May). *Undergraduate degree fields*. Retrieved from: http://nces.ed.gov/programs/coe/indicator_cta.asp
- Onwuegbuzie, A. J., & Daniel, L. G. (2002). Uses and misuses of the correlation coefficient. *Research in the Schools*, 9(1), 73-90.

- Opp, R. D. (2002). Enhancing program completion rates among two-year college students of color. *Community College Journal of Research and Practice*, 26, 147-163. doi:10.1080/106689202753385483
- Parnell, D. (1985). *The neglected majority*. Washington, DC: The Community College Review Press.
- Perrakis, A. I. (2008). Factors promoting academic success among African American and White male community college students. *New Directions for Community Colleges*, 2008(142), 15-24.
- Perry, R. (2014, January). *Texas wide open for business: Texas industry clusters initiative and FAQ*. Retrieved from:
http://governor.state.tx.us/files/ecodev/texas_industry_Clusters_initiative.pdf
- Reid, J. M., & Moore, J. L., III. (2008). College readiness and academic preparation for postsecondary education: Oral histories of first-generation urban college students. *Urban Education*, 43, 240-261. doi:10.1177/0042085907312346
- Riegle-Crumb, C. (2010). More girls go to college: Exploring the social and academic factors behind the female postsecondary advantage among Hispanic and White students. *Research in Higher Education*, 51, 573-593. doi:10.1007/s11162-010-9169-0
- Spangler, J. M., & Slate, J. R. (2015). Texas community college graduation and persistence rates as a function of student ethnicity. *Community College Journal of Research and Practice*, 39, 741-753. doi:10.1080/10668926.2013.878261
- Texas Association of Community Colleges. (2014). *Student success points*. Retrieved from <http://www.tacc.org/pages/data-and-info/student-success-points>

- Texas Association of Workforce Boards. (2014). *The workforce in Texas: Aligning education to meet the needs of Texas employers*. Retrieved from <http://tawb.org/tawbdocs/TAWB%20white%20paper%202014-3.pdf>
- Texas Higher Education Coordinating Board. (2012). *Glossary of terms*. Educational Data Center. Retrieved from <http://www.thecb.state.tx.us/Reports/PDF/1316.PDF>
- Texas Higher Education Coordinating Board. (2015a). *60x30TX: Texas higher education strategic plan: 2015-2030*. Retrieved from <http://www.thecb.state.tx.us/reports/PDF/6862.PDF>
- Texas Higher Education Coordinating Board. (2015b). *Closing the gaps 2015 progress report*. Retrieved from <http://www.thecb.state.tx.us/reports/PDF/6696.PDF?CFID=43464178&CFTOKEN=10459164>
- Texas Higher Education Coordinating Board. (2016). *Community colleges performance - participation*. Retrieved from http://www.txhighereddata.org/Interactive/Accountability/CC_Participation.cfm
- Texas Workforce Commission. (2013). *Growth abounds: A forecast of the Texas labor market 2012-2015*. Retrieved from <http://www.doleta.gov/performance/results/AnnualReports/PY2013/GrowthAbounds.pdf>
- Texas Workforce Commission. (2016). *Texas long-term industry projections*. Retrieved from <http://www.tracer2.com/publication.asp?PUBLICATIONID=797>
- The Texas Economy. (2016). *Comptroller's weekly economic outlook*. Retrieved from <http://thetexaseconomy.org/economic-outlook/>

- Urias, M. V., & Wood, J. L. (2014). Black male graduation rates in community colleges: Do institutional characteristics make a difference. *Community College Journal of Research and Practice*, 38, 1112-1124. doi:10.1080/10668926.2012.745101
- U.S. Census Bureau. (2016). *State and county QuickFacts*. Retrieved from <http://www.census.gov/quickfacts/map/INC110213/48/accessible>
- Waller, L. R., & Tietjen-Smith, T. (2009). *A national study of community college retention rates segmented by institutional degree of urbanization*. Retrieved from <http://knowledgecenter.completionbydesign.org/sites/default/files/294%20Waller%202009.pdf>
- Watkins, M. (2015). *A Texas-sized goal: 60 percent of adults with degree by 2030: State striving to boost attainment in 25-34 demographic*. Retrieved from <http://npaper-wehaa.com/ccweek/2015/08/17/#?article=2586427>
- Windham, M. H., Rehfuss, M. C., Williams, C. R., Pugh, J. V., & Tincher-Ladner, L. (2014). Retention of first-year community college students. *Community College Journal of Research and Practice*, 38, 466-477. doi:10.1080/10668926.2012.743867
- Witt, A., Wattenbarger, J., Gollattscheck, J., & Suppiger, J. (1994). *America's community colleges: The first century*. Washington, DC: Community College Press.
- Xu, D., & Trimble, M. (2016). What about certificates? Evidence on the labor market returns to non-degree community college awards in two states. *Educational Evaluation and Policy Analysis*, 38, 272-292.

APPENDIX



Institutional Review Board
 Office of Research and Sponsored Programs
 903 Bowers Blvd, Huntsville, TX 77341-2448
 Phone: 936.294.4875
 Fax: 936.294.3622
irb@shsu.edu
www.shsu.edu/~rgs_www/irb/

DATE: January 6, 2017

TO: Scott Godley [Faculty Sponsor: Dr. George Moore]

FROM: Sam Houston State University (SHSU) IRB

PROJECT TITLE: *Differences in Texas Community College Certificate Completion Rates by Ethnicity/Race, Gender, and Institution Size [TID]*

PROTOCOL #: 2016-12-33163

SUBMISSION TYPE: INITIAL REVIEW

ACTION: DETERMINATION OF EXEMPT STATUS

DECISION DATE: January 6, 2017

REVIEW CATEGORY: Category 4—research involving existing, publicly available data usually has little, if any, associated risk, particularly if subject identifiers are removed from the data or specimens.

Thank you for your submission of Initial Review materials for this project. The Sam Houston State University (SHSU) IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will retain a copy of this correspondence within our records.

*** What should investigators do when considering changes to an exempt study that could make it nonexempt?**

It is the PI's responsibility to consult with the IRB whenever questions arise about whether planned changes to an exempt study might make that study nonexempt human subjects research. In this case, please make available sufficient information to the IRB so it can make a correct determination.

If you have any questions, please contact the IRB Office at 936-294-4875 or irb@shsu.edu. Please include your project title and protocol number in all correspondence with this committee.

Sincerely,

Donna Desforges
 IRB Chair, PHSC

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Sam Houston State University IRB's records

VITA**Scott R. Godley****EDUCATIONAL HISTORY**

Doctorate of Education- Educational Leadership, May 2017

Sam Houston State University, Huntsville, TX

Dissertation: Differences in Texas Community College Certificate Completion Rates by Ethnicity/Race, Gender, and Institution Enrollment

Master of Education in Educational Administration, May 2010

University of Houston, Houston, TX

Bachelor of Journalism in Magazine Journalism, December 2001

University of Texas, Austin, TX

PROFESSIONAL EXPERIENCE

Literacy Coach, Conroe ISD, 2014-2017

Language Arts Teacher, Spring ISD, 2012-2014

Language Arts Teacher, Sheldon ISD, 2008-2012

SCHOLARLY RESEARCH ACTIVITY

Godley, S. (2011, January). Conduct your own online student video competition. *Campus Activities*, 43(6), 46A-50A.

Godley, S. (2010). *An Analysis of institution responses to school shootings and Suggested practices to prevent future incidents* (Master's thesis). University of Houston.

PRESENTATIONS

Godley, S. (2016, February). *Differences in Texas Community College Enrollment and Certificate Completion by Ethnicity*. Research presentation at the Southwest Educational Research Association, New Orleans, LA.

Godley, S. (2015, November). *Differences in Ethnicity-Based Persistence in Workforce Certificate Programs in Texas*. Research presentation at the Mid-South Educational Research Association, Lafayette, LA.

- Godley, S. (2015, February). *Ethnicity-Based Persistence in Workforce Certificate Programs at Texas Community Colleges*. Research presentation at the Southwest Educational Research Association, San Antonio, TX.
- Godley, S., & Burillo, M. (2014, January). *Taking High School Students to the Jobs of Tomorrow*. Workshop presented at the annual meeting of the FUTURES Bellwether College Consortium, Orlando, FL.
- Godley, S. (2013, April). *Executing an Effective Workforce Dual Credit Program*. Workshop presented at the annual meeting of the Texas Associate of College Technical Educators (TACTE), Austin, TX.
- Godley, S. (2009, October). *How to Run a Successful Online Student Video Competition*. Workshop presented at the annual regional meeting of the Association of College Unions International (ACUI), Dallas, TX.