The Impact of Concurrent Enrollment Course Completion on the Academic Success of First-Generation Community College Students

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Abstract

This study explored how concurrent enrollment coursework completion in high school impacted the academic success of first-time, full-time, first-generation college students. In the current study, academic success referred to the number of credit hours earned in the first year of college, the cumulative grade point average (GPA) earned in the first year of college, whether or not the student returned for the second year of college, and if the student graduated within three years of starting college. This study was conducted using a quantitative, quasi-experimental research design analyzing archival data from a Midwestern community college. The sample included 646 first-time, full-time, first-generation college students who matriculated to college in the fall terms of 2016, 2017, 2018, and 2019. Five hundred fourteen students had completed 6 or more credits of concurrent enrollment coursework in high school, while 132 had not completed any concurrent enrollment courses in high school. Independent-samples t-tests and chi-square tests of independence were conducted to compare the academic success factors of first-time, full-time, first-generation college students who completed 6 or more credits of concurrent enrollment coursework in high school and first-time, full-time, first-generation college students who did not complete concurrent enrollment coursework in high school. Results of the analyses indicated that first-time, full-time, first-generation college students who completed 6 or more credit hours of concurrent enrollment coursework in high school completed more credit hours in their first year, had a higher cumulative GPAs at the end of their first year of college, were more likely to enroll in the second year of college, and were more likely to graduate within 3 years of starting college than first-time, full-time, first-generation college students who did not

complete concurrent enrollment coursework in high school. High-school administrators, board members and counselors along with higher education administrators should examine the results of this study as they seek new ways for first-time, full-time, first-generation college students to reach academic success.

Dedication

First of all, I would like to dedicate this study to my wife, Jessica, who has believed in me from the beginning and pushed me to be at my best. During class sessions she would come to the door and scoop up a cat who consistently complained that his efforts to join the class were in vain. At times when I needed to sit down and focus on my studies, she would do dishes, fold an extra load of laundry, and keep the house in order to allow my focus to remain on completing my studies. I am also incredibly fortunate to have heard the consistent words, "you can do this," at times when I thought the completion would never come! She knew when to provide suggestions for recreation when she knew that I needed a break. Thank you, Jessica. I love you!

I also dedicate this study to my parents Richard and Christine, brother Bob, and grandmother Ami. My parents put up with more from me throughout my education journey than parents rightfully should. Their consistent support and patience has helped me become the man I am today and to strive for excellence in all things that I do. Bob, or Dr. Bob as he is known in our family, has been my best friend for a number of years, and has always been by my side through good times and bad. His own pursuits are a key inspiration to me achieving my own dreams. My grandmother Ami has always taught me that you should only regret the things you don't do or don't try and that even in failure, lessons are learned. In addition, Ami taught me to not take myself too seriously and only judge gatherings of friends and family by how much everybody laughed.

Finally, I dedicate this study to my cat Pepe and dog Biscuit. Even though Pepe passed while this study was being completed, he will always be a significant part of this journey due to his consistent "encouragement" while I shut him out of the office for my

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I would also like to thank Dr. Fred Grogan, Dr Sheri Barret, and Dr. Tes Mehring for serving on my committee and providing valuable feedback. Through the process, I have been fortunate to absorb their combined years of experience in an effort to get better and ensure this study truly added to the academic literature.

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Chapter 1

Introduction

As of 2016 roughly 24% of the 7.3 million undergraduate students at both public and private colleges and universities were considered first-generation college students (U.S. Department of Education, 2022). According to Choy (2001), a first-generation college student is defined as a college student from a household where neither parent completed a bachelor's degree. First-generation college students enter higher education institutions more likely to have academic difficulties, have a lower grade point average (GPA), work more than their non-first-generation peers, have fewer financial resources available, and receive less intensive college preparation (Falcon, 2015; Stephens, Fryberg, Rose Markus, Johnson, & Covarrubias, 2012). Despite their perceived detractors, first-generation college students often feel an immense amount of pride being the first in their family to pursue a college education (Egikwe & Tapia, 2021).

First-generation college students already begin at a disadvantage due to a lack of knowledge about attending college from their parents (Brand & Hooker, 2010). Preparation for college is more difficult for first-generation college students when they lack the same level of social or cultural awareness of college as those students whose parents had more than just some college completion (Cushman, 2007). In addition, first-generation college students face more mental health hardships due to their difficulty opening up to their parents at home about their experienced struggles (Jeong, Kim, & Lee, 2021).

Researchers have shown a significant increase in annual earning potential for students who either earn an associate's degree or earned credit from a community college

(Kane & Rouse, 1995). According to Kane and Rouse (1995) students who have earned some community college credit could have an earning potential differential of 6-13% in comparison to individuals not having any college credit. That earning potential differential jumped to 16-34% when students completed an associate's degree (Kane & Rouse, 1995).

Byrd and McDonald (2005) concluded that the most critical skills required for first-generation college students to be successful are academic skills, time management, identification and focus on a goal, and the ability to self-advocate. Even though first-generation students may have more obstacles, they can possess a skillset to overcome them. Laden (2004) suggested a number of actions that colleges should take to help first-generation college students adjust to life on campus. They include building systems to help students learn the college system, adapting curriculum, providing instruction and student services to serve the social and intellectual needs of the student, hiring administrative staff that mirror student demographics to provide a network of role models, and finding ways to integrate the feelings and concerns of first-generation college students into the fabric of everyday life on campus (Laden, 2004). Cushman, (2007) suggested a similar approach by ensuring that first-generation college students receive support to develop a sense of belonging to better integrate themselves to the college environment.

Shepler and Woosley (2011) stated that first-generation college students have lower retention and graduation rates than non-first-generation college students. Integration into college life is a significant factor related to first generation college student's persistence to graduation. Factors that negatively impact persistence and

graduation include lack of engagement on campus and fewer supports in the college environment (Pike & Kuh, 2005; Engle, Bermeo, & O'Brien, 2001). In addition to integration and acclimatizing to college life, Prospero (2007) determined that the motivations for attending college for first-generation college students are factors in both first-year GPA and overall retention and persistence. After conducting a survey of first- and non-first-generation college students, Frogge and Woods (2018) reported that for first-generation students to have a higher GPA than non-first-generation college students, increased hours were spent studying outside of class.

To help students adjust to life in college, students in many parts of the country have the opportunity to enroll in college courses in high school, known as concurrent enrollment. Clayton (2021) described concurrent enrollment as an, "academic program designed to provide rigorous post-secondary preparation and potential university course credit for high school students," (p. 380). According to the National Alliance of Concurrent Enrollment Partnerships (NACEP, 2022), roughly 1.4 million high school students in the U.S. are taking some form of concurrent enrollment courses. The most common form of concurrent enrollment is created through a negotiated partnership between a K-12 school district and post-secondary institution. According to Shivji and Wilson (2019), 80% of students participating in concurrent enrollment programs in the U.S. did so through courses offered in their high schools taught by approved high school instructors.

Many benefits of participating in concurrent enrollment courses in high school have been documented. Lewis (2009) and Handy and Floyd (2019) stated that students felt more confident, comfortable, and prepared for college when they enrolled in

concurrent enrollment courses in high school. These researchers determined taking concurrent enrollment courses made post-secondary education less intimidating, and introduced students to the concept that college classes are more difficult than high school classes. In addition to concurrent enrollment being a building block for the majority of high school students, concurrent enrollment programs can help create a more rigorous curriculum for high-ability students to develop their full academic potential (Dare, Dare, & Nowicki, 2017).

While studying career and technical programs in New York and Florida, Karp, Calcagno, Hughes, Jeong, and Bailey (2007) concluded that students who took concurrent enrollment courses in high school had a higher GPA and were more likely to persist into their second year of college than those students who did not complete concurrent enrollment courses. An (2015) also reported the positive impact of concurrent enrollment courses on the first-year GPA of college students nationally. Ganzert (2014) reported a positive correlation between students who took concurrent enrollment courses and their GPA in post-secondary work, but also found those students to have a higher rate of graduation among students in North Carolina. Additionally, while studying academic success of first-generation, Hispanic college students, Latino, Stegman, and Casillas (2020) discovered that students who completed concurrent enrollment courses in high school fared better in GPA and persistence from their first year to second year than their peers who did not complete any concurrent enrollment in high school.

While studying first-time college students at a university in Georgia, Carey (2015) identified a statistically significant impact of concurrent enrollment course completion on persistence from year one to year two in comparison to students who did not complete

concurrent enrollment coursework. Allen and Dadgar (2012) concluded that students in New York who took concurrent enrollment courses in high school not only accelerated their time to complete their degree, but also increased the number of credits earned in their first year of college. Saldivar (2020) studied college sophomores in Texas who completed concurrent enrollment courses in high school and reported that these students gained a deeper understanding of how they process information and their capabilities of learning. Latimer (2020) focused on African American first-generation students who completed concurrent enrollment and peers who did not complete concurrent enrollment courses. According to Latimer, there was a 5% increased persistence rate from fall semester to spring semester in students who completed concurrent enrollment courses compared to peers who did not take concurrent enrollment courses in high school. Stansberry (2013) reported that first-generation minority students showed a significantly higher end of first year GPA and higher persistence rate to their second year than majority first-generation students, but the population as a whole did not show significant statistical differences than first-generation students who did not take concurrent enrollment courses in high school. However, Black (1997) contended that not all first generation students are ready to take concurrent enrollment courses, and based upon their motivations, social capital, and experiences, may have difficulty being successful.

Chapman (2001) stated there are benefits for the student who is earning college credit through concurrent enrollment courses in high school, and benefits to the serving institution as well. The college offering the credit for concurrent enrollment assists in meeting the needs of high school students and the community. Through concurrent enrollment collaborations, colleges develop effective partnerships with K-12 school

districts, create a built-in recruitment tool, and provide opportunities for high school teachers to gain experience teaching a college course. According to Chapman (2001), concurrent enrollment assists college administrators to gain more insight about their incoming student populations while building a better base for future collaboration with K-12 administrators.

Background

Social scientists, educators, and policy makers are motived by questions pertaining to how to improve a student's persistence and retention and how to create equal opportunities for individuals of various backgrounds in college (An, 2013). Bragg, Kim, and Barnett (2006) defined concurrent enrollment programs as "boundary spanning curricula, instructional and organizational strategies and meaningful assessments that either link or extend from high school to college, including both two- and four-year institutions" (p. 6). The positive impact that concurrent enrollment courses can have on students is shared by administrators and faculty at the secondary and post-secondary levels. Hanson, Iverson, and Prusha (2015) concluded that through concurrent enrollment programs, students were able to gain a more in-depth knowledge of a subject area while making personal and academic gains through their participation.

In addition to the exposure to college courses and in-depth subject knowledge, there are many more benefits for students taking these courses. Lee (2001) identified a number of benefits including earning credit and accelerating a student's degree attainment, reduced total tuition costs for students, exposing students to new subject fields, a cure for school boredom, and a challenge for high achievers or an outlet for students with learning difficulties through career and technical training. Additionally, An

(2013) described a critical benefit to students participating in concurrent enrollment as providing an opportunity for the student to "replace their vague notions of college with a more realistic set of expectations," (p. 411). An (2013) also suggested a benefit to high school students being treated like college students in high school includes showing the student a path toward personal accountability and advocacy.

In the state of Iowa, concurrent enrollment programs within the community college network are monitored by a state-run legislation called "Senior Year Plus," (Iowa Department of Education, 2022). School districts in Southwest Iowa partner with community colleges in their region to offer concurrent enrollment courses. Each school district is reimbursed supplemental weighted dollars to compensate for funds paid to the community college on behalf of students. In southwestern Iowa, school districts partner with the local community college located in their region. Through the Senior Year Plus program, with permission from a guidance counselor, high school students are eligible to take any course being offered within the catalogue at their respective community college (Iowa Department of Education, 2022).

To ensure high levels of academic standards are met for concurrent enrollment programs, institutions can voluntarily follow the standards set forth by NACEP. The NACEP standards are measurable metrics that ensure identical quality of programs for courses taught by high school instructors (NACEP, 2022). The organization's 16 standards cover the areas of partnerships, curriculum, faculty, students, and assessment and program evaluation. Schools do not need to be NACEP accredited to receive federal financial aid funds. Several states do require their schools offering concurrent enrollment programs to be NACEP accredited to maintain their standards and continue offering

concurrent enrollment programs (NACEP 2022). According to the Iowa Department of Education (2022), all community colleges in Iowa must adhere to the standards set forth by NACEP.

Statement of the Problem

Ishitani, (2003) described first-generation college students as a student population about whom scholars are attempting to gain a better understanding citing the nearly 364,000 Scholastic Aptitude Tests (SAT) taken by first-generation freshmen in 2003. The influx of first-generation college students into higher education leads to questions about factors that contribute to academic success. Studies have been conducted to explore the relationship between concurrent enrollment and academic achievement. An (2013) sought a methodical approach to examine the correlation between concurrent enrollment and GPA, credit hour accumulation, time to earn a degree, and degree completion among minority and low-income students and determined that concurrent enrollment benefitted these academic success metrics in both low- and high-income students.

Lewis, (2009) stated that college students as a whole have said they felt more prepared for success in college after taking concurrent enrollment courses in high school. Researchers have explored college readiness and academic success indicators for first-generation college students and have examined the benefits of concurrent enrollment (An, 2013; Lewis, 2009; Hansen, Iverson, & Prusha, 2015). While researchers have examined GPA, number of credits completed at the end of the first year of college, persistence from year one to year two of college, and degree completion in first-year college students, there is limited research that has compared the performance of first-generation students

who successfully completed six or more hours of concurrent enrollment coursework in high school compared to first-generation students who completed no concurrent coursework. With the rising number of first-generation undergraduate college students (U.S. Department of Education, 2022) social scientists, educators, and policy makers are seeking new answers for how to improve retention and persistence (An, 2013). This study sought to discover if there is a relationship between first-generation college students completing concurrent enrollment credit and post-secondary academic success. The researcher for this study compared the end of first year number of credit hours earned, cumulative GPA at the end of the first year of college, persistence status (enrolled or not enrolled) at the beginning of the second year of college, and graduation status (graduated or not graduated by the end of three years) of first-time, full-time, first-generation college students who earned six or more concurrent enrollment credit hours in high school with a grade of C or higher with the performance of first-time, full-time, first-generation college students who did not complete any concurrent enrollment courses prior to college.

Purpose of the Study

Four purposes guided this study. The first purpose was to determine if there is a difference in the number of credit hours earned at the end of the first year of college between first-time, full-time, first-generation college students at a Midwestern community college who completed six or more dual-enrollment credit hours in high school with a grade of C or higher and first-time, full-time first-generation college students who did not complete any concurrent enrollment courses in high school. The second purpose was to examine if there is a difference in cumulative GPA upon

completion of the first year of post-secondary study for first-time, full-time, first-generation college students who completed six or more concurrent enrollment credits with a grade of C or higher in high school and first-time, full-time, first-generation college students who did not complete concurrent enrollment courses in high school. The third purpose was to determine if there is a difference in enrollment status (enrolled, not enrolled) at the beginning of the second year of college for first-time, full-time first-generation college students who completed six or more concurrent enrollment credits in high school with a grade of C or higher and first-time, full-time, first-generation college students who did not complete concurrent enrollment courses in high school. The fourth purpose of the current study was to determine if first-time, full-time, first-generation college students who completed six or more concurrent enrollment credits in high school with a grade of C or higher were more likely to graduate with an associate degree from a two-year college in three years or less than first-time, full-time, first-generation college students who did not complete concurrent enrollment courses in high school.

Significance of the Study

This study added to the existing literature regarding the academic success (end of first year cumulative GPA, number of credit hours completed at the end of the first year of college, enrollment in the second year of college, and graduation status at the end of three years) of first-time, full-time, first-generation college students who completed concurrent enrollment courses in high school with a grade of C or higher compared to first-time, full-time, first-generation students who completed no concurrent enrollment courses in high school. The outcomes generated from this study may assist high school decision makers as they examine opportunities for high school students to enroll in

college courses, especially first-generation college students. Additionally, the outcomes of this study could benefit administrators, faculty, and staff of community colleges by providing an understanding of the impact concurrent enrollment has on the future success of first-generation college students. The results of the current study can help the college at which the study was completed determine necessary support services for both first-generation college students who complete concurrent enrollment courses, and those who do not.

Delimitations

As defined by Lunenburg and Irby (2008), "Delimitations are self-imposed boundaries set by the researcher on the purpose and scope of the study" (p. 134). The delimitations for this study included the following:

1. The study was conducted at a community college in southwest Iowa.
2. All participants in the study attended high school within the state in which the study was conducted.
3. All participants were first-time, full-time, first-generation students at the midwestern community college.

Assumptions

According to Lunenburg and Irby (2008), assumptions are “postulates, premises, and propositions that are accepted as operational for purposes of the research” (p. 135). In this study it was assumed that all archived institutional data provided for the study by the institution were accurate and current. It was also assumed that all student data presented was from students identified as first-time, full-time, first-generation college students.

Research Questions

Four research questions guided this study.

RQ1. To what extent is there a difference between the number of credit hours earned at the end of the first year of college by first-time, full time, first-generation college students who completed six or more credits of concurrent enrollment coursework with a grade of C or higher in high school and the number of credit hours earned by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

RQ2. To what extent is there a difference between the end of first year of college cumulative GPAs of first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework with a grade of C or higher in high school and the end of first year of college cumulative GPAs of first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

RQ3. To what extent is there a difference between the enrollment status (enrolled, not enrolled) at the beginning of the second year of college of first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework in high school with a grade of C or higher and the enrollment status at the beginning of the second year of college of first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

RQ4. To what extent is there a difference between the graduation status at the end of three years or earlier between by first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework in high school

with a grade of C or higher and the graduation status of first-time, full-time, first-generation students, who did not complete concurrent enrollment coursework in high school?

Definition of Terms

To better guide the reader through the study, a list of terms to be used throughout are included below.

First-generation college student. According to Choy (2001), first-generation college students are those "whose parents did not attend college" (p. 1).

Concurrent enrollment. NACEP (2022) defined concurrent enrollment as the subset of dual enrollment courses taught by college approved high school teachers in a secondary environment. The term concurrent enrollment is also often used interchangeably with dual enrollment as it also refers to high school students taking college courses prior to graduation (Barnett, Fink, Jenkins, Mehl & Wyner, 2020).

First year of college. In this study, first year of college refers to the fall and spring semesters of a first-time student.

Persistence. According to the National Student Clearinghouse Research Center (2022), persistence is defined as a student who returns to college for their second year.

Second year of college. In this study, second year of college refers to the fall semester immediately following the first year of college.

First-time college student. According to Rice (2017) a first-time college student is one who enrolls in college for the first time after graduating from high school.

Full-time college student. According to the National Center for Education Statistics (2022) a full-time college student is an individual currently taking 12 or more credit hours in a semester.

Organization of the Study

This study includes five chapters. The first chapter included an introduction, background, statement of the problem, purpose of the study, significance of the study, delimitations, assumptions, research questions, definition of terms, and organization of the study. Chapter 2 presents literature describing college readiness and factors related to academic success of first-generation college students. This chapter also defines persistence, provides an overview of concurrent enrollment history, and describes concurrent enrollment programing. Chapter 3 describes the methods used to conduct the research study, and includes the research design, selection of participants, measurement, data collection procedures, data analysis and hypothesis testing, and limitations. Chapter 4 includes the descriptive statistics and the results of the hypothesis testing. Chapter 5 includes a study summary, findings related to the literature, and conclusions.

Chapter 2

Review of the Literature

Chapter 2 provides a review of the literature related to the major topics of this dissertation. The first section defines college readiness. The second section provides a summary of literature related to the academic success factors of first-generation college students. Persistence in college is described in the third section. The fourth section provides an overview of the history of concurrent enrollment. The final section details concurrent enrollment programing today.

College Readiness

College readiness is defined as the development of academic skills like reading and writing combined with the development of non-cognitive skills like time management, self-awareness and problem solving (Roderick, Nagaoka, & Coca, 2009). It is estimated that roughly 25%-33% of high school students are prepared for their first experience with college coursework (Bettinger, Long & Boatman, 2013). Conley (2007) reported that many first-year college students find their college courses profoundly different from their high school courses and suggested four separate strategies to create more college ready students. Those strategies included aligning high school curriculum and instruction with college expectations, developing high quality syllabi for all courses, implementing senior seminars, and adding curriculum that addresses missing skills.

First-generation college students find themselves less prepared for college than their non-first-generation peers due to not having their parent's college experience to learn from (Brand & Hooker, 2010). Byrd and MacDonald (2005) determined that increased preparation in college level reading and writing were the academic skills that

first-generation college students indicated would have been beneficial. While studying first-generation college students, Byrd and MacDonald reported that these students felt time management, the ability to advocate for themselves, developing a concept of self, and goal focus were critical skills that contributed to success in college. Byrd and MacDonald (2005) also suggested that first-generation college students can possess these skills prior to enrolling in college due to many of them working jobs during their time in high school, and through other family obligations that their non-first-generation peers did not experience. This collection of non-academic skills is referred to as non-cognitive skills, a term used a s a catch-all for any skills critical to college success that are not academically based (Sommerfeld, 2011).

According to Conley (2007), high schools should align high school curriculum and instruction with college expectations, develop a thorough syllabus for all courses, implement senior seminars, and add missing content to courses such as language arts and strategic reading. In addition to high schools adapting to assist students' preparation for college, there are steps that prospective college students can pursue to better prepare themselves such as engaging in faculty led clubs or organizations, working part time jobs, and taking on outside responsibilities from school (Byrd & McDonald, 2005).

Even if first-generation college students successfully navigate the steps of college preparation, they still may be at a disadvantage to students whose parents have college degrees due to a limited inheritance of social and cultural capital. Bourdieu, (1986) defined social capital as "the aggregate of the actual or potential resources, which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (p. 248). Bourdieu described social capital as the

experiences and knowledge that an individual gains through the interaction with members within a network. The breadth of an individual's social capital is dependent upon the size and resources within the individual's network (Bourdieu, 1986). Pascarella, Pierson, Wolniak, and Terenzini, (2004) concluded that first-generation college students who maintained a larger social network through organizations benefitted more from these groups than their non-first-generation college student peers leading to greater academic success in college.

Bourdieu (1973) defined cultural capital as the cultural resources like language practices, style of dress, and knowledge of school customs that reflect the values of and preferences of the dominant class. A first-generation college student's level of cultural capital can also have an impact on readiness and success in college. The three specific forms of cultural capital are presented in the physical objects that represent high class culture, familiarity and appreciation for high culture, and academic credentials or qualifications (Bourdieu, 1986).

In addition to both social and cultural capital, a student's grasp of the hidden curriculum taught in schools can have an impact on their college readiness (Giroux & Penna, 1978). According to Giroux and Penna, (1978) the hidden curriculum refers to the skills learned through interactions with a student's peers, teachers, and other individuals within the scholastic setting. Maple (2018) reported that students communicating well with their peers was a significant obstacle in college readiness. In addition, the way that secondary counselors and their post-secondary counterparts communicate with students can have an impact on the transition from secondary to post-secondary settings and can impact a student's ability for self-advocacy (Maple, 2018).

An (2013) determined that both first-generation and non-first-generation students who participated in concurrent enrollment courses while in high school performed better than those who did not participate in concurrent enrollment courses. An (2013) also argued that concurrent enrollment programs provide a better avenue to college readiness than traditional high school programs due to the student's integration into instruction at the post-secondary level.

Academic Success

Academic success is a common term used by higher education administrators, faculty and students, and in numerous academic research studies (Ramos & Sifuentez, 2021). Initially, higher education institutions defined college success as students not dropping out or falling into "student mortality," (Venit, 2016, p. 3). Ramos and Sifuentez (2021) stated that traditional academic success factors include GPA, retention, and persistence among traditional-aged students. Tinto (2014) believed that success in college started in the classroom. Students need awareness of the expectations placed on them, along with what they can expect from the college (Tinto, 2014). By setting high expectations in the classroom and providing academic support, institutions can establish a foundation of academic success in year one for students to build upon (Tinto, 2014). Venit (2016) stated that the ultimate measure of success was the amount of on campus engagement from students on their campus. According to Venit, academic success occurs when the student graduates with the lowest cost and the highest level of outcomes.

To study the relationship between secondary preparation for college and a student's first year GPA, Warren and Goins (2019) studied 131 first- generation college students in Minnesota. The researchers determined that a student who takes more

rigorous courses and graduates high school with a high GPA (GPA) is more likely to have a higher GPA in their first year of college. According to Denning, (2022) first year college grades are always a predictor of college graduation, where just a one point increase in GPA can result in a 22-24 % increase in a student's likelihood to graduate from college. Additionally, increased participation in group tutoring sessions that focus on both curriculum and time management were shown to play a significant role in students achieving a higher GPA after their first year of college (Collings & Eaton, 2021). Another factor that can positively affect a student's GPA their first year in college is reflected in a student's ability to ask for help and seek academic assistance (Roszkowski, 2013). According to Roszkowski, this behavior is also a success factor in high school for the same students. An (2013) identified a link between high school students who completed concurrent enrollment credits and a higher first year GPA during the first year of college.

Eyman and Dustegor (2020) identified five common predictors of academic success in higher education which included a student's previous academic achievement represented by grades or entrance exams; demographic information such as gender, age, or race; the student's environment; psychological factors such as interest, stress or anxiety; and a student's e-learning activity. By identifying the levels of these particular variables for a student, an institution can help define orientations and training to better support the predictive needs of new students, thus allowing for greater academic success (Eyman & Dustegor, 2020). Once enrolled, however, a school must then be able to assess a student's current success. Mahlberg (2015) determined that academic success was best determined using formative assessments to assess meeting student learning

outcomes. Students can also be empowered to self-regulate their learning paths in goal setting and time management, leading to an increased level of academic success by better managing their courseload, understanding success, and heightened engagement.

Persistence

Tinto (2012) defined persistence as, "the rate at which students who begin higher education at a given point in time continue in higher education and eventually complete their degree, regardless of where they do so" (p. 127). Terenzini, Springer, Yeager, Pascarella, and Nora (1996) determined that as a group, first-generation college students have a greater struggle with transitioning from secondary school into post-secondary education more that their non-first-generation peers. Traditionally these students must overcome the same struggles as any other student making the transition but do it without the accompanying mentorship others receive (Terenzini et al., 1996). Tinto (2017) defined persistence as another way of speaking of motivation and a quality that allows an individual to continue to pursue a goal even when presented with adversity.

"High institutional rates of first year departure negatively impact the enrollments, budgets, and public perceptions of many universities (Braxton, 2001 p. 1). Solving the attrition problem for administrators, faculty, and staff in higher education can be similar to solving a large ever-evolving puzzle (Braxton, Shaw-Sullivan & Johnson, 1997). Tinto (2017) determined that for a student to persist on to continue earning their degree, they must first possess the desire to do so. In addition, Tinto (2017) stated that a student must have a high level of self-efficacy, a sense of belonging at their institution, and a positive perception of the curriculum they are learning. Pointing specifically to first-generation students and other under-represented populations, actions that make sense to

them in the moment can have a negative effect on their ability to persist and earn their degree, due to unforeseeable factors (Tinto, 2017).

According to the National Student Clearinghouse Research Center (2022), 75% of all college students who began their college career in the fall of 2020 maintained their enrollment status into the fall of 2021. This was a 1% drop from the persistence rate recorded prior to the Covid-19 pandemic (National Student Clearinghouse Research Center, 2022). The figures for two-year colleges were much lower than the national number. According to the National Student Clearinghouse Research Center, (2022) only 61.5% of two-year students persisted from the fall of 2020 to the fall of 2021. However the decline was less than the national percentage at less than .7%.

To enhance the likelihood for a first-generation college student to persist and earn a degree, Hopkins, Workman and Truby (2021) recommended that students need to be engaged in experiences outside of the classroom. Doing so can get students better engaged with faculty outside the classroom, make them feel like they belong at their respective institution, and build better relationships with faculty, staff, and students (Hopkins et al., 2021). Kuh, (2008) suggested that students should engage in high impact practices on college campuses such as participating in living learning communities, study abroad opportunities, and engaging in the community as a whole through service-learning projects. However, first generation college students were more likely to be unaware of the high impact practices on campus than their non-first-generation college student peers (Kuh, 2008).

Klonarides (2021) reported that first-generation college students attempting to transform their lives through their education often experienced issues with institutional

practices, communication methods, and timetables. Often, many first-generation college students risk their ability to persist and earn their degrees due to the need for balancing school, work, financial hardships, health, and relationships (Klonarides, 2021). According to Klonarides, institutions need to begin supplying their faculty and staff with professional development addressing the needs for first-generation college students, and support programs for students to address their specific needs to persist.

History of Concurrent Enrollment

In January of 1942, in the early years of World War II, Albert Jorgensen, President of the University of Connecticut, held a heavily attended staff meeting to discuss how the university would operate during war time (Grant, 2019). According to Grant (2019), after that meeting Albert Waugh, a faculty member and administrator from 1924-1965, suggested that the university adopt an academy for high school students where the university would admit a number of students who had either tested highly in standardized tests, performed well in their secondary classwork, or just by recommendation of their current secondary teachers. One critical component to the formation of this academy was that it maintained the same level of rigor of any courses offered at the university (Grant, 2019).

It was not until 1953 that the university's Senate Committee on Curricula and Courses decided to adopt Waugh's proposal of an academy accepting bright students from secondary schools to take university level courses (Grant, 2019). According to Grant (2019) one of the most pivotal moments in the foundation of Waugh's program was a meeting in late 1953 between Waugh and the Secondary School Principals Association, where Waugh met protests of this program with a proposal to have students

stay in their high schools and take college classes within school walls. Those in the secondary schools agreed with Waugh about the benefit of accelerating a student's post-secondary schooling through this program and at the end of the 1955-1956 academic year, a cohort of students from New Britain High School, Bristol High School, Manchester High School, and Woodbury High School became the first students in the country to complete courses in their high schools that were being offered for college credit by the University of Connecticut (Grant, 2019).

Collins (1980) gave credit to Jamestown Community College for being the first institution in the country that provided college courses to high school students who earned both secondary and post-secondary credit for successful completion. The first to participate in the program were local 11th grade students who took to courses during the summer of 1978, prior to the start of their senior year (Collins, 1980). It would be almost 20 years before an organization was created specifically to ensure program standards for concurrent enrollment.

In 1997 a group of concurrent enrollment professionals from Syracuse University convened for the first time at the American Association for Higher Education Conference (NACEP, 2022). According to NACEP (2022) in 1999, 20 founding institutions created a charter, by-laws, and mission statement to establish the National Alliance of Concurrent Enrollment Partnerships (NACEP), a membership now consisting of 479 colleges and universities, 79 secondary districts, and 43 state agencies. In 2002 NACEP developed its 16 national standards that include criteria determining quality programing for students, assessment, faculty development, evaluation, and partnerships (NACEP, 2022).

Concurrent Enrollment Programming

According to Anjewierden, Corser, and Petersen (2001), concurrent enrollment programs offer "qualified high school students the opportunity to take courses for college credit prior to high school graduation and have been implemented in school districts nationwide with a variety of structures and methods of operation (p. 23). According to Barnett, Fink, Jenkins, Mehl, and Wyner (2020), more than one-million high school students take concurrent enrollment courses each year and those students are more likely to graduate from high school, enroll in post-secondary institutions, and complete degrees than those who do not participate in concurrent enrollment programing. Between 2012 and 2020 the concurrent enrollment programs in community colleges across the country have doubled in size (Barnett et. al, 2020). According to the NACEP (2022), there are 16 different standards that an institution needs to meet to ensure the institution is delivering quality concurrent enrollment programing. The 16 NACEP standards primarily revolve around partnership, evaluation, student practices, program delivery and assessment (NACEP, 2022).

Of the one million student participants in concurrent enrollment programs across the country, Barnett, et al. (2020) determined that 83 % of students take their courses in classrooms at their high schools, and 17 % take their courses on the campus of the participating college. Key standards enforced by NACEP (2022) revolve around ensuring the quality of education that students receive in their high schools. For example, NACEP (2022) requires all faculty teaching college courses in a high school to meet the same requirements college faculty must meet to teach at the post-secondary level. In addition, the host college must also ensure that students are receiving the same amount of

attention and support from the school through their student services such as advising, mental health services, tutoring, writing services, and on campus social activities (NACEP, 2022). Barnett et al. (2020) stated that a key principle to successful concurrent enrollment programing is to ensure that students receive equitable levels of support and advising to guarantee success.

Creating equitable access to underrepresented student populations can be difficult in concurrent enrolment programing. Barnett et al. (2020) stated that to "expand access to dual enrollment to underrepresented student populations, colleges, districts and high schools must build early awareness and aspirations, improve outreach to communities of color, recruit actively and strategically, limit the impact of placement testing, and address costs and logistics," (p. 21). In the state of Iowa, the Senior Year Plus program was created in 2008 to provide greater access to concurrent enrollment programing for all high school students across the state with a rigorous curriculum allowing students to earn both college and high school credit (Iowa Department of Education, 2022).

Requirements put in place for students to access concurrent enrolment programs by administrators can sometimes provide barriers for underserved populations such as first-generation students. According to Belet (2021) placement of GPA requirements to access concurrent enrollment opportunities can often favor White and Asian students as opposed to Black and LatinX students due to White and Asian students historically having higher average GPAs. Additionally, schools that place access requirements like minimum scores on standardized tests can also be placing inequitable barriers on first-generation and underrepresented populations of students (Belet, 2009).

According to Barnett et al., (2020) the best concurrent enrollment programs offer some of the best advising and support systems to promote equitable outcomes for students. The primary focus of these programs should be on a collaborative effort among secondary and post-secondary partners to provide a strong academic advising model that can also identify struggling students to deliver additional supports (Barnett et al., 2020). Edmonds and Squires (2016) concluded that the best practices to implement within a concurrent enrollment program revolve around transition advising services so that students earning college credits can understand how to utilize them. Similar to the principle of collaboration by Barnett et al. (2020), Edmonds and Squires (2016) determined that advising practices should be executed in tandem by both the secondary and post-secondary institutions. Byrd and Mc Donald (2005) argued that first-generation college students can gain support in social and cultural capital needed for college success through employment opportunities.

To begin engaging in a concurrent enrollment partnership it is beneficial to both the college and secondary institution to ensure that the concurrent enrollment program goals align with the mission and vision of both institutions (Edmonds & Squires, 2016). According to Edmonds and Squires (2016), participants in the concurrent enrollment programming should find common ground around wanting to provide students with an early opportunity to experience college with high rigor of coursework, while providing a high level of service and showcasing the best the college has to offer. Additionally, when considering the parameters of a concurrent enrollment partnership, it is critical for all involved to understand what is incentivizing both institutions to partner on a shared venture (Barnett et al., 2020). According to Barnett, et al. (2020), when both sides

understand what the other has to gain, they can ensure that initiatives on both sides shepherd themselves toward those benefits.

Cost associated with concurrent enrollment programs can look different depending upon the established partnerships between institutions (Edmonds & Squires, 2016). Edmonds and Squires (2016) stated, "Depending on the state, school, or school district, the concurrent enrollment program course cost may range from nothing to a minimal tuition fee" (p. 49). In the state of Iowa, Department of Education (2022) guidelines stated that students participating in concurrent enrollment are not to pay any fee for tuition or instructional materials. School districts partnering with a community college establish the costs the district pays to the community college, and the district is reimbursed by the state through supplemental weighted dollars to assist in covering costs (Iowa Department of Education, 2022).

Minnesota State University Mankato (2022), a four-year state university, covers the cost of concurrent enrollment for high school students. However, students are required to meet university admissions requirements to participate in the program. The university accepts students into their concurrent enrollment programs based on their class rank relative to their standing as freshmen, sophomores, juniors, and seniors (Minnesota State Mankato, 2022). Students are then able to choose their courses based upon availability once any prerequisites are met. The institution communicates the steps of the admissions process, orientation, billing, and all available resources to students (Minnesota State Mankato, 2022). Midwestern Community College MCC) (2022), the institution at which this study was conducted, is a public, two-year community college in Iowa that does not charge tuition or material costs to students through the legislation of

the State Department of Education, and does not have the same admission restrictions as Minnesota State University Mankato, (2022) since MCC is an open access institution.

There are many benefits for students who participate in concurrent enrollment programming. Minnesota State University Mankato (2022) advertises that the benefits resulting from concurrent credit enrollment include the number of college credits the average student earns while still in high school, the overall financial savings that students accrue, and the exposure to college rigor in preparation for enrollment in a full post-secondary curriculum. MCC (2022) described the rigor that students will be exposed to while in high school, explains how concurrent enrollment courses will impact degree completion at the institution, and discloses how credits will transfer to any college or university within the state.

Concurrent enrollment also has specific benefits for both first-generation college students and non-first-generation college students. Lewis, (2009) stated that college students as a whole felt more prepared for success in college after taking concurrent enrollment courses in high school. An (2013) also suggested that a benefit to high school students being treated like college students in high school includes showing the student a path toward personal accountability and advocacy. Hanson, Iverson, and Prusha (2015) concluded that through concurrent enrolment programs, students were able to gain a more in-depth knowledge of a subject area while making personal and academic gains through their participation.

Participation Requirements

For students to participate in concurrent enrollment opportunities, they must meet Iowa Department of Education and NACEP eligibility requirements. According to the

Iowa Department of Education (2022) any student wishing to participate in Arts and Sciences courses must be in grades 9-12 and meet a minimum proficiency standard in the Iowa Statewide Assessment of Student Progress (ISASP). Students in Iowa take the ISASP in the spring with scores returned to them and their parents in early fall (Iowa Department of Education 2022). For eligibility in a Career and Technical Education (CTE) program a student must have parental consent and approval from their professional school counselor. Students who meet these requirements can forgo the ISASP requirements (Iowa Department of Education, 2022).

According to NACEP (2022), to be eligible to teach concurrent enrollment classes a high school faculty member must meet the same guidelines specified within the higher education institutions faculty policy. According to the Higher Learning Commission (2023), college faculty teaching Arts and Science or major transfer classes

> should have completed a program of study in the discipline or subfield in which they teach, and/or for which they develop curricula, with coursework at least one level above that of the course being taught or developed. If a faculty member holds a master's degree or higher in a discipline other than that in which he or she is teaching, that faculty member should have completed a minimum of 18 graduate credit hours in the discipline in which he or she is teaching (p. 3).

CTE instructors must possess either a bachelor's degree in their teaching discipline, or 6,000 hours of field experience (Higher Learning Commission, 2023). NACEP (2022) requires regular check-ins from college appointed faculty liaisons to ensure college level rigor is being attained. Activities include hosting the high school instructor for a course orientation, ensuring assessments being delivered in the high school classroom meet the

desired course outcomes, liaison and instructor participation in discipline specific professional development activities, and annual site visits.

Summary

This chapter presented literature related to college readiness, academic success of first-generation college students, student persistence, the history of concurrent enrollment, and the components of concurrent enrollment programing. Chapter 3 explains the methods used in the current study. The chapter includes the research design, selection of participants, measurement, data collection procedures, data analysis and hypothesis testing, and limitations.

Chapter 3

Methods

This quantitative study examined the differences in factors related to academic success in a community college setting for first-time, full-time, first-generation college students who completed six or more concurrent enrollment credit hours in high school with a grade of C or higher compared to first-generation college students who did not complete concurrent enrollment coursework in high school. For this study, academic success was determined by the number of credit hours earned at the end of the first year of college, cumulative GPA at the end of the first year of college, persistence from year one to year two of college, and graduation within three years. This chapter describes the research design, selection of participants, measurement, data collection procedures, data analysis and hypothesis testing, and the limitations of the study.

Research Design

A quasi-experimental design was used for this study. Creswell and Creswell (2018) described a quasi-experimental approach as a research design where the researcher uses a control group and an experimental group, but there are no random assignments of participants into either group. The independent variable in this study was the completion of six or more credits of concurrent enrollment courses in high school with a grade of C or higher. The dependent variables were the total number of credit hours earned at the end of the first year of college, the cumulative GPA at the end of the first year of college, the enrollment status at the beginning of the second year of college (enrolled, not enrolled), and degree completion status at the end of three years of college (graduated, not graduated).

Selection of Participants

The population for this study was first-time, full-time, first-generation students at a community college located in southwest Iowa. Purposive sampling was used to identify the sample for the study. According to Lunenburg and Irby (2008), "Purposive sampling involves selecting a sample based on the researcher's experience or knowledge of the group to be sampled" (p. 175). The sample for the current study included first-time, full-time, first-generation students who enrolled at the community college in the fall of 2016, 2017, 2018, or 2019. The total sample included 646 first-time, full-time, first-generation students. Five hundred fourteen students had completed 6 or more credits of concurrent enrollment coursework in high school, while 132 had not completed any concurrent enrollment courses in high school.

Measurement

Archival data housed in the Office of Institutional Effectiveness at the participating community college were retrieved that identified first time, full-time, first-generation college students who completed six or more credits of concurrent enrollment courses in high school with a grade of C or higher and those who did not complete any concurrent enrollment credits in high school. The concurrent enrollment status (completed 6 or more hours of concurrent enrollment credits during high school with a grade of C or higher, did not complete any concurrent enrollment courses in high school) was measured as a categorical variable Two numerical variables from the dataset were identified as priority. The first was the number of credit hours earned at the end of the first year of college (1-40). The second variable was the end of the first-year of college cumulative GPA which was measured on a four-point scale (0.0-4.0). The enrollment

status at the beginning of the second year of college (enrolled, not enrolled) was measured as a categorical variable. Graduation status at the end of the third year of college (graduated, not graduated) was also measured as a categorical variable. Only credit hours earned at the institution during the first year fall and spring semesters and the cumulative GPA resulting from these courses were included in the data analysis. Enrollment status on the 10th day of the second year was determined by whether or not a student was enrolled at the community college. Graduation status was determined by whether or not a student had graduated within three years of the matriculation date.

Data Collection Procedures

Prior to data collection, a request to conduct this study was submitted to the Baker University Institutional Review Board (IRB) on January 27, 2023. Approval to conduct the study was received on January 21, 2023 (see Appendix A). A request for permission to conduct the study was then submitted to the IRB at MCC on January 30, 2023. Permission to conduct the study was granted on January 31, 2023 (see Appendix B). Archived quantitative data were collected from the institution's records database after permission to conduct the study was received. Archived data included the number of concurrent enrollment credits completed during high school, the number of college credit hours completed at the end of the first year of college, the cumulative GPA at the end of the first year of college, the enrollment status on the 10th day of the second year of college (enrolled, not enrolled), and the graduation status (graduated, not graduated) at the end of the third year of college. Data were organized into a spreadsheet and input into IBM SPSS Statistics Software for Windows.

Data Analysis and Hypothesis Testing

The following section includes the four research questions that were the focus of the study. In addition, there is a hypothesis and description of the statistical analysis used to analyze the data associated with each question.

RQ1. To what extent is there a difference between the number of credit hours earned at the end of the first year of college by first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework with a grade of C or higher in high school and the number of credit hours earned by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

***H1*.** There is a difference between the number of credit hours earned at the end of the first year of college by first-time, full-time, first-generation students who completed six or more credit hours of concurrent enrollment coursework in high school with a grade of C or higher and the number of credit hours earned by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school.

An independent-samples *t*-test was conducted to address RQ1. The two-sample means were compared. An independent-samples *t*-test was chosen for the hypothesis testing because the hypothesis test examined the mean difference between the group of first-time, full-time, first-generation students who completed dual enrollment coursework in high school with a grade of C or higher and the group of first generation first-time, full time, first-generation students who did not complete concurrent enrollment coursework

while in high school. The means were calculated using data for numerical variables. The level of significance was set at .05. When appropriate, an effect size is reported.

RQ2. To what extent is there a difference between the end of first year of college cumulative GPAs of first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework with a grade of C or higher in high school and the end of first year of college cumulative GPAs of first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

H2. There is a difference between the cumulative GPA at the end of the first year of college by first time, full time, first-generation students who completed six or more credit hours of concurrent enrollment coursework with a grade of C or higher and the GPAs of first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school.

An independent-samples *t*-test was conducted to address RQ2. The two-sample means were compared. An independent-samples *t*-test was chosen for the hypothesis testing because the hypothesis test examined the mean difference between the group of first-time, full-time, first-generation students who completed six or more credit hours of dual enrollment coursework with a grade of C or higher in high school and the group of first-time, full-time, first-generation students who did not complete dual enrollment coursework while in high school. The means were calculated using data for numerical variables. The level of significance was set at .05. When appropriate, an effect size is reported.

RQ3. To what extent is there a difference between the enrollment status (enrolled, not enrolled) at the beginning of the second year of college of first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework with a grade of C or higher in high school and the enrollment status at the beginning of the second year of college of first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

H3. There is a difference between the enrollment status (enrolled, not enrolled) at the beginning of the second year of college by first-time, full-time, first-generation students who completed six or more credit hours of concurrent enrollment coursework in high school with a grade of C or higher and enrollment status (enrolled, not enrolled) at the beginning of the second year of college by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school.

A chi-square test of independence was conducted to address RQ3 because the relationship between two categorical variables was analyzed. A cross tabulated frequency table was constructed for the two categorical variables: concurrent enrollment coursework completion in high school (yes or no) and the enrollment status at the end of the beginning of the second year of college (enrolled, not enrolled). The observed frequencies were compared to those expected by chance. The level of significance was set at .05. An effect size is reported, when appropriate.

RQ4. To what extent is there a difference between the graduation status at the end of three years in college or earlier (graduated, not graduated) between first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework in high school with a grade of C or higher and the graduation

status at the end of three years of college by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

H4. There is a difference in the graduation status at the end of three years in college (graduated, not graduated) between first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework in high school with a grade of C or higher and the graduation status at the end of three years of college (graduated, not graduated) by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

A chi-square test of independence was conducted to address RQ4 because the relationship between two categorical variables was analyzed. A cross tabulated frequency table was constructed for the two categorical variables: concurrent enrollment coursework completed in high school (yes or no) and the graduation status at the end of three years after post-secondary matriculation (graduated or not graduated). The observed frequencies were compared to those expected by chance. The level of significance was set at .05. When appropriate, an effect size is reported.

Limitations

According to Lunenberg and Irby (2008), "Limitations are factors that may have an effect on the interpretation of the findings or on the generalizability of the results" (p. 133). Interpretation of the results from this study may have been limited by the following:

1. First-generation college students are not required to identify their status as first-generation on their application for admission to the participating community college. To identify this population, data were pulled from information gathered

in the student's Free Application for Federal Student Aid (FAFSA). If a student did not complete a FAFSA, they were not included in the study.

2. Not every student was afforded the same level of access to concurrent enrollment course offerings. Schools with closer proximity to the main campus of the community college had increased availability of on-campus offerings than those further distanced from campus. For this study the researcher did not take into account access and availability of concurrent enrollment opportunities, as the high school from which the student graduated was not determined. The college that granted concurrent enrollment credits was also not determined prior to conducting this study.
3. High schools vary in the number of faculty who possess the credentials to teach concurrent enrollment courses. All colleges partnering with high schools in the state of Iowa are accredited by the Higher Learning Commission (HLC) and are required to meet HLC's minimum faculty standards. According to the HLC (2022),

> Faculty teaching in higher education institutions should have completed a program of study in the discipline or subfield in which they wish to teach and/or for which they develop curricula with coursework at least one level above that of the courses being taught or developed. If a faculty member holds a master's degree or higher in a discipline other than that in which he or she is teaching, that faculty member should have completed a minimum of 18 graduate credit hours in the discipline in which he or she is teaching." (p. 3).

In many of the rural populations served by the community college the pool of qualified high school instructors is limited. The researcher was not able to determine the number of qualified instructors at each high school from which the participants of this study matriculated.

Summary

This chapter described the research design used for this study. Chapter 3 included a description of the selection process for the participants, measurement, data collection procedures, data analysis and hypothesis testing, and limitations. The fourth chapter presents the descriptive statistics for the sample and the results of the hypothesis testing.

Chapter 4

Results

Four purposes guided the current study. The first purpose was to examine the difference in the number of credit hours earned at the end of the first year of college for first-time, full-time, first-generation college students who completed 6 or more credits of concurrent enrollment coursework and those who did not complete 6 or more credits of concurrent enrollment coursework. The second purpose of the study was to determine if there was a difference in the cumulative GPA at the end of the first year of college between first-time, full-time, first-generation college students who had completed 6 or more credits of concurrent enrollment coursework and those who did not complete concurrent enrollment coursework. The third focus of the current study was to explore whether there was a difference in the enrollment status (enrolled, not enrolled) at the beginning of the second year of college between first-time, full-time, first-generation college students who completed 6 or more credits of concurrent enrollment coursework and those who did not complete concurrent enrollment coursework. The final purpose of the study was to determine if there was a difference in graduation status at the end of three years of college between first-time, full-time, first-generation college students who completed 6 or more credits of concurrent enrollment and those who did not complete concurrent enrollment coursework. Chapter 4 summarizes the descriptive statistics for the sample and the hypothesis testing.

Descriptive Statistics

Descriptive statistics were utilized to explain the sample of this study. Students included in the study were first-time, full-time, first-generation college students who were enrolled at MCC in the fall of 2016, 2017, 2018 and 2019. Students were divided into two categories; students who completed 6 or more credits of concurrent enrollment programing in high school with a grade of C or higher (514) and students who did not complete any concurrent enrollment courses (132). The initial data set delivered by MCC included a number of students who were not identified as first-time, first-generation college students (1,013), but those students were removed from the dataset before the hypothesis tests were conducted.

Hypothesis Testing

RQ1. To what extent is there a difference between the number of credit hours earned at the end of the first year of college by first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework with a grade of C or higher in high school and the number of credit hours earned by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

***H1*.** There is a difference between the number of credit hours earned at the end of the first year of college by first-time, full-time, first-generation students who completed six or more credit hours of concurrent enrollment coursework in high school with a grade of C or higher and the number of credit hours earned by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school.

An independent-samples *t*-test was conducted to address RQ1. The two-sample means were compared. An independent-samples *t*-test was chosen for the hypothesis testing because the hypothesis test examined the mean difference between the group of first-time, full-time, first-generation students who completed concurrent enrollment coursework in high school with a grade of C or higher and the group of first generation first-time, full time, first-generation students who did not complete concurrent enrollment coursework while in high school. The means were calculated using data for numerical variables. The level of significance was set at .05. When appropriate, an effect size is reported.

The results of the independent samples *t*-indicated a statistically significant difference between the two means, $t(646) = 2.585$, $p = .010$, $d = 0.250$. The sample mean for the number of credit hours earned in the first year of college for first-time, full-time, first-generation college students who completed 6 or more concurrent enrollment credits (M =17.64) was higher than the sample mean for first-time, full-time, first-generation college students who did not complete 6 or more concurrent enrollment credits (M = 14.70). H1 was supported. The effect size indicated a medium effect.

Table 1

Descriptive Statistics for Testing of H1

Concurrent enrollment	*M*	*SD*	*N*
Completed	17.64	11.71	513
Not completed	14.70	12.03	135

RQ2. To what extent is there a difference between the end of first year of college cumulative GPAs of first-time, full-time, first-generation college students who completed

six or more credits of concurrent enrollment coursework with a grade of C or higher in high school and the end of first year of college cumulative GPAs of first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

H2. There is a difference between the cumulative GPA at the end of the first year of college by first time, full time, first-generation students who completed six or more credit hours of concurrent enrollment coursework with a grade of C or higher and the GPAs of first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school.

An independent-samples *t*-test was conducted to address RQ2. The two-sample means were compared. An independent-samples *t*-test was chosen for the hypothesis testing because the hypothesis test examined the mean difference between the group of first-time, full-time, first-generation students who completed six or more credit hours of concurrent enrollment coursework with a grade of C or higher in high school and the group of first-time, full-time, first-generation students who did not complete concurrent enrollment coursework while in high school. The means were calculated using data for numerical variables. The level of significance was set at .05. When appropriate, an effect size is reported.

The results of the independent samples *t*-test indicated a statistically significant difference between the two means, $t(646) = 6.141$, $p = .000$, $d = 0.594$. The sample mean of cumulative GPA during the first year of college for first-time, full-time, first-generation college students who completed 6 or more concurrent enrollment credits

(M =2.63) was higher than the sample mean for first-time, full-time, first-generation college students who did not complete 6 or more concurrent enrollment credits (M = 2.07). H1 was supported. The effect size indicated a medium effect.

Table 2

Descriptive Statistics for Testing of H2

Concurrent enrollment	*M*	*SD*	*N*
Completed	2.63	0.876	513
Not completed	2.07	1.13	135

RQ3. To what extent is there a difference between the enrollment status (enrolled, not enrolled) at the beginning of the second year of college of first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework with a grade of C or higher in high school and the enrollment status at the beginning of the second year of college of first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

H3. There is a difference between the enrollment status (enrolled, not enrolled) at the beginning of the second year of college by first-time, full-time, first-generation students who completed six or more credit hours of concurrent enrollment coursework in high school with a grade of C or higher and enrollment status (enrolled, not enrolled) at the beginning of the second year of college by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school.

A chi-square test of independence was conducted to address RQ3 because the relationship between two categorical variables was analyzed. A cross tabulated frequency table was constructed for the two categorical variables: concurrent enrollment

coursework completion in high school (yes or no) and the enrollment status at the end of the beginning of the second year of college (enrolled, not enrolled). The observed frequencies were compared to those expected by chance. The level of significance was set at .05. An effect size is reported, when appropriate.

The results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values, $\chi^2(1) = 7.347$, $p = .007$, Cramer's V = .106. See Table 3 for the observed and expected frequencies. The observed frequency for first-time, full-time, first-generation college students who completed 6 or more concurrent enrollment credits and enrolled in the second year of college ($n = 306$) was higher than the expected frequency ($n = 292.1$). The observed frequency for first-time, full-time, first-generation college students who did not complete 6 or more concurrent enrollment credits and did not enroll in the second year of college ($n = 72$) was higher than the expected frequency ($n = 58.1$). H3 was supported. The effect size indicated a moderately strong effect.

Table 3

Observed and Expected Frequencies for H3

Concurrent enrollment	Second year enrollment	$f_{observed}$	$f_{expected}$
Completed			
	Enrolled	306	292.1
	Not enrolled	207	220.9
Not completed			
	Enrolled	63	76.9
	Not enrolled	72	58.1

RQ4. To what extent is there a difference between the graduation status at the end of three years in college or earlier (graduated, not graduated) between first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework in high school with a grade of C or higher and the graduation status at the end of three years of college by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

H4. There is a difference in the graduation status at the end of three years in college (graduated, not graduated) between first-time, full-time, first-generation college students who completed six or more credits of concurrent enrollment coursework in high school with a grade of C or higher and the graduation status at the end of three years of college (graduated, not graduated) by first-time, full-time, first-generation students who did not complete concurrent enrollment coursework in high school?

A chi-square test of independence was conducted to address RQ4 because the relationship between two categorical variables was analyzed. A cross tabulated frequency table was constructed for the two categorical variables: concurrent enrollment coursework completed in high school (yes or no) and the graduation status at the end of three years after post-secondary matriculation (graduated or not graduated). The observed frequencies were compared to those expected by chance. The level of significance was set at .05. When appropriate, an effect size is reported.

The results of the chi-square test of independence indicated a statistically significant difference between the observed and expected values, $\chi^2(1) = 15.927$,

p = .000, Cramer's V = .157. See Table 4 for the observed and expected frequencies. The observed frequency for first-time, full-time, first-generation college students who completed 6 or more concurrent enrollment credits and graduated within three years (n = 218) was higher than the expected frequency (n = 197.9). The observed frequency for first-time, full-time, first-generation college students who did not complete 6 or more concurrent enrollment credits and did not enroll in the second year of college (n = 103) was higher than the expected frequency (n = 82.9). H4 was supported. The effect size indicated a moderately strong effect.

Table 4

Observed and Expected Frequencies for H4

Concurrent enrollment	Status after 3 years	$f_{observed}$	$f_{expected}$
Completed			
	Graduated	218	197.9
	Not graduated	32	52.1
Not completed			
	Graduated	295	315.1
	Not graduated	103	82.9

Summary

Chapter 4 included descriptive statistics and the results of testing four hypotheses derived from the four guiding research questions for the study. Chapter 5 provides interpretations and recommendations based on the current study results. The chapter contains a study summary comprised of an overview of the problem, purpose statement and research questions, review of the methodology and major findings. Chapter 5 also

includes a study summary, findings related to the literature, and conclusions which include implications for action, and recommendations for future research.

Chapter 5

Interpretation and Recommendations

The purpose of this study was to explore whether or not the completion of concurrent enrollment coursework in high school had an impact on the post-secondary academic success of first-time, full-time, first-generation college students at a Midwestern community college. Academic success factors that were studied included the number of credit hours earned in a student's first year of college, final cumulative GPA at the end of the students first year of college, the enrollment status (enrolled, not enrolled) at the beginning of a student's second year of college, and graduation status (graduated, not graduated) three years after starting college. This chapter contains a study summary, which includes an overview of the problem, purpose statement, research questions, methodology, and major findings. Additionally, Chapter 5 includes findings related to the literature along with conclusions which include implications for action and recommendations for future research, and concluding remarks.

Study Summary

This section revisits the problem of the study. The statement of purpose and guiding research questions are identified. The methodology is reviewed and the major findings from the hypothesis testing are explained.

Overview of the problem. Ishitani (2003) stated that first-generation college students are a population of students that researchers should attempt to learn more about due to the influx of these students into higher education and the questions surrounding factors that lead to their academic success. An (2013) determined that concurrent enrollment completion benefitted both high and low-income students. According to An,

both groups had greater academic success after graduating from high school. Students completing concurrent enrollment coursework showed a higher GPA, a greater completion of credit hours, and shorter time to earn a degree (An, 2013). According to Lewis (2009), college students as a whole felt more prepared for success in college after completing concurrent enrollment coursework. There is limited research comparing the academic success of first-time, full-time, first-generation college students who have completed 6 or more credits of concurrent enrollment coursework and first-time, full-time, first-generation college students who did not completed any concurrent enrollment coursework while in high school.

Purpose statement and research questions. The focus of the research questions and purposes were similar. Four purposes guided this study. The first purpose investigated whether or not there is a difference in the number of credit hours earned at the end of the first year of college between first-time, full-time, first-generation college students at MCC who completed six or more concurrent-enrollment credit hours in high school with a grade of C or higher and first-time, full-time first-generation college students who did not complete any concurrent enrollment courses in high school. The second purpose examined whether or not there is a difference in cumulative GPA upon completion of the first year of post-secondary study for first-time, full-time, first-generation college students who completed six or more concurrent enrollment credits with a grade of C or higher in high school and first-time, full-time, first-generation college students who did not complete concurrent enrollment courses in high school. The third purpose determined whether or not there is a difference in enrollment status (enrolled, not enrolled) at the beginning of the second year of college for first-time, full-

time first-generation college students who completed six or more concurrent enrollment credits in high school with a grade of C or higher and first-time, full-time, first-generation college students who did not complete concurrent enrollment courses in high school. The fourth purpose evaluated whether or not first-time, full-time, first-generation college students who completed six or more concurrent enrollment credits in high school with a grade of C or higher were more likely to graduate with an associate's degree from a two-year college in three years or less than first-time, full-time, first-generation college students who did not complete concurrent enrollment courses in high school.

Review of the methodology. A quasi-experimental design was used for this study. Archival data from a Midwestern community college were analyzed for this study. The independent variable in this study was the completion of six or more credits of concurrent enrollment courses in high school with a grade of C or higher. The dependent variables were the total number of credit hours earned at the end of the first year of college, the cumulative GPA at the end of the first year of college, the enrollment status at the beginning of the second year of college (enrolled, not enrolled), and degree completion status at the end of three years of college (graduated, not graduated). Each of the first two hypotheses were analyzed using independent-samples *t*-tests. Each of the third and fourth hypotheses were analyzed using a chi-square test of independence.

Major findings. The four hypotheses were supported. First-time, full-time, first-generation college students who completed 6 or more credits of concurrent enrollment coursework with a grade of C or higher earned more credits at the end of their first year of college than first-time, full-time, first-generation college students who did not complete any concurrent enrollment coursework in high school. First-time, full-time,

first-generation college students who completed 6 or more credits of concurrent enrollment coursework with a grade of C or higher achieved a higher cumulative GPA at the end of their first year of college than first-time, full time, first generation college students who did not complete concurrent enrollment coursework in high school. Additionally, first-time, full-time, first-generation college students who completed 6 or more concurrent enrollment credits with a grade of C or higher were more likely to return to college and enroll in their second year, than first-time, full-time, first generation college students who did not complete concurrent enrollment coursework in high school. Finally, first-time, full-time, first-generation college students who completed 6 or more credits of concurrent enrollment coursework with a grade of C or higher were more likely to graduate within three years of starting college than first-time, full-time, first-generation college students who did not complete concurrent enrollment coursework in high school.

Findings Related to the Literature

Tinto (2014) believed that success in college started in the classroom and that students need awareness of the expectations placed on them along with understanding what to expect from the college. Denning (2022) found that first year college grades were an early predictor of college graduation and just a one point increase in GPA could result in a 22-24% increase in a student's likelihood to graduate. The results of the Tinto and Denning studies were supported in this study. First-time, full-time, first-generation students who completed 6 or more credits of concurrent enrollment coursework with a grade of C o r higher had a higher first-year cumulative GPA than first-time, full-time, first-generation college students who did not complete any concurrent enrollment

coursework in high school, and were more likely to graduate within three years of starting college.

Terenzini et al. (1996) determined that first-generation college students had a greater struggle with transitioning from secondary school into post-secondary school than their non-first-generation peers due to a lack of mentorship received. Students in general who completed concurrent enrollment coursework in high school felt more prepared for success in college (Lewis, 2009). The results of this study confirmed Terenzini et al's findings. First-time, full-time, first-generation college students who completed six or more credit hours of concurrent enrollment with a grade of C or higher had a higher cumulative GPA at the end of their first year of college than the first-time, full-time, first-generation college students who did not complete any concurrent enrollment coursework.

Carey (2015) identified a statistically significant impact of concurrent enrollment course completion on persistence from year one to year two of college with students in Georgia compared to their peers who did not complete concurrent enrollment coursework. Allen and Dadgar (2012) concluded that students in New York who took concurrent enrollment coursework accelerated their time to complete their degree and had an increase in number of credits completed during their first year of college. This study had similar findings to Carey (2015) and Allen and Dadgar (2012). First-time, full-time, first-generation college students who completed 6 or more credits of concurrent enrollment coursework with a grade of C or higher were observed to complete more credit hours in their first year of college, were more likely to persist from year one into year two, and were more likely to graduate in three years than their first-time, full-time first-generation peers who did not complete any concurrent enrollment coursework.

Conclusions

Findings from the current study indicated significant differences in the number of credit hours completed during the first year of college, cumulative first year GPA, persistence from year one to year two, and graduation achievement after three years of college for first-time, full-time, first-generation college students who completed 6 or more credits of concurrent enrollment coursework with a grade of C or higher and those who did not. Several implications for action and recommendations for future research based on the findings of the current study are provided in the next section. Concluding remarks are also included in this section.

Implications for action. The results of the current study have led the researcher to recommend six actions.

1. Parents of first-time, first-generation students need to be made aware of the benefits their students can claim through taking concurrent-enrollment courses. Both secondary and post-secondary institutions can partner in determining the way that this message is delivered to the parents. Explaining the benefits of concurrent enrollment should be completed in a collaborative fashion so that all involved parties are aware of what is at stake for the student and are committed to the required expectations.

2. High school administrators need to be made aware of the results of this study and should be encouraged to complete a human capital inventory to determine who among their faculty could be eligible to teach concurrent enrollment coursework within their high school. Barnett et al. (2020) determined that 83% of all concurrent enrollment coursework is taken within the high school and taught by qualified high school faculty. High school administrators need to have a clear picture of teachers who meet the HLC

criteria for providing concurrent enrollment courses. A review of faculty interests in teaching concurrent credit courses could help high school administrators provide opportunities for these individuals to obtain the additional college coursework that would assist these teachers to meet HLC criteria for teaching concurrent enrollment courses.

3. Secondary school district principals and counselors should collaborate with college admissions departments in conjunction with the college's concurrent enrollment divisions to host open house college planning events. By doing this, both institutions can provide a holistic approach to both the first-time, first-generation students and their parents. In these sessions the concurrent courses students can complete while in high school should be listed, a description of how concurrent course completion will shorten the time to graduation after high school should be provided, and the impact of concurrent course enrollment on the cost for degree completion should be explained.

4. The results of this study should be shared with local legislators who enact laws related to funding for both secondary school districts and post-secondary institutions. The significant statistical findings of this study could potentially influence funding decisions that would create more equitable opportunities to complete concurrent enrollment coursework for first-time, first-generation college bound students. Appropriated funds could support tuition, books, course fees, and transportation when necessary.

5. Secondary and post-secondary institutions should collaborate to find ways to support course scheduling and transportation to provide an opportunity for students to take classes on the college campus while in high school in an effort for first-time, first-

generation students to gain both the cultural and social capital that comes with attending college for the first time.

6. The results of this study should be shared at regional and national conferences where education trends and concurrent enrollment are discussed. Discussing the results of this study may inspire others to research concurrent enrollment's relevance in their own community and the impact it could have for students, especially those who are first-time, first-generation.

Recommendations for future research. This study examined differences in earned credit hours in the first year of college, cumulative GPA at the end of the first year of college, enrollment status (enrolled, not enrolled) at the end of the first year of college and beginning of the second year of college, and graduation status (graduated, not graduated) three years after starting college for first-time, full-time, first generation college students who completed 6 or more credits of concurrent enrollment coursework with a grade of C or higher and first-time, full-time, first-generation students who did not complete concurrent enrollment coursework. The students in this study attended a moderately sized community college in the Midwest. Additional studies should be completed at the other community colleges within the state and surrounding states to identify any regional trends. Studies should be conducted both at similar sized schools along with both larger and smaller higher education institutions. The participating school in this study is located in a small city and more studies should be conducted in larger cities located in different regions of the United States.

A quantitative research design was used in this study. A qualitative approach could be utilized to explore other potential factors associated with the academic success

of first-time, full-time, first generation college students. Additionally, future research could also examine any differences for students who are not just first-generation college students, but also those who are considered low-income college students.

In the current study, students were not separated into categories of those who completed concurrent coursework in their high school and those who completed concurrent coursework on a college campus or online. Future research could identify advantages or disadvantages to students based on the modality of course delivery. In addition to course delivery modality, future research could also examine academic success differences based on whether concurrent enrollment instructors were high school faculty or college faculty.

Concluding remarks. As more and more first-time first-generation students enter college environments, secondary school administrators will continue to seek methods by which to prepare them for post-secondary life, and colleges will seek methods to serve these students' needs. The results of this study should aid high school and college personnel to better understand the unique challenges that first-time, first-generation students face during their education journey and determine appropriate measures to optimize their potential for success. The results of this study provided evidence for the value of concurrent enrollment course completion for first-time, full-time, first-generation students. Study results will hopefully promote effective conversations between parents, secondary administrators, and college admissions staff members.

Egikwe and Tapia (2021) stated that first-generation college students often feel an immense amount of pride being the first members of their family to attend college. Cushman (2007) confirmed that preparation for college is more difficult for first-

generation college students since they lack the necessary cultural and social capital required for success in college. The findings from this study revealed the value of completing concurrent enrollment coursework for first-generation students and could be a vehicle to provide a pathway to success in their college careers.

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Appendices

Appendix A: NACEP Standards

Partnership Standards

Partnership 1 (P1). The concurrent enrollment program aligns with the college/university mission and is supported by the institution's administration and academic leadership.

Partnership 2 (P2). The concurrent enrollment program has ongoing collaboration with secondary school partners.

Faculty Standards

Faculty 1 (F1). All concurrent enrollment instructors are approved by the appropriate college/university academic leadership and must meet the minimum qualifications for instructors teaching the course on campus. Faculty 2 (F2). Faculty liaisons at the college/university provide all new concurrent enrollment instructors with course-specific training in course philosophy, curriculum, pedagogy, and assessment prior to the instructor teaching the course. Faculty 3 (F3). Concurrent enrollment instructors participate in college/university provided annual discipline-specific professional development and ongoing collegial interaction to further enhance instructors' pedagogy and breadth of knowledge in the discipline. Faculty 4 (F4). The concurrent enrollment program ensures instructors are informed of and adhere to program policies and procedures.

Assessment Standard

Assessment 1 (A1) The college/university ensures concurrent enrollment students' proficiency of learning outcomes is measured using comparable grading standards and assessment methods to on campus sections. Advancing quality college courses for high school students www.nacep.org May 2017 Revised Concurrent Enrollment Standards.

Curriculum Standards

Curriculum 1 (C1). Courses administered through a concurrent enrollment program are college/university catalogued courses with the same departmental designations, course descriptions, numbers, titles, and credits. Curriculum 2 (C2). The college/university ensures the concurrent enrollment courses reflect the learning objectives, and the pedagogical, theoretical and philosophical orientation of the respective college/university discipline. Curriculum 3 (C3). Faculty liaisons conduct site visits to observe course content and delivery, student discourse and rapport to ensure the courses offered through the concurrent enrollment program are equivalent to the courses offered on campus.

Student Standards

Student 1 (S1). Registration and transcription policies and practices for concurrent enrollment students are consistent with those on campus. Student 2 (S2). The concurrent enrollment program has a process to ensure students meet the course prerequisites of the college/university. Student 3 (S3). Concurrent enrollment students are advised about the benefits and implications of taking college courses, as well as the college's policies and expectations. Student 4 (S4). The college/university provides, in conjunction with secondary partners, concurrent enrollment students with suitable access to learning resources and student support services..

Program Evaluation Standards

Evaluation 1 (E1). The college/university conducts end-of-term student course evaluations for each concurrent enrollment course to provide instructors with student feedback. Evaluation 2 (E2). The college/university conducts and reports regular and

ongoing evaluations of the concurrent enrollment program effectiveness and uses the results for continuous improvement.

Appendix B: Baker University IRB Approval

Baker University Institutional Review Board

January 31st, 2023

Dear Tom Gilmore and Tes Mehring,

The Baker University IRB has reviewed your project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.
6. If this project is not completed within a year, you must renew IRB approval.

If you have any questions, please contact me at npoell@bakeru.edu or 785.594.4582.

Sincerely,

Nathan Poell, MLS
Chair, Baker University IRB

Baker University IRB Committee
Tim Buzzell, PhD Scott Kimball, PhD
Nick Harris, MS Susan Rogers, PhD

Appendix C: Midwestern Community College IRB Approval

From: McBee, Camie <cmcbee@[redacted].edu>
Sent: Tuesday, January 31, 2023 3:03 PM
To: Gilmore, Thomas <tgilmore@iwcc.edu>
Subject: IRB Request Approved

Hi, Tom,

Thank you for submitting an IRB request. [redacted] has decided that your request is exempt and therefore approved.

Thank you,

Camie

Comanchette McBee
(she/her/hers)
Dean of Institutional Effectiveness
712-325-3378
Ashley 149A
[redacted]