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Do Time-Compressed General Education Courses Increase Course and Semester Retention Rates?

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Doctor of Education in Organizational Leadership

Nannette W. Glenn, Ph.D.

Dr. Nannette Glenn, Dean of the College of Graduate and Professional Studies

Date: November 4, 2022

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School of Educational Leadership

Do Time-Compressed General Education Courses Increase Course and Semester Retention Rates?

A dissertation submitted in partial satisfaction

of the requirements for the degree of

Doctor of Education in Organizational Leadership

by

Michael Lee Dixon

November 2022

Dedication

This dissertation is dedicated to the memory of my parents, Arnold and Velma Dixon. While neither of my parents went to college, they reinforced the importance of education to my sister and me early and often. My dad graduated from high school, but my mom dropped out in the eighth grade to work in the cotton fields with her family. When my mom was pregnant with me, she earned her GED. She always told me how proud she was to have earned her high school equivalency. I owe a debt of gratitude to my parents for their support, which I never adequately expressed to them.

Acknowledgments

Working in academia for over 20 years, I resisted the urge to complete a doctorate degree. Three years ago, I attended the college's commencement ceremony and looked around at the difference in regalia for those earning doctorate degrees. I decided, during the ceremony, it was time to pursue a terminal degree. I subsequently enrolled at Abilene Christian University. As they say—the rest is history.

There are many people I want to thank for their help. First, I thank my wife, Kodi, who encouraged and supported me throughout this journey. Her support was unconditional—listening to complaints, hearing about successes, and proofreading whenever I asked. She would often complete chores that were typically mine so I could work on a paper or read a journal article.

I want to thank my dissertation committee chair, Dr. Andrew Lumpe, who patiently met with me, provided multiple edits, and taught me the value of writing concisely without anthropomorphic statements. I also want to thank my dissertation committee members, Dr. Christie Bledsoe and Dr. Javier Flores, for their support and willingness to serve.

I could not have made it through the program without my colleague, classmate, and friend, Julia Vickery, who provided support and encouragement throughout the program. Finally, I want to thank Dr. Steve Thomas and the Midland College Foundation for the tuition reimbursement program. Without their encouragement and financial support, I would not have been able to start this journey, much less complete this degree.

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Abstract

Access to higher education remains a fundamental principle of the community college mission. Community colleges provide a critical starting point for many traditional and nontraditional students who enter higher education. Yet, in recent years, community colleges have endured public criticism for low graduation rates and the extended time students take to graduate. Many community colleges adapted long-held practices by implementing student success initiatives, including offering time-compressed courses to address concerns. The purpose of this study was to examine the effects of time-compressed courses on course retention rates and fall-to-spring semester retention rates of students. Quantitative methods were used to compare retention rates of students enrolled in standard 16-week and time-compressed general education courses at a community college in the southwestern United States. Results of the study revealed significant differences in course retention rates of students enrolled in time-compressed courses compared to those enrolled in standard 16-week general education courses as well as significant differences in retention rates between academic divisions. There was also a significant difference in fall-to-spring retention rates for first-time college students who took three or more time-compressed general education courses in a 16-week semester.

Keywords: time-compressed courses, eight-week courses, course retention, semester retention

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

In 2011, Bill Hammond, President and CEO of the Texas Association of Business, publicly condemned Texas community colleges for low graduation rates by renting billboards in Austin and Dallas, Texas (Inside Higher Ed, 2011). On the billboards, the business group cited a 4% graduation rate at Austin Community College and an 8% 3-year graduation rate at Dallas Community College. The billboards asked if this rate was acceptable. The resulting backlash and conversations led to adding a performance-based model to community college funding in Texas and a focus on completion, through student success initiatives, instead of a singular focus on enrollment (McKinney & Hagedorn, 2017).

Many community colleges initiated student success initiatives, such as Achieving the Dream, which included time-compressed courses offerings. Achieving the Dream (n.d.) was founded in 2004 to support higher education institutions with improving student outcomes. Students enrolling in time-compressed courses are able to focus on fewer courses and accumulate credits sooner. I examined the effect of time-compressed courses on course retention rates of students and fall-to-spring first time in college (FTIC) student retention rates. The following sections provide a brief context for the history of American higher education and the structure leading up to the current day and time-compressed course offerings.

Background of the Study

Since the founding of Harvard University (first known as New College) in 1636, American institutions of higher education (IHE) formed their mission based on religious, political, economic, and social changes (Thelin, 2019). The first IHEs provided training for ministers and served as outposts and extensions of the church. During the westward expansion of the United States, the Morrill Land Grant Act of 1862 and 1890 established 69 colleges and

universities, expanding their mission to include agriculture and mechanical arts and providing support for the new territories (Duemer, 2007; Library of Congress, 2021; Thelin, 2019). The GI Bill of 1944 provided tuition and living expenses to members of the military returning from World War II (Altschuler & Blumin, 2009; Thelin, 2019). The enrollment demand following the conclusion of World War II outpaced available enrollment capacity at IHEs, which led to the expansion of 2-year colleges and their mission.

Community Colleges

The president of the University of Chicago, William Rainey Harper, known as *the father of community colleges*, called for separating the 4-year degree into a junior college and a senior college (Grubbs, 2020). The first 2-year colleges followed this model as a basis for their mission, providing the first 2 years of a traditional liberal arts education (Thelin, 2019). When capacity became a valid concern in higher education after passage of the GI Bill, the Truman Commission of 1947 recommended a national network of community colleges with increased funding and attention to issues of equity (Gilbert & Heller, 2013). The focus on equity led directly to a shift in the community college's mission to provide open access. As educational opportunities expanded, the demand for Career and Technical Education (CTE) programs increased, and 2-year colleges adapted their mission to include those programs (Gregson & Ruppel, 2017).

Higher Education Structure

Most American colleges and universities use the semester system to divide the academic year into two 16-week sessions scheduled from August to May (Bostwick et al., 2019; Malone, 1946; Smith, 2012). The semester credit hour (SCH) provides the unit of measurement in a semester system for faculty and student load, financial aid, and funding (Wellman, 2005). The Carnegie Foundation developed and defined the Carnegie Unit, which provides the basis for an

SCH, as "one hour of classroom instruction with two hours of external preparation or studying for each one credit hour, typically spread over a 15–16-week course" (McMillan & Barber, 2020, p. 89). The SCH is the commonly accepted unit of measurement in academia.

Time-Compressed Courses

For years, colleges and universities offered nonstandard length course offerings during the summer months and between the spring and fall semesters (DeVeney et al., 2015); however, more colleges and universities now offer accelerated or time-compressed courses during long semesters to accommodate student demand and a shifting demographic of increased nontraditional students (Marques, 2012; National Center for Education Statistics, 2015; Tinto, 2012b). Many IHEs offer time-compressed courses to meet student demand, address enrollment challenges, and focus on student success and graduation (Daniel, 2000). Colleges and universities also offer nonstandard length terms and time-compressed courses to provide flexibility for students and faculty members while increasing revenue for the institution (Holzweiss et al., 2019; Lutes & Davies, 2018). Time-compressed options in a 16-week semester range from 4-week to 12-week courses, maintaining the same semester credit hours as a standard 16-week course.

Statement of the Problem

Historically, the primary mission of community colleges has been open access to the institution to prepare students for transfer to a 4-year university or the workforce (Bailey, 2016; Dougherty, 1994; Hodara & Jaggars, 2014; Turk & González Canché, 2019). Over the last 20 years and numerous initiatives, community colleges shifted the focus of their mission from open access to completion and student success (Achieving the Dream, n.d.; Bailey, 2016; Community College Survey of Student Engagement, n.d.; Completion by Design, n.d.). Despite efforts to

adapt, full-time community college students continue to take extended time to complete an associate degree. On average, Texas community college students take 3.9 years to complete an associate degree (Texas Higher Education Coordinating Board, 2020). Only 18% of full-time Texas community college students complete a credential within 3 years, and only 38% complete it within 6 years. Texas' statistics align with national rates of only 22% of community college students completing any credential within 3 years (Levin & García, 2018).

Community college students who take extended time to complete a credential are negatively impacted financially. College students on Pell Grants must maintain satisfactory academic progress, as defined by the institution, or risk losing aid. Typically, satisfactory academic progress includes a 2.0 grade point average (GPA) requirement, successful completion of 67% of coursework per semester, and a maximum time frame of 150% of the credential's credit hour requirement (Ocean, 2021; Schudde & Scott-Clayton, 2016). Dropping and retaking courses can lead to an extended completion time and a loss of financial aid.

Extended time to a credential reduces earning power. Researchers found a positive relationship between community college credential attainment, employability, and earning power (Gittell et al., 2017; Kim & Tamborini, 2019; Stevens et al., 2019). Marcotte (2019) concluded that students who completed an associate degree in the early 2010s earned 40% more than those with only a high school diploma. Extending time in college due to dropping and retaking courses increases the cost of attendance, which was an annual average of $10,704 in 2017–2018 (National Center for Education Statistics, 2019).

Dropping courses is one factor that increases the time a student takes to complete a credential. Moreover, excessive dropping of courses, defined as dropping one course for every five courses, led to a 44% less likely chance of completing a credential (McKinney et al., 2019).

Students drop courses for many reasons. Specifically, students cite work problems, childcare concerns, and personal problems as top reasons for dropping classes (Conklin, 1997; McKinney et al., 2019). By dropping courses, community college students extend the time to graduation, which negatively impacts their financial aid and future earning power.

Purpose of the Study

In response to the extended time community college students take to complete a certificate or an associate degree, the purpose of this causal-comparative, non-experimental, quantitative study was to examine the effect of time-compressed courses on course retention rates of students and fall-to-spring retention rates of FTIC students enrolled at a community college in the southwestern United States.

Research Questions

RQ1: How many time-compressed courses did students take during the fall and spring semesters over the last 3 years?

RQ2: How many time-compressed courses did students take in online, face-to-face, and hybrid modalities during the fall and spring semesters over the last 3 years?

RQ3: Is there a difference in course retention rates of students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester?

H_0: There is no significant difference in course retention rates of students enrolled in time-compressed general education courses and those enrolled in standard general education courses in a 16-week semester.

H_1: There is a no significant difference in course retention rates of students enrolled in time-compressed general education courses and those enrolled in standard general education courses in a 16-week semester.

RQ4: Is there a difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester?

H_0: There is no significant difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester.

H_1: There is a significant difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester.

Definition of Key Terms

Census day. The official day public institutions record attendance and submit the enrollment for state funding is the census day (Texas Higher Education Coordinating Board, 2017). For a standard 16-week course, the census day is defined as the 12th day of class. For time-compressed courses, the census date is calculated as a percentage of that day. For example, the census date for an 8-week course would be the 6th day of class.

Contact hour. This unit of measurement constitutes an hour of instruction with 50 minutes of direct instruction (Texas Higher Education Coordinating Board, 2017).

Course retention rate. The number of students receiving a grade of A, B, C, D, or F divided by the number of students enrolled in a section on census day is the method used to calculate course retention rates (Texas Higher Education Coordinating Board, 2017). This may

also be defined as the percentage of students who were not withdrawn from a course on census day.

Face-to-face courses. A course where all the instruction and contact hours occur in-person for lecture and lab hours is considered a face-to-face course (Texas Higher Education Coordinating Board, 2017).

First time in college (FTIC) cohort. In this study, the FTIC cohort is a group of high school graduates who are degree-seeking students enrolled in college for the first time (Texas Higher Education Coordinating Board, 2017). FTIC students may have had advanced placement credits or dual credit coursework in high school. Institutions establish a new FTIC cohort every fall semester for tracking and reporting purposes.

General education courses. These college-level courses focus on a breadth of knowledge that is not directly related to a student's occupation or job (SACSCOC, 2018).

Hybrid courses. These courses are offered with a combination of face-to-face and online modalities. The percentages between the two modalities vary (Texas Higher Education Coordinating Board, 2017).

Modality. The method used to deliver course content may vary by timing, location, or design (Texas Higher Education Coordinating Board, 2017). Examples of modalities include face-to-face, online, and hybrid. Course modality is also known as *instruction mode*.

Online courses. In typical online courses, 100% of the instruction is delivered through a learning management system or video conferencing software (Texas Higher Education Coordinating Board, 2017).

Time-compressed courses. These courses are scheduled with the same contact hours as a standard 16-week course but in fewer weeks. The number of weeks varies but can range from 3 to 8 weeks.

Total contact hours. This is calculated by adding the number of contact hours from lecture and lab requirements, multiplied by the number of weeks. Each course contains a split of contact hours based on required lecture and lab hours. For example, if a General Psychology course is a (3-0), it has 3 hours of lecture and 0 hours of lab instruction per week. In a 16-week course, this would equate to 48 total contact hours for the semester. A science course, such as Anatomy and Physiology I, that is a (3-4), has 3 hours of lecture and 4 hours of lab instruction per week. In a 16-week course, this would equate to 112 (16 * 7) total contact hours for this semester.

Theoretical Framework

Tinto's theory of student success influenced and guided this study. Tinto (2012a) described four conditions for student success: (a) expectations, (b) support, (c) feedback, and (d) involvement. Tinto argued that setting and defining high expectations lead to student success because low expectations eventually lead to failure. Tinto (2012a) asserted that academic and nonacademic supports, including financial support, are critical to student success. Assessments and feedback give students the tools to improve throughout a course. Tinto argued student involvement or engagement with faculty, staff, and peers leads to a higher likelihood of completion and graduation. Tinto's (2012a) theory on student success provided the support and framework for a study on time-compressed courses. Time-compressed courses meet the conditions Tinto describes as critical to student success.

One corollary to Tinto's (2012a) theory of student success is that success encourages further success. If a student successfully completes a course, future success is more likely. Therefore, when a student completes a time-compressed course, the student experiences success earlier and is more likely to continue to graduation. Chapter 3 provides more detail on the connection between Tinto's theory on student success and time-compressed courses.

Summary

Community colleges face mounting pressure from internal and external constituents to address concerns about graduation rates and the time to complete a degree. The Texas Association of Business and the Texas Legislature called on community colleges to improve their efficacy by improving graduation rates (Inside Higher Ed, 2011; McKinney & Hagedorn, 2017). Community colleges are adapting by focusing on student success through various means, including offering time-compressed courses.

The problem of practice focuses on the effects that extended time in college can have on students. Staying in college longer (i.e., by dropping courses_ can lead to financial aid issues and lower earnings over time. In this research, I compared course retention and fall-to-spring semester retention rates of students enrolled in time-compressed courses with those enrolled in standard 16-week general education courses.

Tinto's (2012a) theory of student success provided the theoretical framework for this research study. Tinto argued that courses are the building blocks to success and that success breeds future success. Therefore, if a student completes a course, that success can lead to future success. Chapter 2 provides a brief history of American higher education, including community college history, which led to an increasing number of time-compressed offerings.

Chapter 2: Literature Review

Community colleges historically focused on open access and providing opportunities for students to attend college (Dougherty, 1994; Hodara & Jaggars, 2014). Over the last 20 years, federal and state lawmakers scrutinized community college graduation and transfer rates (Dougherty, 1994). In response to low graduation rates and the associated criticisms, community colleges shifted their focus from access to completion through various student success initiatives (Achieving the Dream, n.d.; Bailey, 2016; Community College Survey of Student Engagement, n.d.; Completion by Design, n.d.).

As part of student success initiatives, many community colleges modified delivery methods from traditional 16-week courses to time-compressed courses. Time-compressed courses allow students to complete credits in a shorter amount of time and focus on fewer courses. Studying the impact of time-compressed courses on drop and semester retention rates may provide institutions with the data necessary to adapt to internal and external pressures.

Tinto's (2012a) theory on student success provided the theoretical framework for this study using expectations, support, feedback, and involvement or engagement as the critical tenets. Tinto's theory on student success is dependent on student engagement with the course and faculty members. Tinto argued that engagement with proper support and feedback would lead to a student's success.

The historical background of higher education from Colonial times to the present day provided the context necessary to understand the possible benefit of time-compressed courses. An overview of community college history, students, programs, and retention rates contributed to the framework needed for time-compressed courses. As time-compressed courses only change

the number of weeks in a course, a review of academic calendars and schedules provided the basis to differentiate time-compressed courses from standard 16-week courses.

Stakeholders play a significant role in the success of time-compressed courses. A review of studies examining student and faculty perceptions of time-compressed courses is presented. Finally, the center of academia is the idea of student success. This review concludes with a survey of studies investigating the efficacy of time-compressed courses in student success measures, including content mastery, final exam grades, and final course grades.

Literature Search Methods

The literature search relied mainly on Abilene Christian University's OneSearch Discovery provided by EBSCO through the Abilene Christian University's (ACU) Online Library and occasionally on Google Scholar when items were unavailable through ACU. The most commonly used search terms were: *8-week college courses*, *accelerated college courses*, *compressed college courses*, *condensed college courses*, *intensive college courses*, and *time-compressed college courses*. Other search terms included *academic calendars*, *semester*, *credit hour*, *retention*, and *nontraditional community college student*.

Theoretical Framework Discussion

Tinto's (2012a) theory of student success influenced and guided the work in this study. Tinto (2012a) described four conditions for student success: (a) expectations, (b) support, (c) feedback, and (d) involvement. Tinto argued setting and defining high expectations leads to student success because low expectations eventually lead to failure. Time-compressed courses create higher expectations due to a condensed assignment schedule and tighter deadlines than a traditional 16-week course (Colclasure et al., 2018). Tinto (2012a) stated that academic and nonacademic supports, including financial support, are critical to student success.

Due to higher expectations and student stress, instructors often offer additional academic and nonacademic support to students in time-compressed courses, including additional study material and office and tutoring hours (Davies et al., 2016). Assessments and feedback give students the tools to improve throughout a course. Later on in the study, Davies et al. (2016) conceded faculty members indicated they provide less feedback per assignment in time-compressed courses, but the feedback is continuous. Earlier faculty feedback in time-compressed courses allows students to respond to the feedback faster than in a 16-week course (Holzweiss et al., 2019).

Student involvement or engagement with faculty, staff, and peers leads to a higher likelihood of completion and graduation (Tinto, 2012a). Faculty members report a higher degree of engagement and awareness of student needs in time-compressed courses than in traditional 16-week courses (Walker, 2015). Students also indicated a higher degree of engagement in time-compressed courses when the instructor was engaged with effective communication, feedback, and a genuine commitment to student success (Zajac & Lane, 2020). Tinto's (2012a) theory on student success provided the support and framework for a study on time-compressed courses.

One corollary to Tinto's (2012a) theory of student success is that success encourages further success. If a student successfully completes a course, future success is more likely. Therefore, when a student completes a time-compressed course, the student experiences success earlier and is more likely to continue to graduation.

A Brief History of American Higher Education

The origins of American higher education began with the founding of the nine Colonial colleges starting in 1636 with what would become known as Harvard University in 1636 and ending with Dartmouth College in 1769 (Richardson, 1932; Thelin, 2019). Following the

American Revolution, higher education opportunities expanded from 25 degree-granting universities in 1800 to 52 degree-granting universities in 1820 (Thelin, 2019). Institutions founded during this time included the University of North Carolina in 1790 and what would become the University of South Carolina in 1801. Federal, state, and local entities provided little support for these early institutions (Thelin & Hirschy, 2009). The land grant acts of 1862 and 1890 changed the landscape and scope of higher education creating 69 universities and providing some support for the institutions (Duemer, 2007; Library of Congress, 2021; Thelin, 2019). The GI Bill of 1944 expanded educational opportunities for returning veterans with tuition and living assistance leading to a shortage of student seats (Altschuler & Blumin, 2009; Thelin, 2019). This shortage led to the establishment of many institutions, including community colleges.

Community College History

Early 2-year colleges began as junior colleges offering the first 2 years of a liberal arts education (Thelin, 2019). Students, faculty members, and community members initially thought of early community colleges as the 13th and 14th grades (Grubbs, 2020). Many early community colleges partnered with high schools to share facilities and instructors.

Grubbs (2020) identified five time periods in the evolution of community colleges. The five eras are the "early founding period (1900–1930), a national organization period (1930–1945), an expansion period (1946–1970), a vocational shift period (1971–1985), and the present post-industrial period" (Grubbs, 2020, para. 4). The early founding period between 1900 and 1930 began with the founding of Joliet Junior College in Illinois. Many early junior colleges pioneered the community service function and provided educational opportunities for local students. Examples of community service programs offered by early junior colleges were

cultural and recreational activities, including spectator events, which continue even now (Cohen et al., 2014).

The American Association of Community Colleges (AACC) provided support and lobbied for community colleges during the national organization period between 1930 and 1945, where the mission shifted from offering a liberal arts education to offering 2-year terminal degrees. William Rainey Harper, president of the University of Chicago, was a significant figure in the history of community colleges often called the "father of the junior college" (Grubbs, 2020, para. 6). He proposed splitting the 4-year university into a junior and senior college. Junior colleges would offer the first 2 years of a baccalaureate degree, and senior colleges would offer the final 2 years. Harper emphasized the benefits to both institutions and the students.

During the expansion era between 1946 and 1970, the passage of the GI Bill in 1944 led to capacity concerns for returning veterans and other students (Altschuler & Blumin, 2009). A few years later, the Truman Commission of 1947 played a pivotal role in expanding community colleges and the capacity of higher education institutions. The Truman Commission focused on issues of equity and access for all students regardless of race, age, creed, sex, or national origin (Gilbert & Heller, 2013). The Truman Commission recommended an expanded role for community colleges, including a national network of community colleges utilizing federal assistance.

During the vocational shift period between 1971 and 1985, the emphasis moved from a liberal arts education to vocational education, where community colleges would prepare students for the workforce (Thelin, 2019). Community colleges would continue to prepare students for transfer to 4-year universities, but technical education became a more prominent part of their mission. Colleges that offered liberal arts education and robust technical training were named

comprehensive community colleges (Grubbs, 2020). The addition of technical training became a critical part of the mission of community colleges in providing training for the local workforce and employers. The postindustrial period from 1986 to now saw community colleges continue to expand their mission. One significant change during this time was the offering of applied baccalaureate degrees. The number of states permitting community colleges to award bachelor's degrees grew from 19 states in 2018 to 24 states in 2021 (Povich, 2018; Sanchez, 2021).

Program Types

Community colleges offer a variety of credit and non-credit courses, programs, and pathways. Initially, 2-year colleges focused on liberal arts education, preparing students for transitioning to a traditional academic baccalaureate degree program (Thelin, 2019). These credit offerings included traditional disciplines such as history, mathematics, and psychology. Nationally, over 80% of entering community college students intend to transfer to a 4-year university, but "fewer than 35% do so within six years" (Jabbar et al., 2021, para. 1). While preparing students to transfer to a 4-year university remains a critical part of the community college mission, it only represents a portion of the credit programs community colleges offer. CTE programs, including non-credit offerings, comprise a significant portion of community college offerings designed to prepare students for the workforce (Gregson & Ruppel, 2017). CTE programs, such as welding, automotive, and nursing, lend themselves to traditional college-aged and nontraditional students.

Student Characteristics

A variety of students enroll in community colleges to achieve their academic goals. According to the American Association of Community Colleges (n.d.), the average age of a community college student in 2019 was 28. Approximately 63% of community college students

enroll in less than 12 semester credit hours each semester, classifying those students as part-time students (National Center for Education Statistics, n.d.-a). The situation in Texas is more pronounced. In 2020, 78% of students were classified as part-time students (Texas Higher Education Coordinating Board, 2021). In Texas, the high rate of part-time enrollment extends the time to complete an associate degree to 3.9 years from the expected 2 years for a full-time student. Regardless of enrollment status, most community college students work at least part-time (American Association of Community Colleges, n.d.).

Retention Rates

Retention rates vary between the type of institution and type of student. Even the definition of retention differs between 4-year universities and 2-year colleges. While both definitions are cohort-based, there are differences due to the types of credentials awarded. For 4-year universities, retention rates are defined as "the percentage of first-time bachelors (or equivalent) degree-seeking undergraduates from the previous fall who are again enrolled in the current fall" (National Center for Education Statistics, n.d.-b, para. 1). For 2-year colleges, retention rates are defined as "the percentage of first-time degree/certificate-seeking students from the previous fall who either re-enrolled or successfully completed their program by the current fall" (National Center for Education Statistics, n.d.-b, para. 1). Caballero (2020) offers a more practical definition of retention. Caballero defines retention as "the academic institution's ability to keep students in school, which guarantees students will finish their studies at the scheduled time with mastery of the corresponding skills and knowledge" (p. 95). According to the National Center for Education Statistics (2021), in the fall 2019 semester, 4-year universities retained students at an 81% rate, while 2-year institutions retained students at a 63% rate.

Academic and nonacademic factors impact college student retention rates. Academic factors impacting retention rates include high school GPA and 1st year college GPA (Chen, 2012). Students completing dual credit courses in high school with at least a C grade affected retention in terms of completed semester credit hours and college credential attainment after high school graduation (Foster, 2010; Ison, 2022; Kim, 2014).

Nonacademic factors impacting retention, regardless of institution type, include socioeconomic status, failure to submit required documents for financial aid purposes, pregnancy, low expectations, first-generation to college status, physical and mental health issues, family and work obligations, transportation issues, and financial problems (Caballero, 2020; Chen, 2012; McKinney et al., 2019; Tinto, 2012b). Many institutions address nonacademic barriers to retention and student needs by adapting their course offerings to include time-compressed options (Daniel, 2000; Johnson & Rose, 2015; Thornton et al., 2017).

Academic Calendars and Schedules

United States higher education institutions, including 2-year and 4-year institutions, primarily use the quarter or semester system to divide the academic year. Over 70% of colleges and universities use a semester system (Bostwick et al., 2019; Smith, 2012).

Historical Perspective

Early colleges and universities, including the Colonial colleges, followed the British model using *term* as the moniker for the subdivision of the academic year (Bostwick et al., 2019; Malone, 1946). During the 19th century, following the American Revolution and War of 1812, colleges and universities shifted to the quarter and semester system (Malone, 1946).

The quarter system divided the academic year into four sessions, while the semester system divided the academic year into two sessions. The use of a semester system is derived

from the German education system, where "*Sommersemester* ran from Easter to Michaelmas (September 29), and a *Wintersemester*, from Michaelmas to Easter" (Malone, 1946, p. 264). Additionally, colleges and universities shifted to a semester system to "accommodate the needs of an agrarian society and resulted in a design which excluded the three-month growing season and divided the remaining nine months of study into two sections" (Davis, 1972, p. 142). During this time, colleges and universities closed during the summer to accommodate the busy farming seasons and longer days. This division led to the current semester system, which predominantly consists of 16-week sessions (Malone, 1946).

Credit Hour

In a semester system, colleges and universities use the semester credit hour as the basis and unit of measurement for student-enrollment load, faculty-teaching load, and funding and provides a uniform measure for student transfer (Wellman, 2005). The Carnegie Foundation developed the Carnegie unit, the basis for the semester credit hour, to measure faculty load and mediate a conflict regarding faculty retirement (McMillan & Barber, 2020). The Carnegie Foundation defined the semester credit hour as "one hour of classroom instruction with two hours of external preparation or studying for each one credit hour, typically spread over a 15–16 week course" (p. 89). Institutions adapt nonstandard sessions using the same ratios.

Beginnings of Nonstandard Semesters

When institutions adopted the semester system with an August to May schedule, three months were set aside for agricultural purposes (Davis, 1972). As the United States transitioned during the Industrial Revolution, institutions began to use the summer for time-compressed offerings. Colleges and universities offer nonstandard length terms to provide flexibility for students and faculty members while increasing revenue for the institution (Holzweiss et al.,

2019; Lutes & Davies, 2018). Time-compressed courses are scheduled with the same contact hours as a standard 16-week course but with fewer weeks. The number of weeks varies but can range from 3–12 weeks.

Time-Compressed Courses

Institutions frequently offer time-compressed courses during the Christmas break, between the spring and summer semesters, during summer semesters, and within the standard 16-week semester during the week and weekend (DeVeney et al., 2015). Time-compressed courses may maintain the same contact hours as a 16-week course or may have a reduced contact hour requirement that includes an online component (i.e., hybrid course; DePriter, 2017; Thornton et al., 2017). Examples of time-compressed options in a 16-week semester range from 4–12-week courses.

Proliferation of Time-Compressed Courses

Colleges and universities seek to meet the needs of an increasingly diverse student population (Marques, 2012; Miller, 2017). Institutions use various means, including weekend, online, and time-compressed courses to adapt to the needs of nontraditional students and recent high school graduates (Holston, 2020). Traditional and nontraditional students demand flexibility in course scheduling, and institutions responded by offering time-compressed courses (Holzweiss et al., 2019; Krug et al., 2016). Institutions also seek solutions to address enrollment issues through alternative scheduling, including time-compressed courses. (Daniel, 2000).

Benefits to Nontraditional Students

One of the critical reasons for the increased number of time-compressed courses is the significant growth of nontraditional student enrollment. The National Center for Education Statistics (n.d.-c) defines a nontraditional student as a student possessing "one or more of the

following seven characteristics: delayed enrollment into postsecondary education, attended part-time, financially independent, worked full time while enrolled, had dependents other than a spouse, was a single parent, or did not obtain a standard high school diploma" (para. 2). Over 70% of students enrolled in higher education possess one of these nontraditional characteristics (Marques, 2012; National Center for Education Statistics, 2015; Tinto, 2012b).

Time-compressed courses are designed to meet the growing enrollment and changing needs of nontraditional students (Marques, 2012; Miller, 2017). The benefits of time-compressed courses for nontraditional students are the ability to focus on fewer courses at a time and the shorter time frame reduces the risk of nonacademic interruptions, such as family or job obligations (Holston, 2020). Other benefits of time-compressed courses include access and convenience for nontraditional and part-time students (DeVeney et al., 2015).

Reasons for Offering

Institutions implemented alternative delivery models and modalities, including time-compressed courses, to address course withdrawal and retention issues. Tinto (2012b) found that 80% of students left college or dropped courses for nonacademic reasons, such as work or family conflicts. Institutions seek to address these issues by offering time-compressed courses. Geltner and Logan (2001) found that time-compressed courses led to a lower withdrawal rate than traditional length courses. For accelerated programs, Wlodkowski et al. (2001) did not find a significant difference in the withdrawal rates between accelerated and standard-length. The completion rate between accelerated and standard programs was not significantly different, but the students completed the accelerated program in a shorter time. Doggrell and Schaffer (2016) found similar results in accelerated nursing programs with similar attrition rates compared to

nonaccelerated programs. Sheldon and Durdella (2010) found course withdrawal rates of time-compressed courses to be at or below the withdrawal rates of standard-length courses.

Another consideration of offering time-compressed courses is student mastery and retention of the course content. Deichert et al. (2016) found the retention of course content to be significantly higher in an 8-week time-compressed Introductory Psychology class compared to a standard 16-week Introductory Psychology class. In the same study, the researchers found no difference in the retention of course content in a 5-week time-compressed Introductory Psychology class compared to a 16-week iteration of the same course.

While course withdrawal rates, program attrition rates, and content mastery provide an essential data point for the efficacy of time-compressed courses, student and faculty feedback provide meaningful context and background on time-compressed courses as critical stakeholders in an educational institution.

Exemplary Community Colleges

Odessa College and Amarillo College are two community colleges that exemplify the use and success of time-compressed courses. In 2014, Odessa College in Odessa, Texas, converted 80% of its course offerings to an 8-week format (Odessa College, n.d.). In converting to a time-compressed format, they became one of the first Texas community colleges to emphasize 8-week courses and their benefits. Odessa College (n.d.) cited the benefits to students in overcoming nonacademic issues and promoting the benefits of momentum for students. Through this conversion work, Odessa College was named an Achieving the Dream Leader College of Distinction and won the Aspen Institute's Rising Star Award for increasing student success and retention (Achieving the Dream, 2021).

Amarillo College, in Amarillo, Texas, followed Odessa College's lead in 2016 by converting most of its courses to 8-week courses (Stein, 2016). Amarillo College also was named an Achieving the Dream Leader College of Distinction and won the Leah Meyer Austin Award for achieving long-term improvements in student success and equity (Achieving the Dream, 2022). Amarillo College also won the Aspen Institute Rising Star Award and was named a finalist for the 2023 Aspen Institute Award (Amarillo College, 2022; Aspen Institute, 2021).

Stakeholder Feedback on Time-Compressed Courses

Another component to consider with compressed courses is the faculty and student perception of their efficacy and desirability. Feedback from faculty members and students has been mixed. Faculty members expressed both appreciation and concern about the effects of time-compressed courses.

Faculty Feedback

Faculty perceptions and attitudes towards accelerated courses play a critical role in the success and quality of time-compressed courses. Faculty expressed concerns about isolation, rigor, and workload. Time-compressed courses often result in a nonstandard faculty teaching schedule (Johnson & Rose, 2015). As a result, faculty members felt marginalized and isolated while teaching accelerated courses due to scheduling differences with their peers. Johnson and Rose found that faculty members teaching time-compressed courses did not feel supported by their department or supervisor. Faculty members teaching time-compressed courses expressed frustration due to missed meetings and opportunities for connecting with peers or mentors. A strength of the Johnson and Rose (2015) study was the use of various disciplines and in-class observations to validate faculty responses.

Faculty members indicated they adjusted their teaching style and strategies when teaching accelerated courses. For example, faculty members indicated they adapted their teaching strategies for accelerated courses to focus on applying content and principles rather than just delivering content (Johnson & Rose, 2015; Walker, 2015). Other instructors expressed frustration when students missed class because they felt obligated to filter the content down to its basic principles in future classes, which would not happen in a standard-length course (Dixon & O'Gorman, 2020).

Moving to an accelerated format often elicits concerns over standards and outcomes from faculty members due to fewer contact hours with students. Thornton et al. (2017) found that students in an accelerated capstone business course outperformed students in a standard-length capstone business course on a standardized exam administered by the Educational Testing Service. Faculty members expressed mixed views on the rigor of accelerated courses. Ferguson et al. (2015) found that 60% of the faculty members surveyed felt their accelerated courses were as rigorous as standard courses. The remaining felt their accelerated courses were more rigorous than standard-length courses. Faculty members also reported lowered expectations in accelerated developmental education courses due to time constraints and perceived student stress (Avni & Finn, 2019).

Faculty members feel students should have options in choosing the length of developmental courses (Cafarella, 2016). Cafarella found that faculty members felt 8–10-week compressed courses were the optimal balance of compression and course outcomes, with 5-week courses being too short. Instructors reported requiring fewer assignments and assessments due to the condensed time frame but felt it improved their students' focus (Walsh et al., 2019). Faculty

perceived students in accelerated courses were more prepared except for developmental education coursework (Walker, 2015)

Instructors indicated they felt overwhelmed with the amount of grading in time-compressed courses, which resulted in providing students with less feedback (Holzweiss et al., 2019). In contrast, instructors teaching time-compressed courses did not indicate a reduced amount of content taught in the course (Lutes & Davies, 2018). Instructors did report fewer assignments when compared to traditional 16-week semester-length courses. Other instructors teaching compressed courses adjusted the number of assignments but expanded the scope and quality of those assignments (Kops, 2014). Instructors felt they knew their students better in a time-compressed format, leading to a higher level of engagement. One weakness of the Kops (2014) study was the failure to identify the faculty member's teaching discipline. For example, a science course with a lab component would likely have different accommodations than an English course in a time-compressed format.

To the point of engagement, faculty reported higher awareness of nonacademic issues from students in time-compressed courses (Avni & Finn, 2019; Walker, 2015). Instructors identified course design, early engagement efforts, student motivation, assessment sequence, communication, and effective use of technology as necessary components of a successful time-compressed course (Kuiper et al., 2015). Faculty, as a critical stakeholder, provide an important perspective with insight on time-compressed courses and their impact on course content and delivery. Student feedback is equally important to clearly illustrate the impact of time-compressed courses.

Student Feedback

As with faculty, students provided mixed feedback on time-compressed courses. Students commonly cited stress when enrolled in time-compressed courses, although they also acknowledged the benefit of being able to focus on fewer courses at a time (Colclasure et al., 2018; DeVeney et al., 2015; Holston, 2020). Students who expressed discontent with the accelerated programs cited as their primary reason the stress and challenges associated with condensed assignment deadlines compared to a traditional schedule (Colclasure et al., 2018). Some students, irrespective of generation, indicated that time-compressed courses induced stress, while still others indicated time-compressed courses reduced stress (Holston, 2020). Some faculty members attempted to mitigate the stress associated with accelerated courses by providing supplementary material in online environments, effectively treating the time-compressed course like a hybrid course despite the standard contact hours (Davies et al., 2016). Davies et al. (2016) found that students generally provided positive feedback on the additional content in the learning management system to mitigate the stress of a shorter time frame. A weakness of the Davies et al. study was the use of grade incentives for completing the surveys, which may have skewed the results.

Student stress from time-compressed courses led to a tendency not to read the required material or complete all assignments (Holzweiss et al., 2019). Other students cited a high satisfaction with time-compressed courses but agreed with complaints about workload and overwhelming assignment deadlines (DeVeney et al., 2015).

Another consideration of time-compressed courses is the student's perception of their efficacy. DeVeney et al. (2015) did not find a significant difference in the student perception of competency of the learning outcomes in identification, assessment, or treatment between a 4-

week time-compressed course and a standard 16-week course. In contrast, Holston (2020) found a higher degree of student satisfaction and perceived competency with a 4-week time-compressed course than with a 16-week standard 16-week course. In another study, students preferred 12-week time-compressed courses over standard 16-week courses (Holston, 2020). Holston used various courses and modalities in the study but only considered courses from arts, humanities, and social sciences. Courses in science, technology, and math often have lab requirements and include a linear progression of courses that could impact the perception of accelerated courses. Other students felt the workload was significantly greater in time-compressed courses than in standard-length courses (DeVeney et al., 2015). Lutes and Davies (2018) found students indicated the total workload (class time plus outside class time) in a time-compressed course was significantly less than in a standard 16-week semester course. The main weakness of the study was that the students supplied the workload data. While students have no reason to falsify their responses, they may overestimate or underestimate the time spent on a single class due to a lack of record-keeping.

According to students, the accelerated nature of time-compressed courses reduced opportunities for alternative assignment types (e.g., group work) due to tight deadlines (Favor & Kulp, 2015). Only 43% of the same group of students felt group work was beneficial to learning the course content. A limitation of the Favor and Kulp (2015) study was its lack of focus on student performance in the course.

Students in time-compressed courses identified faculty behaviors that led to high engagement or online presence as authentic communication, timely and respectful feedback, high interaction level, and an apparent commitment to student success (Zajac & Lane, 2020). A

weakness of Zajac and Lane's (2020) study was a low response rate, likely due to the survey's length. Only nine surveys were fully completed.

Student Success in Time-Compressed Courses

As community colleges shifted their mission from access to completion, colleges focused their attention on student success initiatives (Achieving the Dream, n.d.; Bailey, 2016; Community College Survey of Student Engagement, n.d.; Completion by Design, n.d.). Many community colleges began offering time-compressed developmental and general education courses to improve student success at the course and institution level (Daniel, 2000; Holzweiss et al., 2019; Krug et al., 2016)

Developmental Courses

Students and policymakers are often frustrated with the need for non-credit developmental education (Cafarella, 2016). Policymakers mandated accelerated developmental education courses due to growing concerns about cost and return on investment (VanOra, 2019). Students expressed frustration with their placement in developmental courses, but 90% of the participants felt they improved as writers after a year due to taking a developmental writing course. VanOra (2019) reported that despite delayed graduation, students recognized the priority of improved critical thinking and writing over an earlier graduation date. VanOra also found that despite gains in development education, 60% of the students felt they struggled in subsequent credit courses. Other students performed better in a gateway course and accumulated credit within three years after enrollment in an accelerated development education program (Jaggars et al., 2015).

Faculty indicated that time-compressed developmental courses presented a unique challenge for faculty and students due to the wide range of student college readiness (Walker,

2015). Walker (2015) also found that students enrolled in an accelerated developmental course were more motivated and had more of a growth mindset when compared to students enrolled in a standard 16-week developmental course. A weakness of the Walker study was the use of small class sizes, with a maximum of ten students. Faculty members cited reduced class sizes as a strength and considered them easier to teach and manage. Avni and Finn (2019) found that faculty members perceived developmental students as less mature, and the accelerated format only exacerbated their opinion.

Schudde and Keisler (2019) examined accelerated and time-compressed developmental math courses' impact on completing college-level math and other milestones, such as persistence and completion. Over two dozen dependent variables were considered, including 1st-year outcomes and cumulative 3rd-year outcomes. The experimental group was compared to two control groups: (a) students enrolled in non-Dana Center Math Pathways developmental math courses, and (b) students enrolled in multilevel developmental math courses. Schudde and Keisler found that Dana Center Math Pathways developmental students were more likely to enroll and complete the appropriate college-level math class. The researchers admitted that accelerating developmental math coursework was only partially responsible for the increased success rate. The other factor noted was accurately placing students in the freshman-level math class for their given degrees (e.g., Quantitative Reasoning or Statistics, instead of College Algebra). Schudde and Keisler may have complicated the research question by exploring too many dependent variables. While essential indicators such as a FTIC, gender, and race were considered, the study also focused on the propensity to enroll in the Dana Center Math Pathways model.

Hodara and Jaggars (2014) examined the impact of accelerated courses on developmental reading and math access and success rates. Researchers tracked students over several years to compare standard developmental offerings with two or three levels to accelerated developmental offerings with fewer levels and a compressed time frame. The results were mixed. Hodara and Jaggars found a significant increase in access to college-level math and English courses, meaning students progressed through the developmental sequence at a higher rate. While students taking accelerated developmental courses progressed to college-level English and math courses, they did not do as well as students placed in those courses. Hodara and Jaggars concluded that completing a college-level math course did not necessarily translate to long-term college success, including graduation and transfer rates. Following an accelerated developmental sequence, completing a college-level English course led to higher graduation and transfer rates (Hodara & Jaggars, 2014).

A strength of the Hodara and Jaggars (2014) study was its wealth of data and analysis of data. Tracking students longitudinally is often challenging, but the researchers navigated the complex nature of developmental education with thoroughness and attention to detail. A weakness of the study was examining developmental English and math in the same study while examining many different acceleration methods. While accelerating developmental education is critical to community college success, colleges and universities offer accelerated general education courses, such as psychology or government.

General Education Courses

General education courses meet degree requirements and transfer to other institutions, including community colleges and 4-year universities. Factors of accelerating general education

courses to consider include mastery of student learning outcomes, performance on final exams, and final grades.

When comparing content retention in a 5-week, 8-week, and 16-week Introductory Psychology course, researchers found students performed at the same level regardless of term length (Deichert et al., 2016). The researchers concluded 5- and 8-week courses produced learning outcomes comparable to 16-week courses. The Deichert study used a freshman-level course with high enrollment and considered mitigating factors such as age and learning strategies, which was a strength of the study. A weakness of the Deichert study was that Introductory Psychology instructors informed their students (before taking the assessment) that the results would not impact their grades.

Simunich (2016) compared student motivation and learning outcome achievement in standard-terms and time-compressed summer online general education courses, including science and humanities courses. Learning outcome achievement was measured using the final course grade, a more extensive course assignment grade, and a multiple-choice postcourse exam. Simunich measured student motivation using the Motivated Strategies for Learning Questionnaire, a validated and reliable existing survey. The sample included 133 undergraduate students enrolled in a 15-week term and 66 undergraduate students enrolled in a 7-week summer session. Simunich found no significant difference in learning outcome achievement between the standard-length courses and the time-compressed summer courses. Likewise, the researcher did not find a significant difference in student motivation between the course lengths. A strength of the Simunich study was the use of elective courses taken by non-majors, eliminating any concerns about prerequisite requirements. Another strength was using an instructional designer and a Quality Matters course review to remove course design as a possible variable to

standardize the online courses. A possible weakness of the Simunich study was the low enrollment in the time-compressed humanities course.

DePriter (2017) found no significant difference in students' performance on a College Algebra final exam in a time-compressed format compared to students taking the same final exam in a standard 16-week course. DePriter identified student self-selection of term length as a weakness of the study. Another weakness of the study is using an algorithmically-generated final exam through Pearson's online platform, MyMathLab. The lack of reliability of the instrument is mentioned but not addressed. As each student's final exam could be more or less difficult, the results are possibly affected by algorithmically-generated final exams.

In another study, students performed better on a standardized test in a time-compressed course than in a traditional-length course (Thornton et al., 2017). When examining final grades in 20 courses across 11 disciplines, students performed better in time-compressed summer courses when compared to standard 16-week courses (Walsh et al., 2019). Researchers using a pretest/posttest model found no significant difference between a time-compressed summer course and a standard-length course in the same study.

Summary

Colleges and universities continue to adapt to changes in student demographics, student needs, and enrollment challenges. Institutions use alternative scheduling to address these concerns, including offering time-compressed courses. This literature review contains summaries and syntheses of research studies examining the impact of time-compressed courses on course retention rates, learning outcomes, and final exam grades. Other researchers examined faculty and student feedback on time-compressed courses. Time-compressed courses allow students to focus on fewer courses but often with increased stress. Some faculty support the idea of time-

compressed courses but have concerns about outcomes and often put less effort into providing student feedback. Some students acknowledged the benefit of time-compressed courses but indicated a certain stress level with a shorter time frame and dense assignment deadlines. This study aims to provide additional research on time-compressed courses and their impact on course drop rates and retention rates. In the next chapter, the methodology for this study is discussed.

Chapter 3: Research Method

The purpose of this causal-comparative, non-experimental, quantitative study was to examine the effect of time-compressed courses on course retention rates of students and fall-to-spring retention rates of FTIC students enrolled at a community college in the southwestern United States. Student retention rates include course retention rates and fall-to-spring retention rates when students return to the same institution the following spring semester. Quantitative research approaches were chosen for this study because they provide the best mechanism to analyze causal and comparative relationships between variables (Bloomfield & Fisher, 2019).

This chapter details the research questions, hypotheses, research design, and methodology used in this study. The population and sample used in this study are defined, described, and justified. Data collection and analysis techniques are specified, including a rationale and justification of selected methods. Ethical considerations of the study are described and an explanation of the limitations and assumptions are outlined and explained.

The importance of this study to community college administrators is to provide information regarding a historical framing of time-compressed courses over the last 3 years through descriptive statistics. Likewise, this study provides valuable information on the effect that time-compressed courses have on course retention rates of community college students in general education courses and fall-to-spring retention rates for FTIC students.

Research Questions

RQ1: How many time-compressed courses did students take during the fall and spring semesters over the last 3 years?

RQ2: How many time-compressed courses did students take in online, face-to-face, and hybrid modalities during the fall and spring semesters over the last 3 years?

RQ3: Is there a difference in course retention rates of students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester?

H_0: There is no significant difference in course retention rates of students enrolled in time-compressed general education courses and those enrolled in standard general education courses in a 16-week semester.

H_1: There is a no significant difference in course retention rates of students enrolled in time-compressed general education courses and those enrolled in standard general education courses in a 16-week semester.

RQ4: Is there a difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester?

H_0: There is no significant difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester.

H_1: There is a significant difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester.

Research Design and Method

In this research study, I selected a quantitative approach utilizing descriptive and causal-comparative designs to examine the effect of time-compressed courses on course retention and fall-to-spring semester retention rates of students. A quantitative descriptive design was used "to examine variables in a single sample and to systematically measure, describe and interpret them"

(Bloomfield & Fisher, 2019, p. 28). A descriptive design was appropriate for the research study because it permitted insight into the enrollment patterns and student demographics of time-compressed courses.

A causal-comparative quantitative design compares two groups without manipulating an independent variable or inferring causality (Bloomfield & Fisher, 2019; Reio, 2016). A comparative study was suitable for this research because course and fall-to-spring retention rates of students enrolled in time-compressed and 16-week general education courses were compared. I used an ex post facto non-experimental design with existing data from previous academic years. An *ex post facto* data collection technique refers to after-the-fact research, which uses existing data without interference from the researcher (Giuffre, 1997; Salkind, 2010). An ex post facto approach to data collection provides the most effective mechanism for researching time-compressed courses as enrollment is based on student preference and course availability. Students have options for time-compressed or 16-week general education courses when registering.

Target Population

The target population for this study consisted of students enrolled at a comprehensive community college in the Southwestern United States that had implemented a significant number of time-compressed general education courses in the fall 2020 semester. The Texas Higher Education Coordinating Board (2021) classified this community college as a medium-sized institution with an enrollment of approximately 5,000 students. At the time of the study, the student demographics were 51.6% Hispanic, 32% White, 6.5% African American, and 9.9% other races and international students. Some 72% of the students were part-time and enrolled in

less than 12 semester credit hours per term. In 2021, 70% of the students pursued academic programs.

Study Sample

For this ex post facto approach, I obtained existing data from a convenience sample at a community college in the southwestern United States(Giuffre, 1997; Salkind, 2010). The selected community college recently increased the number of time-compressed general education courses through its student success work. I determined the minimum sample size for the chosen power, effect size, and α level of my study using an a priori power analysis for causal-comparative research (RQ3 and RQ4). An a priori power analysis was used to avoid a low statistical power which can lead to a "failure to reject a false null hypothesis" (Chen & Liu, 2019, p. 54). I ran the a priori power analysis using Statistics Kingdom, an online statistics platform. The required sample sizes are provided in the next section, organized by the research question.

For RQ1–RQ3, I used student and course records from the college for the academic years ending in 2020, 2021, and 2022—recognizing the COVID-19 pandemic could impact the results with the increased number of online sections in the fall 2020 semester. These academic years were selected because time-compressed course sections were limited at the selected community college prior to the fall 2019 semester.

All data were pulled from the 16-week standard fall and spring semesters. I provided a general education course list with appropriate terms and sub-terms, such as the fall 2020 16-week term, the first 8-week sub-term, and the second 8-week sub-term. I selected general education courses for RQ3 and course-level retention. General education courses included General Psychology, Introduction to Sociology, United States History I, Composition I, and

College Algebra. The unit of analysis for RQ3 was section-level course retention rates of students.

For fall-to-spring retention rates (RQ4), the FTIC cohort from 2021 was utilized as a sample of the population of the selected community college. The FTIC cohort is defined as a group of high school graduates who are degree-seeking students and enroll in college for the first time (Texas Higher Education Coordinating Board, 2017). This group was used because it represents the incoming 1st-year class and is the most homogenous group within a community college. The selected community college tracks FTIC semester retention on an annual basis. The fall 2021 FTIC cohort was used to minimize the impact of the COVID-19 pandemic and its effects on face-to-face offerings. The unit of analysis for was cohort-level data. For example, one data point is the number of 2021 FTIC students who took exactly one time-compressed course in the fall 2021 semester.

Data Collection and Analysis Procedures

In this study, I utilized secondary data from the selected community college for academic years ending in 2020, 2021, and 2022. The Institutional Research Department provided the data in spreadsheets with relevant fields.

Descriptive

RQ1: How many time-compressed courses did students take during the fall and spring semesters over the last 3 years?

RQ2: How many time-compressed courses did students take in online, face-to-face, and hybrid modalities during the fall and spring semesters over the last 3 years?

I used descriptive statistics to analyze and interpret patterns of enrollment in time-compressed courses. Descriptive statistics such as frequency, mean, and standard deviation are

appropriate for this study because they summarize and organize a large dataset (Holcomb, 2016). Descriptive statistics included the total duplicated enrollment in time-compressed and standard 16-week general education courses for the fall and spring semesters over the academic years ending in 2020, 2021, and 2022. Statistics included frequency counts by term, year, modality, and instructional division. The data are visually presented using histograms.

Comparative

RQ3: Is there a difference in course retention rates of students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester?

H_0: There is no significant difference in course retention rates of students enrolled in time-compressed general education courses and those enrolled in standard general education courses in a 16-week semester.

H_1: There is a no significant difference in course retention rates of students enrolled in time-compressed general education courses and those enrolled in standard general education courses in a 16-week semester.

I compared course retention rates of students enrolled in time-compressed general education courses to standard 16-week general education courses at a community college in the southwestern United States to determine if time-compression as a course delivery method increases course retention rates of students. I also compared course retention rates between the math and science, social behavioral sciences, and fine arts and communications divisions within time-compressed courses and standard 16-week courses. The data consisted of section-level course retention rates for each division and course-delivery method.

I ran a two-way (2x3) ANOVA test with a priori power analysis checking for normality and homogeneity of variance in advance (Knapp, 2016). A 2x3 ANOVA test was used with the delivery method having two options: time-compressed and standard 16-week offerings. The other category, division type, had three options: math and science, social behavioral sciences, and fine arts and communication. There was a significant difference based on the *F* test statistic and corresponding *p*-value, so a Tukey post hoc analysis was run to determine which pairings indicated a significant difference. A two-way ANOVA test was appropriate for this study because it permitted a comparison of means across two or more independent variables (Yi et al., 2022).

An a priori power analysis with an α-level of 0.05, desired statistical power of 0.80, and medium effect size of 0.50 indicated a minimum sample size of 34 course sections. Table 1 provides a visual representation of the design.

Table 1

Course Retention by Course-Delivery Method and Academic Division

Course	Math and Sciences	Social and Behavioral Sciences	Fine Arts and Communications	Total
Time-compressed				
Standard 16-week				
Total				

RQ4: Is there a difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester?

H_0: There is no significant difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester.

H_1: There is a significant difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester.

Fall-to-spring retention rates between enrollment in time-compressed general education courses and standard-length 16-week general education courses were compared based on the number of fall 2021 time-compressed courses students took. The fall 2021 FTIC cohort was separated into four groups based on the number of time-compressed general education courses students enrolled in (i.e., zero, one, two, and three or more). An a priori power analysis with an α-level of 0.05, desired statistical power of 0.80, and medium effect size of 0.50 indicated a minimum sample size of 34 students. Table 2 provides a visual representation of the design.

Table 2

Fall 2021 First-Time College Students Retention

Time-compressed courses	Returned in spring	Did not return to spring
Zero		
One		
Two		
Three or more		

The number of the 2021 FTIC students returning in the spring semester based on enrollment in time-compressed courses and the four sub-groups in the fall was compared to the entire fall-to-spring semester retention rate of FTIC students and subsequent expected values for each group. The independent variable was the delivery method of general education courses that

FTIC students enrolled in for the fall 2021 semester, namely time-compressed or standard 16-week courses. The dependent variable was retention to the spring 2022 semester. A chi-squared test of independence was utilized to compare the fall-to-spring retention rates of FTIC students enrolled in zero, one, two, and three or more time-compressed general education courses to the fall-to-spring retention rate of the entire 2021 FTIC. The chi-squared test of independence was appropriate for this research question and fall-to-spring retention rates because it is a non-parametric statistical test used to analyze differences between groups when the categories are ordinal or nominal (McHugh, 2013). A Bonferroni correction was used due to multiple comparisons of the same mean being compared and to avoid a Type I error (Armstrong, 2014).

Ethical Considerations

There were few expected ethical considerations in this study. The study used existing de-identified data from the academic years ending in 2020, 2021, and 2022. All data, including demographic, enrollment, and cohort grouping, were de-identified by the selected community college's Institutional Research Department before the data were released to me. I submitted a notification to Abilene Christian's Institutional Review Board as this study did not directly involve human subjects and used only secondary data (see Appendix).

Assumptions, Limitations, and Delimitations

Assumptions

An assumption of this study was that the first 8-week sub-term and the second 8-week sub-term of a 16-week semester were equivalent. Therefore, student enrollment in a time-compressed course was treated equally in my analysis whether it occurred in the first or second sub-term of the semester. Another assumption of this study was that the sample was representative of the target population at this institution. The academic years selected for the

analysis offer a mere snapshot of the institution; however, using a priori power analysis, I ensured a sufficient sample size for a causal comparative analysis. Interpretation of the results assume that this sample is representative of the target population for the institution over time.

Limitations

There were several limitations in this research study, the first of which was the homogenous nature of the student groups, especially FTIC students. Many FTIC high school graduates enter the selected institution with college credit from dual credit courses. Prior research suggests that high school graduates who complete dual credit courses with a C or better may have a better rate of course and semester retention (Foster, 2010; Ison, 2022; Kim, 2014).

The potential impact of the COVID-19 pandemic on retention rates was another limitation. In March 2020, the community college selected for the study, like many, was forced to adapt any face-to-face courses to an online environment. This change in modality, regardless of course length, could have impacted course retention rates. While the community college mostly returned to face-to-face offerings in the fall 2020 semester, there were adaptations (i.e., lower class sizes and COVID-19 protocols) that could have impacted course retention rates or enrollment.

The lack of widespread adoption of time-compressed courses in the math and science division was also a limitation of this study. Only three math and science departments (i.e., kinesiology, biology, and math) adopted time-compressed courses over the academic years ending in 2020, 2021, and 2022. This limited adoption was likely due to complex scheduling and logistics since many science courses require 3–4 laboratory hours per week for a standard 16-week course, which would equate to 6–8 hours per week for an 8-week sub-term.

Delimitations

This study's delimitations included numerous variables not considered in the data set. For example, I did not consider instructor quality for time-compressed or standard 16-week courses. Other variables not considered in the data set were student age, gender, socioeconomic status, full-time or part-time status, major, student GPA, or work hours. Further, since quantitative analysis methods generally do not examine the motives, rationale or reasoning behind actions, I did not ask students why they selected time-compressed versus 16-week general education courses, nor did I interview faculty to determine why they requested 8-week sections.

My choice to disregard student grades as a variable in time-compressed courses may also be a delimitation of the study. As the focus of my study was on withdrawal from courses due to nonacademic reasons, withdrawal with a grade of F was treated the same as withdrawal with a grade of A. Tinto (2012b) found that 80% of students withdrew from courses due to nonacademic reasons. Nevertheless, since students generally must earn a C (sometimes a D) to receive credit for transfer or graduation, exclusion of grades in the analysis may limit interpretation of the results.

Finally, using a convenience sample from a single community college is a delimitation that affects the generalizability of the findings. The community college selected for this study is a financially strong institution with significant operational resources and a foundation that provides many scholarships to students. Other community colleges without similar monetary resources could face financial challenges when implementing 8-week courses. Caution should be taken when generalizing

Chapter 4: Results

The purpose of this causal-comparative, non-experimental, quantitative study was to examine the effect of time-compressed courses on course retention rates of students and fall-to-spring retention rates of FTIC students enrolled at a community college in the southwestern United States. This chapter contains the findings of the study organized by research question. Unduplicated enrollment counts each student one time regardless of how many courses they are taking, while duplicated enrollment counts each course enrollment for each student (Texas Higher Education Coordinating Board, 2017).

Duplicated enrollment in time-compressed and standard 16-week general education courses during the fall and spring semesters of academic years ending in 2020, 2021, and 2022 were compared and disaggregated by the selected community college's modality options. Through quantitative analysis, course and fall-to-spring retention rates of students from three academic years were compared to determine whether time-compressed courses affected retention rates of students. Course retention rates were compared by the delivery method and academic division. Fall-to-spring retention rates for the 2021 FTIC cohort were compared based on the number of time-compressed courses students selected.

Research Question 1

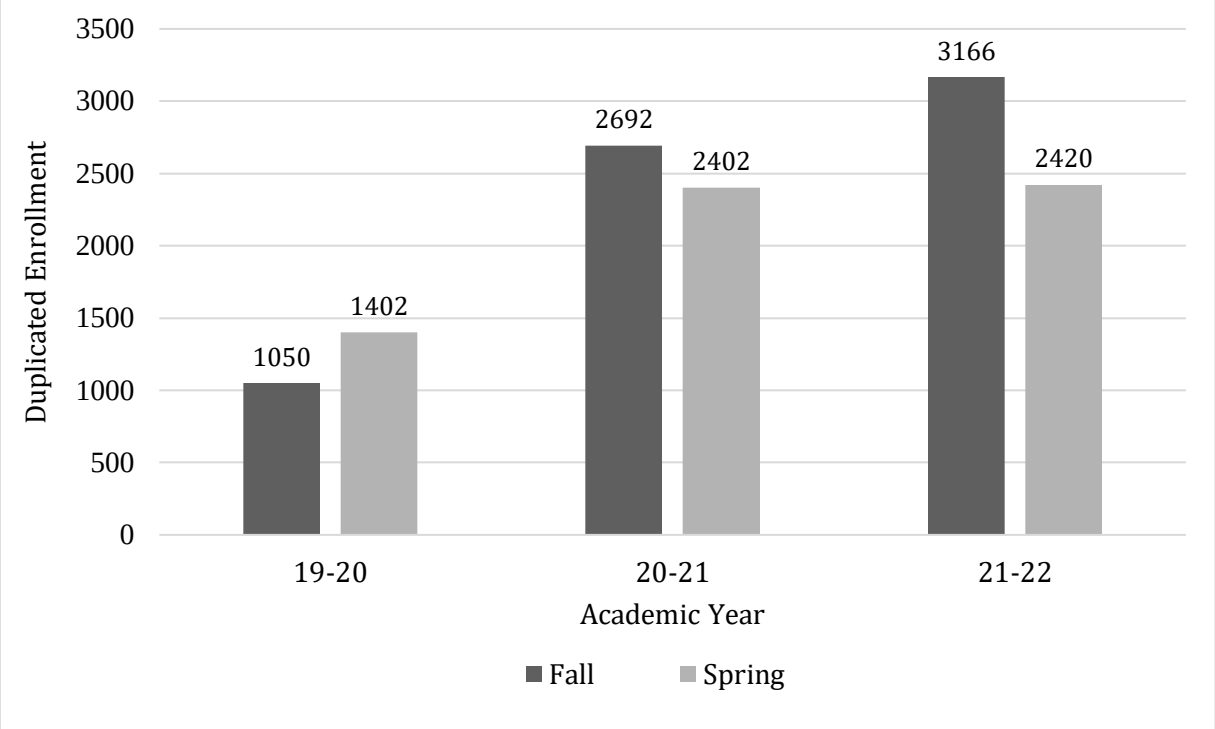
RQ1: How many time-compressed courses did students take during the fall and spring semesters over the last 3 years?

For the first research question, I examined the duplicated enrollment in time-compressed courses during the fall and spring semesters for the academic years ending in 2020, 2021, and 2022. In the fall semesters, duplicated enrollment in time-compressed general education courses increased annually from 1,050 student enrollments in the 2019–2020 academic year to 3,166

student enrollments in the 2021–2022 academic year (see Figure 1). In the spring semesters, duplicated enrollment in time-compressed general education courses increased from 1,402 student enrollments in the 2019–2020 academic year to 2,420 student enrollments in the 2021–2022 academic year but remained constant in the spring semesters of the 2020–2021 and 2021–2022 academic years (see Figure 1). In a comparison of semesters within each academic year, duplicated enrollment in time-compressed courses during the fall semester surpassed the spring semester in the 2020–2021 and 2021–2022 academic years as illustrated in Figure 1.

Figure 1

Duplicated Enrollment of Time-Compressed Courses by Semester

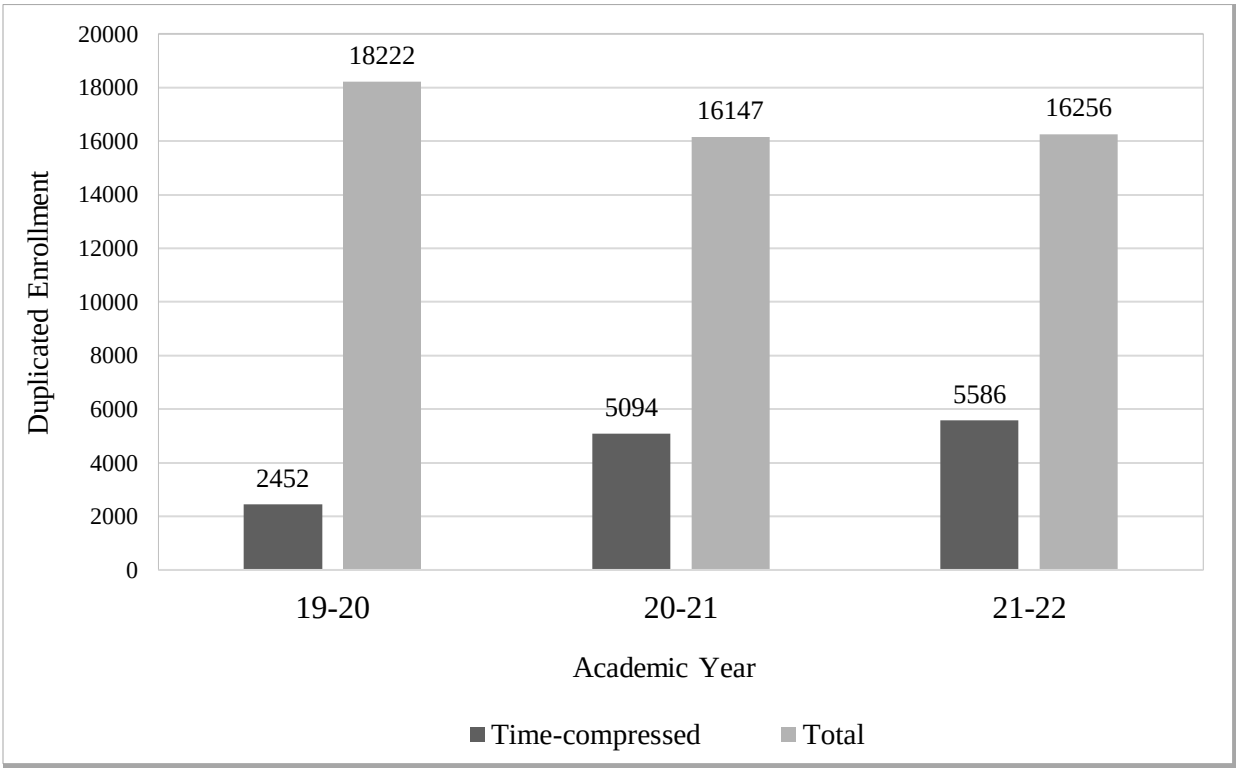


Annually, data revealed an increase in duplicated enrollment of time-compressed courses at the selected community college for each of the 3 years examined, despite an overall decline in enrollment. Specifically, duplicated enrollment in time-compressed courses increased from 2,452 student enrollments in the fall and spring semesters of the 2019–2020 academic year to 5,586

student enrollments in the fall and spring semesters of the 2021–2022 academic year. During this same period, total duplicated enrollment for the institution decreased from 18,222 student enrollments in the 2019–2020 academic year to 16,256 student enrollments in the 2021–2022 academic year (see Figure 2).

Figure 2

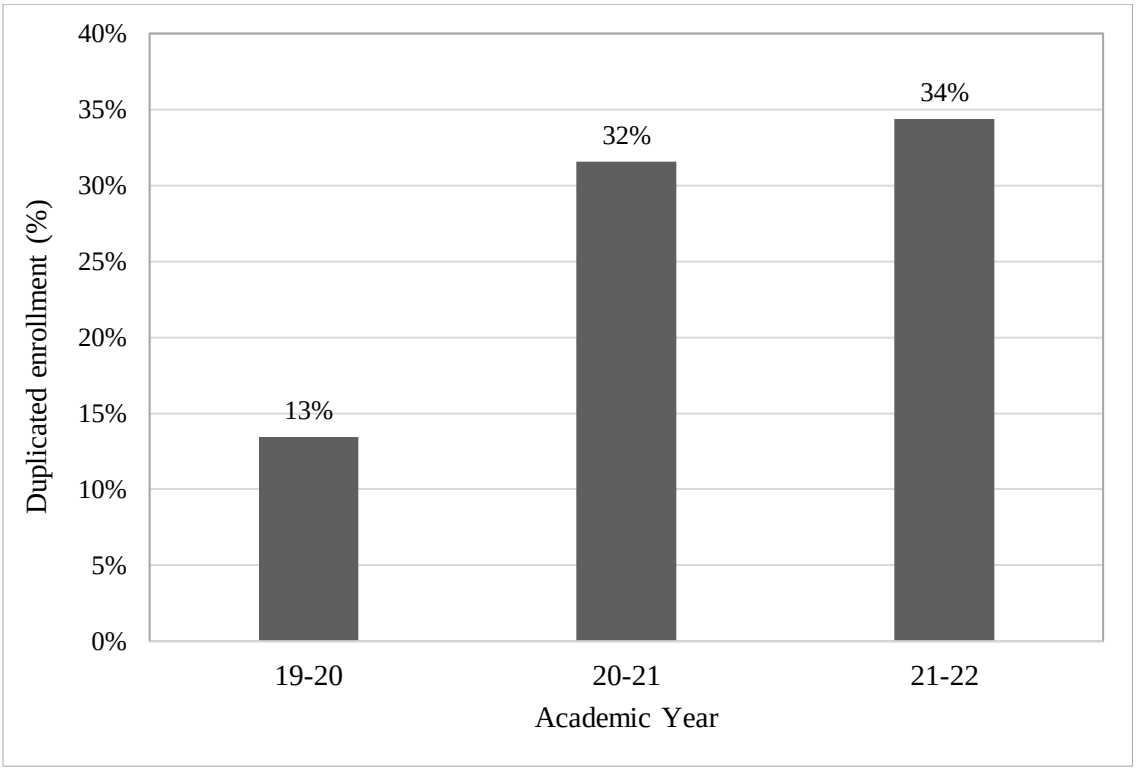
Total and Time-Compressed Course Duplicated Enrollment by Year



Proportionally, duplicated enrollment in time-compressed general education courses as a percentage of total duplicated enrollment increased from 13% in the 2019–2020 academic year to 34% in the 2021–2022 academic year. From the 2020–2021 to 2021–2022 academic years, duplicated enrollment in time-compressed general education courses as a percentage of total duplicated enrollment increased from 32% to 34% (see Figure 3).

Figure 3

Percentage of Duplicated Time-Compressed Enrollment



Research Question 2

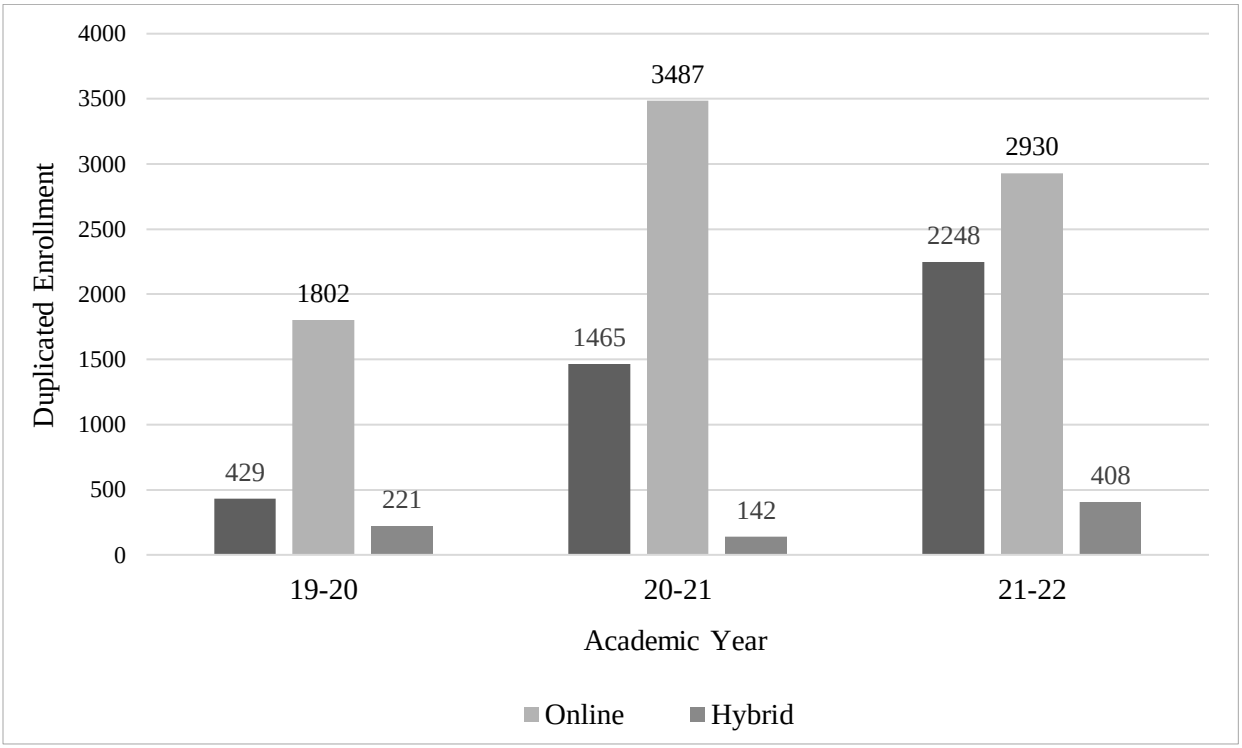
RQ2: How many time-compressed courses did students take in online, face-to-face, and hybrid modalities during the fall and spring semesters over the last 3 years?

Research Question 2 focused on the modality offerings of time-compressed general education courses at the selected community college. Modality options included face-to-face, online, and hybrid formats. Hybrid time-compressed general education courses represented the lowest duplicated enrollment across the academic years ending in 2020, 2021, and 2022 with 221, 142, and 480 student enrollments, respectively. Online time-compressed general education courses comprised the largest duplicated enrollment with 1,802, 3,487, and 2,930 student enrollments, respectively. Face-to-face duplicated enrollment increased each year from 429

student enrollments in 2019–2020 to 2,248 student enrollments in 2021–2022. Figure 4 displays the modality breakdown of time-compressed general education courses by academic year.

Figure 4

Duplicated Time-Compressed Enrollment by Modality



Research Question 3

RQ3: Is there a difference in course retention rates of students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester?

H_0: There is no significant difference in course retention rates of students enrolled in time-compressed general education courses and those enrolled in standard general education courses in a 16-week semester.

H_1: There is a no significant difference in course retention rates of students enrolled in time-compressed general education courses and those enrolled in standard general education courses in a 16-week semester.

For RQ3, I compared course retention rates of students enrolled in time-compressed courses and standard 16-week courses within three divisions:

- math and science,
- social behavioral sciences, and
- fine arts and communications.

I selected 3,005 general education course sections from the academic years ending in 2020, 2021, and 2022. From those years, there were 2,139 standard 16-week general education sections and 866 time-compressed general education sections selected for the study.

Descriptive statistics revealed a total mean course retention rate of students over the academic years ending in 2020, 2021, and 2022 for all divisions (M = 91.74, SD = 12.19). The total mean course retention rates of students by academic division were: math and science (M = 88.99, SD = 13.34), social and behavioral sciences (M = 93.36, SD = 9.77), and fine arts and communication (M = 92.85, SD = 12.40).

The highest mean course retention rate was in time-compressed social behavioral sciences general education courses (M = 95.89, SD = 7.22). The lowest course retention rate was in standard 16-week math and science general education courses (M = 88.78, SD = 13.42). Descriptive statistics by division and course length, including means and standard deviations, are displayed in Table 3.

Table 3

Descriptive Statistics for Course Retention Rates by Academic Division

Course length	Division	*M*	*SD*	*n*
Standard 16-week	Math Science	88.78	13.42	933
	Social Behavioral	91.47	10.94	492
	Fine Arts Communication	91.21	14.05	714
	Total	90.21	13.17	2,139
Time-compressed	Math Science	93.41	10.78	45
	Social Behavioral	95.89	7.22	367
	Fine Arts Communication	95.44	8.64	454
	Total	95.53	8.21	866
Total	Math Science	88.99	13.34	978
	Social Behavioral	93.36	9.77	859
	Fine Arts Communication	92.85	12.40	1,168
	Total	91.74	12.19	3,005

I conducted a two-way ANOVA (2x3) to analyze the data (see Table 4). Results revealed a significant effect for course length (time-compressed or standard 16-week), $F(1, 3003) = 39.29$, $p < .001$. Likewise, results revealed a significant effect for academic division (math and science, social behavioral sciences, and fine arts and communication), $F(2, 3002) = 3.38$, $p = .034$, at the $\alpha = 0.05$ level. On the contrary, there was not a significant effect for interaction between course length by division, $F(2, 3002) = 0.027$, $p = .973$, at the $\alpha = 0.05$ level. Table 4 displays the results of the analysis.

Table 4

Two-Way ANOVA Results

Source	Type III *SS*	*df*	*MS*	*F*	Sig.
Corrected Model	21,077.96[a]	5	4,215.59	29.73	< 0.001
Intercept	9,772,667.13	1	9,772,667.13	68,911.92	0.000
Course Length	5,571.65	1	5,571.65	39.29	< 0.001
Division	957.25	2	478.63	3.38	0.034
Course Length by Division	7.767	2	3.88	0.027	0.973
Error	425,299.87	2999	141.81		
Total	25,737,641.66	3005			
Corrected Total	446,377.83	3004			

Note. $R^2 = 0.047$ (Adjusted $R^2 = 0.046$)

The Tukey post hoc test results revealed a significant difference in the course retention rate of students in the math and science division compared to the social behavioral sciences division with a mean difference of +/- 4.36, ($p < .001$) at the $\alpha = 0.05$ level. There was also a significant difference in the course retention rate of students in the math and science division compared to the fine arts and communications division, mean difference of +/- 3.86, ($p < .001$) at the $\alpha = 0.05$ level. Conversely, there was no significant difference in the course retention rate of students in the social behavioral sciences division as compared to the fine arts and communications division, mean difference of +/- 0.50, ($p = .615$) at the $\alpha = 0.05$ level. My hypothesis that time-compressed courses did not impact the course retention rate of students in general education courses was rejected based on the results. Table 5 displays the results of the Tukey post hoc test.

Table 5

Results of the Tukey Post-Hoc Test

Division (I)	Division (J)	*M* Difference (I-J)	*SE*	Sig.	95% CI LL	95% CI UL
Math & Science	Social Behavioral	-4.36	0.557	< 0.001	-5.67	-3.06
	Fine Arts Comm	-3.86	0.516	< 0.001	-5.07	-2.65
Social Behavioral	Math & Science	4.36	0.557	< 0.001	3.06	5.67
	Fine Arts Comm	0.50	0.535	0.615	-0.75	1.76
Fine Arts Comm	Math & Science	3.86	0.516	< 0.001	2.65	5.07
	Social Behavioral	-0.50	0.535	0.615	-1.76	0.75

Research Question 4

RQ4: Is there a difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester?

H_0: There is no significant difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester.

H_1: There is a significant difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester.

For RQ4, I compared the fall-to-spring retention rate of FTIC students based on the number of time-compressed general education courses for which they enrolled. The fall 2021 FTIC cohort consisted of 683 students. Of this total, 119 students enrolled in only standard 16-week general education courses during the fall semester. In contrast, 176 students enrolled in one

time-compressed general education course, 209 enrolled in two time-compressed general education courses, and 179 enrolled in three or more time-compressed general education courses. Table 6 displays the breakdown of how many time-compressed courses students enrolled in and how many returned in the spring 2022 semester.

Table 6

Fall 2021 FTIC Cohort Retention Rate for Spring 2022

TC courses	Returned	Did not return	Total
Zero	79	40	119
One	121	55	176
Two	163	46	209
Three or more	153	26	179
Total	516	167	683

Of fall 2021 FTIC students who enrolled in only standard 16-week general education courses in the fall semester, 79 returned and 40 did not return in the spring 2022 semester. The observed values represent fewer students who returned and more students who did not return compared to the expected values of 89.90 and 29.10, respectively. Similarly, of fall 2021 FTIC students who enrolled in exactly one time-compressed general education course, 121 returned, and 55 did not return for the spring 2022 semester. When compared to the expected values of 132.97 and 43.03, the observed values represent fewer students who returned and more students who did not return.

Of fall 2021 FTIC students who enrolled in exactly two time-compressed general education courses in the fall semester, 163 returned, while 46 did not return for the spring 2022 semester. These observed values are greater than the expected value of 157.90 who returned and

fewer than the expected value of 51.10 who did not return for the spring 2022 semester. Of fall 2021 FTIC students who enrolled in three or more time-compressed general education courses, 153 returned, and 26 did not return for the spring 2022 semester. These observed values are greater than the expected value of 135.23 returning and fewer than the expected value of 43.77 not returning for the spring 2022 semester. Table 7 displays the observed and expected number of returning students based on the number of time-compressed courses.

Table 7

Observed and Expected Values of Returning FTIC Students

TC courses	Returned spring		Did not return to spring	
N	Observed	Expected	Observed	Expected
Zero	79	89.90	40^	29.10
One	121	132.97	55^	43.03
Two	163	157.90	46	51.10
Three or more	153^	135.23	26	43.77

Note. ^ represents a significant difference with a Bonferroni-adjusted α of 0.00625

Testing for independence between enrollment in time-compressed general education courses in the fall semester and fall-to-spring retention revealed a significant relationship, $X^2(3, n = 683) = 20.03, p < .001$. The hypothesis that there was no difference in fall-to-spring retention rates for FTIC students enrolled in time-compressed general education courses was rejected based on the results. The chi-squared test of independence with a Bonferroni correction and comparison results are displayed in Table 8. The adjusted α-value was calculated by dividing the original α-value of 0.05 by the number of comparisons (eight; Armstrong, 2014). The adjusted α was α = 0.05/8 = 0.00625.

Table 8

Chi-square Test of Independence Results

Measure	Value	*df*	Sig.
Chi-square	20.034	3	< 0.001
Likelihood Ratio	20.582	3	< 0.001
Linear by Linear Association	19.142	1	< 0.001
N valid cases	683		

Chapter Summary

The purpose of this research study was to provide an overview of time-compressed student enrollments and compare course retention of students over the academic years ending in 2020, 2021, and 2022. Fall-to-spring student retention of was compared to enrollment in time-compressed courses. The first two research questions focused on duplicated enrollment in time-compressed and standard 16-week general education courses at a medium-sized community college in the southwestern United States.

Duplicated enrollment in time-compressed courses from the 2019–2020 academic year to the 2021–2022 academic year increased from 2,452 student enrollments to 5,586 student enrollments. Duplicated enrollment in time-compressed general education courses as a percentage of total duplicated enrollment over the same academic years increased from 13% to 34%. During the academic years ending in 2020, 2021, and 2022, time-compressed general education courses were offered as face-to-face, online, and hybrid modalities. Face-to-face, time-compressed general education courses increased from a duplicated enrollment of 429 to 2,248. Online time-compressed duplicated enrollment increased from 1,802 to 2,930 student enrollments, peaking with 3,487 student enrollments in the 2020–2021 academic year. Hybrid,

time-compressed general education courses increased from 221 student enrollments to 408 student enrollments from the 2019–2020 academic year to the 2021–2022 academic year.

There was a significant difference in course retention of students between time-compressed and standard 16-week general education courses based on the results from RQ3. There was also a significant difference in the course retention of students in general education courses between the math and science division compared to the fine arts and communication division and the social and behavioral sciences division.

Fall 2021 FTIC students who enrolled in three or more time-compressed general education courses returned for the spring 2022 semester at a significantly higher rate than those enrolling in fewer time-compressed general education courses based on the results of RQ4. The research findings, limitations, and future research recommendations are discussed in Chapter 5.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative, causal-comparative, non-experimental study was to examine the effect of time-compressed courses on course retention rates of students and fall-to-spring retention rates of FTIC students at a community college in the southwestern United States. The significance of the findings in the context of the research and Tinto's theory of student success is discussed in this chapter for each of the four research questions. The final components of this chapter are presented in my discussion of the limitations of the study and recommendations for future research.

Discussion

Scrutiny and criticism from external stakeholders provided community colleges the impetus to transition from a singular focus of open access to college to a broader goal of student success over the last twenty years (Inside Higher Ed, 2011; McKinney & Hagedorn, 2017). In response to public criticism, community colleges participated in various student success initiatives to focus on efficient degree completion for students, leading to the offering of time-compressed courses (Miller, 2017). The community college selected for this study increased the number of time-compressed general education courses in the fall 2020 semester. With the increased offerings, I wanted to examine the growth of time-compressed courses over the academic years ending in 2020, 2021, and 2022 and examine how they impacted course retention rates of students and fall-to-spring student retention rates. In the following sections, the significance of the findings for each research question is discussed.

Research Question 1

RQ1: How many time-compressed courses did students take during the fall and spring semesters over the last 3 years?

The focus on student success at the study site led to reexamining all facets of enrollment procedures and delivery options. In the fall 2019 semester, there were limited offerings of time-compressed courses, mainly consisting of 8-week course offerings. Beginning with the fall 2020 semester, the college increased the number and variety of time-compressed general education course sections. While the COVID-19 pandemic in 2020 severely impacted many facets of community college operations, the expansion of time-compressed general education course offerings was not affected. Duplicated enrollment in time-compressed general education courses more than doubled from the fall 2019 semester (1,050 student enrollments) to the fall 2020 semester (2,692 student enrollments).

The increased duplicated enrollment in time-compressed general education courses continued from the fall 2020 semester (2,692 student enrollments) to the fall 2021 semester (3,166 student enrollments), representing a 17% increase. The trend in duplicated enrollment in time-compressed general education courses continued for the spring semesters. Spring duplicated enrollment in time-compressed general education courses increased from 1,402 student enrollments in 2020 to 2,402 student enrollments in 2021. Another indicator of the increase in time-compressed general education courses was the duplicated enrollment in time-compressed general education courses as a percentage of total duplicated general education enrollment. The percentage of time-compressed duplicated enrollment in time-compressed general education courses increased from 13% in the 2019–2020 academic year to 34% in the 2021–2022 academic year.

The increase in time-compressed offerings from 2020 to 2021 was possibly due to the social behavioral sciences and fine arts and communication deans, program chairs, and faculty embracing time-compressed general education courses as more time-compressed sections were

created. Through program chairs and deans, social and behavioral sciences and fine arts and communications faculty requested 8-week general education sections instead of the standard 16-week options.

Students responded to the increased sections by enrolling in time-compressed general education courses. While the number of time-compressed general education courses increased in 2020, there were many standard 16-week sections available to students. Duplicated enrollment in time-compressed general education courses increased from the 2019–2020 academic year to the 2021–2022 academic year. In the next section, I address the significance of the findings for duplicated enrollment in time-compressed general education courses disaggregated by modality.

Research Question 2

RQ2: How many time-compressed courses did students take in online, face-to-face, and hybrid modalities during the fall and spring semesters over the last 3 years?

The community college where the study was conducted offered face-to-face, online, and hybrid modalities during the academic years ending in 2020, 2021, and 2022. Face-to-face courses are taught with all the instruction occurring in-person (Texas Higher Education Coordinating Board, 2017). Online courses are taught with all of the instruction delivered through a learning management system or video conferencing software. Hybrid courses are taught using a combination of face-to-face and online instruction.

Most students enrolled in the online modality of time-compressed general education courses over the academic years ending in 2020, 2021, and 2022. The reason for the preference for online courses could be a choice of convenience for the student, but it also may be a factor of the options available. Of the 178 time-compressed general education sections offered in the 2019–2020 academic year, 123 were online, 42 were face-to-face, and 13 were hybrid courses.

These sections led to a duplicated enrollment of 1,802 for online sections, 429 for face-to-face sections, and 221 for hybrid sections.

In the 2020–2021 academic year, the pattern was exacerbated by the COVID-19 pandemic, and an overall increase in time-compressed general education courses aligned with the community college's priorities. Of the 342 time-compressed general education sections offered in the 2020–2021 academic year, 212 were online, 116 were face-to-face, and 14 were hybrid courses. These sections led to a duplicated enrollment of 3,487 for online sections, 1,465 in face-to-face, and 142 in hybrid sections. The decrease in duplicated enrollment in time-compressed, hybrid general education courses is directly attributable to the COVID-19 pandemic. Particularly, in the fall 2020 semester, face-to-face courses were limited in the number of sections offered and the maximum capacity of each section.

In the 2021–2022 academic year, the number of online and face-to-face sections was somewhat balanced when COVID-19 protocols were relaxed. Of the 346 time-compressed general education sections offered in the 2021–2022 academic year, 182 were online, 138 were face-to-face, and 26 were hybrid courses. These sections led to a duplicated enrollment of 2,930 in online sections, 2,248 in face-to-face sections, and 408 in hybrid sections.

Over the academic years ending in 2020, 2021, and 2022 time-compressed, hybrid general education sections and enrollment were limited. The first limitation was due to the COVID-19 pandemic. The community college planned to offer robust training to faculty on developing and delivering hybrid courses during the spring semester of 2020. However, when the COVID-19 pandemic began, the institution utilized all training resources for online course development. The second limitation was due to faculty preference. Many faculty members opted to teach time-compressed general education sections but chose face-to-face or online options.

The third limitation of offering more hybrid, time-compressed general education courses is attributed to the faculty's perception that teaching in a hybrid format brought all the negatives and fewer positives of each modality. For example, online modalities offer flexibility for students and faculty members due to the asynchronous nature of the courses. However, a face-to-face meeting time nullifies complete flexibility in a hybrid format.

Face-to-face courses allow the faculty member to adapt the content and structure of the course in a short time, which requires less preparation. However, the online component of a hybrid course requires significant preparation and planning. In the next section, I discuss the significance of the findings on the course retention rate of students enrolled in time-compressed general education courses.

Research Question 3

RQ3: Is there a difference in course retention rates of students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester?

H_0: There is no significant difference in course retention rates of students enrolled in time-compressed general education courses and those enrolled in standard general education courses in a 16-week semester.

H_1: There is a no significant difference in course retention rates of students enrolled in time-compressed general education courses and those enrolled in standard general education courses in a 16-week semester.

For this research study, the course retention rate was defined as the number of students receiving a grade of A, B, C, D, or F divided by the total number of students enrolled after the census date (Texas Higher Education Coordinating Board, 2017), or removing students who

received a grade of W from the numerator. The excessive dropping of courses is defined as dropping one course for every five courses. Excessive dropping decreased the likelihood of a student completing a credential by 44% (McKinney et al., 2019).

My hypothesis that time-compressed courses did not impact course retention rates in general education courses was rejected based on the results. The mean course retention rate for students in 866 time-compressed general education sections was 95.53%, while the mean course retention rate for students in 2,139 16-week general education courses was 90.21%—a difference of 5.32%.

The 5.12% difference in mean course retention rates of students in time-compressed general education courses compared to standard 16-week general education courses was significant ($p < .001$). These findings are important for understanding the possible benefit of time-compressed general education courses as it pertains to course creation and scheduling. There are many factors leading to the completion of a certificate or degree, but the student must first remain enrolled in the course.

The second component of this research question compared course retention rates between academic divisions based on the selected community college's organizational structure. The course retention rates for general education courses by division were: math and science (M = 89.99%), social behavioral sciences (M = 93.36%), and fine arts and communication (M = 92.85%). There was a significant difference in general education course retention rates of students in math and science as compared to social behavioral sciences divisions ($p < .001$) with a difference in means of +/- 4.36. Similarly, there was a significant difference in general education course retention rates of students in math and science as compared to fine arts and communication divisions ($p < .001$) with a difference in means of +/- 3.86. Conversely, there

was no significant difference in general education course retention rates of students in social behavioral sciences as compared to fine arts and communication divisions (p = .615).

There are several possibilities that may explain the differences. First, while the 45 math and science time-compressed general education courses met the sample size requirements of 34 using an a priori power analysis, it is still a much smaller sample size than the other two divisions and only represents specific departments within the division. Second, math and science general education courses are generally perceived to be more difficult by students and faculty alike. This difference in subject matter difficulty could account for the difference in mean course retention rates.

The last component of this research question compared the mean course retention rate of students by course length and division. For example, I compared the mean course retention rates between time-compressed fine arts and communication general education courses with 16-week math and science general education courses. There was not a significant difference (p = .973) in the interaction between course length and division. In the next section, I discuss the significance of the findings on fall-to-spring student retention rates based on enrollment in time-compressed general education courses.

Research Question 4

RQ4: Is there a difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester?

H_0: There is no significant difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester.

H_1: There is a significant difference in fall-to-spring retention rates of FTIC students enrolled in time-compressed general education courses compared to those enrolled in standard general education courses in a 16-week semester.

Retention is a critical factor for students completing a degree and entering the workforce as well as for a college's financial well-being and program success (Fike & Fike, 2008). Fall-to-spring student retention rates for community colleges are calculated by the number of FTIC students from the fall, who are registered for the following spring semester, divided by the total number of FTIC students (Texas Higher Education Coordinating Board, 2017).

For this research question, I used the fall 2021 FTIC cohort to examine the impact of enrollment in time-compressed general education courses on fall-to-spring student retention. Of the 683 students in the FTIC cohort, 516 returned for the spring semester. My hypothesis that there was no significant difference in fall-to-spring retention rates for FTIC students enrolled in time-compressed general education courses was rejected based on the results.

Enrollment in time-compressed courses affected the fall-to-spring retention rates for three FTIC student groups. FTIC students enrolled in only standard 16-week general education courses failed to return for the spring 2022 semester at a higher rate than expected based on the calculated probability of return. A possible reason for the decreased return rate when students took only standard 16-week general education courses was less communication by the faculty member and lower engagement by the faculty member and student. Faculty and students reported a higher degree of engagement and communication in time-compressed courses than in 16-week general education courses (Walker, 2015; Zajac & Lane, 2020).

The number of fall 2021 FTIC students enrolled in exactly one time-compressed general education course who did not return for the spring 2022 semester exceeded the number of

expected non-returners. Although this group was enrolled in one time-compressed course, these students were also likely enrolled in one or more standard 16-week general education courses (unless they were only enrolled in one course). Enrolling in only one time-compressed course simultaneously with 16-week general education courses can create an undue hardship for students. Within a time-compressed semester, balancing the workload of the time-compressed course plus the workload of standard 16-week courses could impact course retention and student success. A full load during a time-compressed semester consists of two time-compressed courses, but a full load during a 16-week semester consists of four courses. A hybrid schedule (time-compressed and standard 16-week courses) offers many of the negatives of both course lengths (i.e., higher stress and a concentration of assignments in time-compressed courses while juggling the longer-term course requirements) without the benefit of fewer courses (Colclasure et al., 2018; DeVeney et al., 2015).

Fall 2021 FTIC students enrolled in three or more time-compressed general education courses returned for the spring 2022 semester at a higher rate than expected based on the probability of returning. For most full-time students, enrolling in three or more time-compressed courses meant most of the students' courses were in a time-compressed format. I posit that students enrolling in three or more time-compressed general education courses return at a higher rate for the following spring semester.

Three time-compressed general education courses represent a critical mass of general education courses for students. Subsequently, students enrolling in three or more time-compressed general education courses received all the benefits of time-compressed courses, including the ability to focus on fewer courses at a time (Holston, 2020). Tinto's (2012b) theory on student success advances the idea of momentum and how success breeds future success. As

such, when a student successfully completes a course in the first 8-week term, they are motivated to continue into the second 8-week term and the following spring semester. The importance of students enrolling in three or more time-compressed courses means the courses are likely spread out between two time-compressed terms.

The community college where the study was conducted would need to make significant changes to implement a systemic practice of students enrolling in three or more time-compressed general education courses. The first change would be to increase the number of time-compressed sections offered in the fall and spring semesters. For example, English 1301: Composition I, is offered as a time-compressed option, but there are not enough sections or enrollment slots for all students. The second change would be to offer all general education courses in a time-compressed format. While the social behavioral sciences and fine arts and communication divisions offer many general education courses, there are courses that are not offered in a time-compressed format (e.g., Speech 1321: Business and Professional Speaking).

The math and science division would need to embrace time-compressed courses by offering their entire inventory of courses in an 8-week format. This change would require converting science labs to a hybrid or online format to accommodate the required contact hours. Finally, the teaching and learning center would need to offer extensive and robust professional development opportunities to faculty members for adapting curriculum and assignments to a time-compressed format. All of the above changes are contingent on complete administrative support. The increased course offerings would likely require a mandate from the Vice President of Instructional Services. The math and science division has been outspoken in its criticism of time-compressed courses. The professional development sessions would require significant financial resources to acquire and provide to faculty members. However, the benefits to the

institution with a higher spring enrollment through an increased fall-to-spring student retention rate would provide additional tuition and state reimbursement for contact hour funding. The findings for this research question are significant since fall-to-spring student retention is a critical factor for the enrollment of the institution and the success of its students. In the following section, I discuss the limitations of this research study.

Limitations and Delimitations

There were several limitations in this research study, including the potential impact of the COVID-19 pandemic on retention rates. In March 2020, the community college selected for the study was forced to adapt any face-to-face courses to an online environment. When students returned to face-to-face offerings in the fall 2020 semester, COVID-19 protocols (e.g., lower class sizes) were implemented. Such adaptions may have impacted course retention rates or enrollment.

Limited adoption of time-compressed courses in the math and science division was also a limitation of this study. Only three math and science departments (i.e., kinesiology, biology, and math) adopted time-compressed courses over the academic years ending in 2020, 2021, and 2022, likely due to complex scheduling and logistics of required laboratory hours.

The findings of this study were also limited by my choice of analysis methods, including numerous variables not considered in the data set. For example, I did not consider student age, gender, socioeconomic status, full-time or part-time status, major, student GPA, work hours, or instructor quality. Since the focus of my study was on withdrawal from courses due to nonacademic reasons, withdrawal with a grade of F was treated the same as withdrawal with a grade of A. However, exclusion of grades in the analysis may limit interpretation of the results.

Finally, I used a convenience sample from the university where I am employed. A convenience sample from a single community college limits generalizability of the findings. Caution should be taken when attempting to generalize the results of the study beyond the sample and institution where the study was conducted.

General Recommendations

Based on the results of this study on the impact of time-compressed general education courses, there are benefits to community colleges that adapt their traditional scheduling of 16-week courses and adopt a more flexible time-compressed course schedule. The benefits of offering time-compressed courses to community colleges include the possibility of increased course retention of students and fall-to-spring student retention. Amarillo College and Odessa College earned numerous awards and realized gains in retention partially based on their implementation of time-compressed courses (Achieving the Dream, 2021; Amarillo College, 2022; Aspen Institute, 2021; Stein, 2016). Based on Amarillo and Odessa College's success and the results of this study, I recommend a significant expansion of time-compressed courses for community colleges considering the change. While a pilot or limited expansion could be easier to implement, the results for students and the institution could be reduced.

The results of the impact of time-compressed courses on fall-to-spring student retention rates suggest a tipping point whereby students and the institution benefit. Students enrolling in one or no time-compressed general education courses during the fall semester returned at a lower rate for the following spring semester. Comparatively, students enrolling in three or more time-compressed general education courses for the fall semester returned at a higher rate for the following spring semester.

The institution must provide the depth and breadth of course offerings for students to enroll in three or more time-compressed general education courses a semester. These offerings must include enough slots in high-demand courses, such as 1st-year English and math, to accommodate student needs and degree requirements. The institution should offer lower-demand courses, such as sophomore-level math courses, in a time-compressed format based on a published cycle or schedule.

Another recommendation would be for the community college to offer significant professional development for faculty members before fully implementing time-compressed courses. The training should begin with an overview of time-compressed courses, including their benefits to students and the institution. During the training, results of the implementation of time-compressed courses from community colleges of similar size should be provided, if available. If these results are not possible, visiting other community colleges could provide deans and department chairs insight into the benefits of converting to time-compressed courses directly from other practitioners.

The college could provide stipends to faculty members as converting to time-compressed courses will require significant time and research. I recommend offering stipends for each course the faculty members convert to a time-compressed format. A stipend might soften the blow for faculty members reluctant to make a change. Finally, the administration must make an unwavering public commitment to converting to time-compressed courses. Providing training and stipends would illustrate the importance of the change to all stakeholders. Focusing on students and their success by transitioning to more time-compressed courses should provide long-term benefits to the institution.

Recommendations for Future Study

This research could be replicated with different data sets. For this study, the main reason for using the last three academic years was the shift to offering more time-compressed courses in the fall 2020 semester. However, this shift and the data set coincided with the COVID-19 pandemic. Additionally, while the community college provided training, as needed, for the transition to online courses, there was little training on the transition to 8-week courses. In the interim, faculty felt more comfortable in the 8-week format by adapting assignments and curriculum. Conducting a replication study using future academic years could counteract the effects of the COVID-19 pandemic and the limited professional development opportunities.

Another recommendation is to replicate RQ3 using the same course sections and academic divisions but comparing course success rates instead of course retention rates. Course success rates could be calculated by removing all students who earned an F from the course retention calculation or removing all students who earned a D or an F. While withdrawing from courses due to nonacademic reasons is a significant factor in graduation or transfer, grades also play a critical role in long-term success for a student.

Another recommendation for future study is to examine the impact of the time-compressed format on career and technical education courses. Many CTE courses have a large number of lecture and lab contact hours, such as welding or automotive classes. However, specific CTE courses, such as office systems technology, computer programming, or introductory courses in various programs, are offered in a time-compressed format. The course retention (or success) rates between time-compressed and 16-week versions of those CTE courses could be compared. This replication study would address a different group of students. Some workforce education students would be represented in the original study because they are

pursuing an associate of applied science degree with a required 15 semester credit hours of general education coursework. However, many workforce students complete a certificate that does not require general education courses. A replication study utilizing CTE courses would capture those students.

Conclusion

The findings of this study were significant, as enrollment in time-compressed courses had a positive effect on course retention rates of students and fall-to-spring student retention rates. Increased duplicated enrollment in time-compressed general education courses over the academic years ending in 2020, 2021, and 2022 signified support from faculty members, administrators, and students. While the prevailing modality over the academic years ending in 2020, 2021, and 2022 was the online modality, there was an increase in face-to-face, time-compressed general education student enrollments over the same time period. Due to a lack of faculty professional development (because of the COVID-19 pandemic), the institution offered very few hybrid, time-compressed general education courses.

There was a significant difference in mean course retention rates for course retention between time-compressed and standard 16-week general education courses. There was also a significant difference in mean course retention rates between time-compressed general education courses in the social behavioral sciences and fine arts and communication divisions compared to the math and science division.

Enrollment in time-compressed general education courses significantly affected fall-to-spring retention rates for FTIC students. FTIC students enrolled in only 16-week general education courses in the fall semester did not return at a higher rate than expected for the following spring semester. Likewise, FTIC students enrolled in exactly one time-compressed

general education course did not return for the following spring semester at a higher-than-expected rate. Finally, FTIC students enrolled in three or more time-compressed general education courses returned at a significantly higher rate than expected for the following spring semester.

Time-compressed general education courses provide more options for community college students in the fall and spring semesters. As more research is conducted, more community colleges and universities will offer a broader range of time-compressed courses leading to an increasing number of community college students transferring and completing a certificate or degree in a shorter time.

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Appendix: Institutional Review Board Approval

Date: 10-13-2022

IRB #: IRB-2022-14
Title: Do Time-compressed General Education Courses Increase Course and Semester Retention Rates?
Creation Date: 8-24-2022
End Date:
Status: Approved
Principal Investigator: Michael Dixon
Review Board: ACU IRB
Sponsor:

Study History

Submission Type Initial	Review Type Exempt	Decision No Human Subjects Research

Key Study Contacts

Member Andrew Lumpe	Role Co-Principal Investigator	Contact
Member Michael Dixon	Role Principal Investigator	Contact
Member Michael Dixon	Role Primary Contact	Contact