The Pathways Program: Understanding the Effectiveness of a Structured and Support Based Standalone Dual Credit Program

Pablo Ortega

University of the Pacific, pablofratega@att.net

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THE PATHWAYS PROGRAM: UNDERSTANDING THE EFFECTIVENESS OF A STRUCTURED AND SUPPORT BASED STANDALONE DUAL CREDIT PROGRAM

By

Pablo Ortega

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THE PATHWAYS PROGRAM: UNDERSTANDING THE EFFECTIVENESS OF A STRUCTURED AND SUPPORT BASED STANDALONE DUAL CREDIT PROGRAM

By

Pablo Ortega

APPROVED BY:

Dissertation Advisor: Robert Calvert, Ph.D.

Dissertation Co-Chair: Rod Githens, Ph.D.

Committee Member: Fred Estes, Ed.D.

Senior Associate Dean: Linda Webster, Ph.D.
THE PATHWAYS PROGRAM: UNDERSTANDING THE EFFECTIVENESS OF A STRUCTURED AND SUPPORT BASED STANDALONE DUAL CREDIT PROGRAM

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By

Pablo Ortega
DEDICATION

First, I thank my God Jesus Christ and La Virgen de Guadalupe for giving me the will to accept, recognize, and celebrate all the gifts afforded to me. To my wife, Vicky, thank you for your unwavering love and support. God’s wisdom placed you in my life and allowed your love and kindness to inspire and nourish all of my dreams. Without you, my life is empty. I also take this opportunity to thank my wonderful kids (Mateo, JuanPablo, TaizBelen, and Annaiz). Their belief and support are the reason I finished the doctoral journey. Thank you TaizBelen and Annaiz for requiring mandatory cuddle times and “sugar” kisses when Daddy was tired and grumpy. JP and Mateo, I thank you both for accompanying me on our many trips to MLK Library and Pacific. Finally, I thank my parents, Jesus and Virginia Ortega, for providing all eight of their children with love and stability.
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Abstract

By Pablo Ortega
University of the Pacific
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Since the 1970s’, standalone dual credit programs have helped high school students earn college credit and gain college readiness skills. However, a dual credit option typically provides limited advising, poor college educational planning, and unstructured student support. As a result, participants of the standalone dual credit option experience frustration and significant difficulties in their dual credit experience. This study adds to the literature by evaluating the effectiveness of a standalone dual credit program designed with Guided Pathways-style support services.

Through quantitative analysis, this study compared two groups of standalone dual credit students. One group participated in a support-based standalone dual credit program and the other group consisted of members of the traditional standalone dual credit program at the same community college. The study evaluated student perceptions as to the effectiveness of preset patterns of courses in academic roadmaps, coordinated dual high school and college advising, and cohort-style peer support. This study’s results may help practitioners, designers, and administrators of standalone dual credit programs consider implementing student support programs within their program design. Providing support-based standalone programs may help increase dual credit diversity program enrollment above and beyond the normal high-achieving students.
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CHAPTER 1: INTRODUCTION

For years, states have looked to dual credit (DC) programs as a strategy to increase postsecondary attainment for high school students. DC programs have a long history of success in helping high school students gain college credits and college preparedness skills (An, 2015; Berger et al., 2013; Kanny, 2015). Dual credit programs save high school students time and money. Through dual credit, students earn college units as high school students. Depending on units earned through dual credit, some high school students apply to colleges and universities as freshman applicants, but with sophomore or junior standing. First-time freshman students with sophomore or junior standing can leverage their advanced class standing to graduate earlier than the typical four years required. Thus, these students save themselves and their family time and money related to college graduation. In addition to time and money, dual credit also helps students gain experience with the requirements of college and the expectations of the college environment.

Dual Credit Options

Dual credit programs offer three main options: 1) Credit-based exams like Advanced Placement (AP), International Baccalaureate (IB), or the College Level Examination Program (CLEP), 2) Middle College high school or Early College high school models, and 3) standalone dual credit option (SDC) or dual enrollment credit-based transition programs (Bailey & Karp, 2003; Karp & Hughes, 2008). Of the three dual credit options, the standalone option may fall short at providing students with a structured and supportive DC experience.

Credit based dual credit options allow high school students to earn college credit by passing subject-based examinations. The early college high school option allows students to
experience high school at a college campus. In early college high schools, students attend high school at a college instead of a traditional high school. Early college students take high school requirements through a combination of college and high school courses at the college. These courses are typically taught by high school and college instructors at college. The structure of option two is intended to allow students to experience high school in a physical college setting. SDC is the third option and is considered less structured. It provides high school students the opportunity to take college classes taught by college instructors at their high school or at the college campus. The focus of this dissertation is an SDC program called Pathways. The program provides a structured and supportive SDC approach to high school students.

The Need for Change

The SDC option allows traditional high school students entry into college courses while simultaneously attending high school. Like MCHS and ECHS models, SDC students earn college credit by taking credit-based exams. However, in contrast to the structure of MCHS or ECHS, SDC programs do not have central physical locations. They also do not have a strong system of academic advising for participating students. Students in SDC select college classes already offered at their high schools or offered at the college. Students receive limited advising from either the high school counselor or principal and are relegated to course selection based on interest or need to complete credits in high school. As a result, the responsibility of selecting college courses falls directly on the student.

The complexity of the SDC process and the challenges of navigating both high school and college requirements ultimately leads to selectivity in those students recruited for SDC programs. This selectivity in recruitment results in SDC programs mainly serving high-achieving students (Karp et al., 2004). SDC and DC programs have a rich history of providing
high school students with the opportunity to gain college units and gain college preparedness. However, the selectivity of the SDC structure presents a missed opportunity to serve students from broader and more disadvantaged backgrounds. The need for accessibility to more students is even greater when considering current trends in the new postsecondary educational agenda. States like California have moved toward accelerated completion agendas due in part to the growing student loan debt problem, as well as the extended periods of time taken by students to graduate from the university.

**Current Educational Trends**

A 2005 study found only about 37% of more than 1.8 million federal student loan borrowers managed to make payments without postponing or becoming delinquent on their student loans. In contrast, over 26% of borrowers became delinquent at some point in the repayment process (Cunningham & Kienzl, 2011). Specific to the community college system, researchers note the rising problem of excess units and extended degree completion times (Bailey et al., 2015; Bustillos, 2017). Bustillos reports the average bachelor completion timeline for community college students transferring is 6.4 years into the University of California System and 7.0 years into the California State University system. Extended degree times add to the student and institutional financial burden. A reduction in excess units by community college students would save the CCC system over $41 million dollars (Bustillos, 2017). SDC programs curve degree completion times by leveraging college courses taken while in high school to count for high school and college requirements. Thus, by curving degree times, SDC programs also serve as a strong strategy to reduce student debt accumulated by excess units.

California has the largest system of public education in the country. With 115 college campuses, the California Community College system (CCC) enrolls approximately 2.1 million
students. In the spring of 2018, special admit or DC students made up about 4.6% (or 96,600 students) of the total CCC population (Datamart, 2018). Building more accessible and support-based DC programs could help high school students complete college units more closely directed to their degree, and thus, curb excess units when entering postsecondary institutions after high school.

The DC system allows high school students to use their college DC units and count them for required lower division, major preparation, or elective credit at a university. In some cases, DC students graduate high school and use the units from DC to enter the university as first-time freshmen with advanced sophomore or junior standing. Credits or units earned through dual credit programs serve as a very efficient tool to save students time and money at their university. Currently, states are moving towards accelerated completion concepts for high school students. In California, key legislative strategies continue to move accelerated completion agendas toward California Community College education (Jenkins et al., 2017). The most relevant examples of key legislative strategies are SB 1440, SB 1456, SB 412, AB 705, and AB 19. Sections of the literature review will explore these bills in more detail.

**Background of Inquiry**

Despite all the changes in the state educational agenda, DC continues to be a viable option to help increase college completion rates. The need to accelerate completion of college units and reduce completion times, serve as the backdrop for the pivotal role DC programs play in the accelerated completion agenda. However, problems exist with one of the three components of DC options. Standalone DC options provide high school students access to take college classes independently. Unlike the middle college and early college high school options, dual credit places the responsibility of enrollment and college course selection on participating
students. Registration and educational planning are complex and lack student support systems. The need to provide SDC students with support systems is crucial and may help improve the process for participating students.

**The Benefit of Dual Enrollment**

Through DC programs, students gain college credits and college readiness skills (An, 2013; Conley, 2007; Hooker & Brand, 2010). Also, DC students save their families’ money (Bailey et al., 2002). Typically, DC classes are free. However, not all colleges offer a free tuition option for DC students. Currently, California Community Colleges (CCC) charge $46 a unit or $552 for a twelve-unit semester (CCCO, 2018). By comparison, the same twelve-unit semester at a California State University (CSU) works out to be $5742, or about $478 per unit. In 2018, the CSU charged $3,330 for five or fewer units and $5742 for six or more semester units. By taking DC units, SDC students saved their families over $5000 in tuition per semester.

Dual credit students also gain additional benefits outside of money saved and units earned. Some high school districts allow dual credit units to count for additional academic benefits. These include: a) increase in their weighted high school GPA, b) dual credit units meet high school admission core class requirements, and c) high school elective units towards graduation. Some structured SDC programs allow for students to complete an associate’s college degree alongside the lower-division general education university pattern (Fink et al., 2017).

**The Pathways SDC Approach**

This study focuses on analysis of an SDC model of a program called Pathways. Pathways provides students with a more structured and supported DC learning experience. The design of the program addresses key gaps in the way traditional SDC programs structure the DC
experience. Traditional SDC programs require high school students to select and enroll in appropriate college courses with limited advising from their high school counselor or principal. Students must navigate the college enrollment and registration process on their own. In most cases, the complexity and expectations of DC programs leads to recruitment of only the most advanced students (Bailey et al., 2002).

The Pathways SDC program seeks to ease the SDC process by providing supportive and structured services. In the Pathways SDC model, students agree to learn in a cohort style learning approach. Each year, the Pathways program builds a cohort of at least 30 students. Students agree to complete preset goals through peer support, cohort-style learning experience. The goals are the completion of a two-year associate degree in Math and Sciences, and the completion of the Intersegmental General Education Curriculum (IGETC) for the University of California System. The Pathways Program seeks to accomplish these goals by requiring students to take classes through a cohort experience. The program reaches out to students in the spring of their eighth-grade year and starts the cohort in the fall of their freshman year of high school. The agreement requires them to take two courses per semester, including summers, through the end of the spring semester of their senior year. Pathways SDC requirements provide students with a structure that includes a preset major, a pattern of courses, and semester-by-semester course sequences.

**Structured and Supportive Environment**

In recent times, many colleges have moved towards a structured approach of providing a college education. Pathways SDC borrows the concept of a structured approach from the Guided Pathways (GP) framework (Bailey et al., 2015). In the Guided Pathways framework, college faculty clearly map out educational road maps with clearly defined outcomes linked to student
educational goals. The design of the Pathways models follows the GP framework. The goal of students who participate in Pathways SDC is to enter competitive postsecondary institutions after high school. As such, the Pathways program defined the participation outcomes to help students achieve their academic goals through college preparation.

In Pathways SDC, the main goals include completion of an associate degree, completion of the UC general education pattern (IGETC), and completion of A-G high school and university entrance requirements through the completion of college DC courses. Thus, Pathways students may stand out when compared to other high school students who have little to no college experience and college unit completion.

The Pathways program extends beyond providing dual credit students the opportunity to gain college units. In Pathways, students experience college as college students and gain valuable knowledge, such as functional college process knowledge related to matriculating into the enrollment process. Students also gain postsecondary confidence and academic college preparedness. The goal of Pathways is to provide students with clear direction and clearly defined academic goals. Students in the Pathways program know exactly what their goal is and when they will complete the preset associate degrees. The researcher notes the Pathways strategy to inform students with clear program objectives is not the norm in standalone dual credit programs. Most standalone dual credit programs provide flexible dual credit enrollment options that do not require advising for students. As such, students may not have a clear understanding of the college enrollment process.

Researcher Scott-Clayton notes how institutions with structured educational Pathways provide students with clear choices. Clear choices lead directly to the attainment of their educational goals. Unfortunately, the current community college does not provide clear choices
for students. Instead, the current community college model provides dual credit and traditional college students a multitude of academic choices. Students are asked to choose required general education courses that may or may not also be required for their academic field of interest. Dual credit students must also select a major. Researchers note how the magnitude of choices and lack of direction may “lead to poor decisions” on the part of students (Bailey et al., 2015, p. 23).

The Pathways program relieves high school students of the responsibility of navigating a college process. The program provides students with a preset pattern of courses that are consistent with the program’s preset educational goals.

**Challenges to the Dual Credit Model**

The success of DC programs is not enough to shield criticism of the program. First, critics question the maturity and preparedness of DC high school students. Some high school students may not be able to grasp the complexity, rigor, and expectations of the college environment. Second, some DC college faculty have expressed concerns at the possibility of having to dilute the curriculum in order to benefit high school students (Kanny, 2015; Robertson et al., 2001). Third, DC programs are not always free to high school students. In some states, the high cost of tuition and books serve as a barrier to low-income student access and participation. Additionally, some researchers criticize DC programs for their lack of access to diverse student populations. Furthermore, high school districts also contend with the loss of daily attendance funding. Finally, DC programs may not always articulate to all private colleges and universities. Thus, DC students may be taking classes not suited to count in their postsecondary institutions (Howley et al., 2013; Jackson, 2015).

**Access to Dual Credit Programs**
Because of the complexity and perceived rigor of DC programs, high schools typically target recruitment to high-achieving students (Bailey & Karp, 2003; Barnett et al., 2015). As a result, DC programs are highly selective and attract mainly white and Asian high-achieving students (Howley et al., 2013). Along with selectivity, DC models like SDC lack the support to help students navigate the college registration process. Colleges often collaborate with high schools to offer SDC programs. Participating students independently select classes with only the aid of a college high school counselor, the school principal, or their parents. The SDC model places the responsibility of navigating the college process directly on the participating high school student. The process of SDC is challenging and presents participants with a complex process, not all students successfully navigate.

**Problem of Practice**

The option of DC programs continues to serve as an excellent resource to prepare high school students for postsecondary enrollment (An, 2015; Berger et al., 2013; Kanny, 2015). Specifically, the design of SDC programs continues to pose a problem of access to a broader range of students. The SDC programs of accessibility is a result of the complex structures designed into the SDC process. SDC Programs lack student support systems in the form of college advising, clarity of academic path, and clarity of the matriculation process. States like California could gain a great college enrollment tool if the SDC model is redesigned to provide a more inclusive model. The Public Policy Institute of California reports by 2030, 38% of the jobs in California will require bachelor’s degrees (Johnson, Cuellar Mejia., & Bohn, 2015). Thus, there is a need to create a more effective, supportive, and inclusive SDC model. Currently, the literature lacks information on SDC programs designed to support students by providing more clearly defined Pathways. Thus, the analysis of the Pathways model could add
to the literature on SDC programs with a more supportive and structured approach. Through this study, the researcher plans to understand how effective the Pathways model is when compared to the traditional DC program housed by the same college. The findings may provide the building blocks for the creation of a new more inclusive SDC program.

This research explores the relation of support and structure systems within the Pathways program and how Pathways program benefits students. First, Pathways may help in building increased levels of commitment to post-secondary education for both students and their families. Second, the program may be effective at providing a structured learning experience through academic road maps and support services. The program accomplishes this by requiring participants to follow preset academic road maps. Third, the program may serve as a strong method of providing academic preparation by helping students learn the expectations of the college environment. Finally, the program’s cohort learning experience to create a peer-based support system may help provide students with a more supportive and positive learning experience. The Pathways program differs from the traditional standalone DC programs by providing students with a structured and supportive SDC program.

**The Pathways Process**

The Pathways program cultivates an early commitment to postsecondary goals. Participation in the program begins with an organized recruitment effort to eighth-grade students within the high school’s assigned area. In the spring of the eighth-grade year, students and their families are invited to participate in a Pathways program orientation. The Pathways counselor presents program benefits and expectations, including time and academic commitments. Students complete the program application along with writing a student commitment essay. Those selected by Pathways start the program in the Fall of their high school freshman year.
Participating students agree to program goals, including a preselected community college major and preset four-year pattern of courses. In contrast to the independent format of traditional standalone DC programs, Pathways students follow comprehensive student educational plans called academic road maps. Road maps outline the exact courses needed for each semester, starting their freshman year and ending their senior year. In Pathways, students enter the program with established knowledge of their major, classes required for the program, and the order they take those classes until completion of their goals. The structure of the Pathways program is preset, but not stagnant. Every semester, the Pathway high school and college counselors update the academic roadmap to reflect course completion, grades, and an exploration of the remaining courses and time needed for completion of Pathways goals. Pathways students also receive updated areas of completion related to college general education and high school admissions requirements within the University of California A-G pattern.

Third, the program prepares high school students for entrance into postsecondary education. In Pathways, students take two courses each semester, including summers until the end of their senior year. The format ensures participating students complete 60 college units while also completing their high school classes. This study notes the challenge high school students face when taking college courses. College courses hold a more rigorous pace when compared to high school courses. Therefore, Pathways coordinates with the high school to maximize units of college classes to count toward both high school and college requirements. By counting Pathways courses for high school requirements, Pathways reduces student course graduation requirements. As part of the design of the program, Pathways students receive mandatory academic counseling. The service is coordinated with their high school counselors and is intended to help students navigate college and high school requirements while in the
program. At the start of the program, students enroll in guidance and counseling courses alongside general education courses. Required guidance and counseling courses provide structure by exploring college student expectations, student survival skills, certificates, degrees, and transfer requirements.

Finally, Pathways provides participating students with a cohort-style learning format. In traditional SDC programs, students take classes independently. “Social support in the form of peer networks can increase a sense of belonging as well as strong or strengthened academic and social development” (Saylor et al., 2018, p. 341). By taking classes together, students experience the challenges and expectations of college as a group. The group experience supports learning by reducing anxiety through a shared group experience. Together, students feel supported by other SDC students experiencing the same challenges.

**Purpose of Inquiry**

This study seeks to compare the effectiveness of the Pathways SDC program by comparing it to the traditional SDC program called College Early Start.

**Guiding Research Question**

How does the effectiveness of the Pathways program compare to the traditional college standalone dual credit program?

Sub-questions:

a) Do entering Pathways students differ from entering control group dual credit students when compared by gender, race, socio-economic status, and pre-college assessment levels in reading, English, & math?

b) Do Pathways students differ from control group dual credit students in levels of academic confidence?

c) Do Pathways students differ from control group dual credit students in perceived levels of SDC support?
d) Do Pathways students differ from control group students in understanding the requirements to complete associate degrees, transfer knowledge, and four-year admissions requirements to the University of California System?

In addition to the guiding question and sub-questions, the research uses descriptive statistics to create a clearer understanding of the research population. Chi-Square and ANOVAS will be used to uncover key demographic relations between both the Pathways group and the traditional SDC program called the College Early Start program.

**Significance of the Study**

There is limited research associated with DC standalone programs with components of the Guided Pathways framework. Past research has explored the effectiveness of DC models. This study adds to the literature by exploring key Guided Pathways structures within the SDC program called Pathways. Specifically, the Pathways program provides a research opportunity to examine a standalone DC program which includes concepts associated with the GP framework. The following Pathways program concepts may be associated with the GP framework: 1) pre-set majors, 2) course-specific student educational plans known in the GP framework as academic road maps, and 3) cohort-style learning that provides peer-support to help students continue and finish their academic goals. Exploring these concepts would add to the understanding of SDC programs by adding to the literature of DC a new method of serving students.

**Theoretical Framework**

The Guided Pathways (GP) framework will serve as the theoretical framework for this study. GP framework aligns closely with the design of the Pathways SDC program focused in this study. Chapter 2 presents a close explanation of the GP framework. In summary, GP uses four key pillars to define the GP experience. Pillar one promotes concepts designed to help students clarify their educational path and college goals. Pillar two promotes concepts designed
to facilitate the process of entering a college or university. Pillar three develops concepts
designed to help students stay on their path and persist. Finally, Pillar four ensures the learning
of the college curriculum linked to student career and educational goals.

This study analyzes the Pathways SDC program through the overall GP framework.
Specifically, the study views the analysis of Pathways through two specific pillars. Pillar one,
clarification of the path and Pillar three, includes strategies designed to stay on the path. Since
SDC participants are high school students taking college classes, pillar two enters the path and is
not yet relevant. Also, Pathways students work within existing college courses. As such,
participating students take college courses not designed specifically for Pathway students. Thus,
the study does not include pillar four as part of the analysis. The researcher only uses pillar one
and pillar three as the framework for the analysis.

Definition of Terms

California Assembly Bill 705 (AB705)

AB 705 requires community college students to enter and complete transfer-level
coursework in math and English within a one-year timeframe.

Standalone Dual Credit Programs

These phrases refer to DC programs where high school students take college courses
independently while still attending traditional high school (Bailey & Karp, 2003; Karp &
Hughes, 2000).

Credit-based Exams

The term credit-based exams refer to subject-based exams taken by high school students.
These exams include Advanced Placement (AP) exams administered through the College Board,
International Baccalaureate (IB) exams through the participating IB schools certified by the
International Baccalaureate Organization, and the College Level Exam Placement test (IB) also administered through the College Board organization.

**Dual Enrollment**

Dual enrollment grants high school students the opportunity to enroll in college courses for credit while they are still attending high school. Dual enrollment programs can be located on college or high school campuses and can be taught by college instructors or specially credentialed high school instructors (CA Education Code Section 66738).

**Early College High Schools (ECHS)**

Early College High Schools are high schools that are located on a community college campus. These programs allow students to take their high school experience at the host community college. Participation in ECHS typically leads to a two-year degree (Cunningham & Wagonlander, 2000; Krueger, 2006).

**Guided Pathways**

The Guided Pathways framework provides college students with a clear path to graduation. The framework includes three main elements. First, clear and coherent educational road maps are provided with defined milestones to help ensure completion. Second, undecided students are provided support services in career decision making to help them on ramp enter a clear path at the start of their community college experience. Finally, students are tracked and provided with advising and counseling to help them complete their educational goals. (Bailey et al., 2015; Jenkins & Cho, 2013).

**Middle College High Schools**
Middle college high schools are schools located on college campuses. Students complete their entire high school at a college or community college. The program leads to a high school diploma and a two-year college degree (Born, 2006; Krueger, 2006).

**Peer-based Support**

This term refers to student support received from face-to-face interaction with other students experiencing the same educational journey. Peers experiencing the same educational journey reduce each other’s stress through shared learning and supporting one another in conquering academic challenges. (Saylor et al., 2018).

**Chapter Summary**

Chapter 1 served to introduce the reader to the purpose and significance of this study. The next chapter in this study reviews the literature related to SDC programs, the GP framework, and themes associated with the DC experience. Chapter 3 will provide a description of research methodologies and limitations. Chapters 4 and 5 present the findings and conclusions for this research.
CHAPTER 2: LITERATURE REVIEW

In 2017, researchers reported an increase in high school students taking college courses (Fink, et al., 2017). Data from the National Center for Education Statistics reflects a 67% growth in dual enrollment students in the 8-year period of 2002 to 2010. The growth of dual credit students totaled 1.4 million students in the 2010-2011 period. Additionally, data from the Integrated Postsecondary Education Data System (IPEDS) indicate growth in dual enrollment is mainly in the community college sector. Between 1995 and 2015, community colleges increased their dual credit enrollment by 69%. Fink and colleagues (2017) reported increases in dual enrollment from 163,000 in 1995 to 745,000 in 2015. In addition to growth in the community colleges, dual credit programs have seen growth in high schools. The National Middle College Consortium reports over 40 schools across 16 states have public and charter middle college and early college high school programs. Further, Shivji and Wilson (2019) examined the High School Longitudinal (HSLS) study which included over 23,000 ninth grade students from 944 U.S. based high schools. The study found 34% of high school students enrolled in college classes (Shivji, & Wilson, 2019).

In California, DC participation has followed the same national enrollment trend. The California community colleges serve as an example of the growth in dual credit. The 115 California Community Colleges (CCC) enrolls over 2.1 million students. Specific to dual credit students, the CCC reports 4.6% or 72,464 students of the 2.1 million were dual credit students. Dual credit students or high school students taking college classes are referred to by the state of California as special admit students (DATAMART, 2018).
The growth in dual credit may point to the pivotal role community colleges hold in helping high school students gain early access to college units. Through dual credit, colleges provide students a great method for saving time to degree and college tuition. Students are not the only beneficiaries of dual credit. States like California benefit from the system by gaining better-prepared students entering their colleges and universities. In recent times, the need to help students become career ready has become more pressing. The Public Policy Institute of California reported projects by 2030, 38% of the jobs in California will require a bachelor’s degree (Johnson, Cuellar Mejia., & Bohn, 2015). Based on the PPIC projections, California must increase the number of college graduates it produces. Some feel programs like dual credit serve to increase college graduates. These same college graduates may serve to alleviate the state’s need for college graduates entering their labor force.

The focus of this study is a standalone dual credit program designed to help high school students gain college degrees. In this study, the program will be referred to as The Pathways program. Pathways includes support programs linked with the Guided Pathways framework. For purposes of clarity, the review of the literature will include a brief explanation of the Guided Pathways framework. Specifically, this chapter explores the following areas linked to Guided Pathways: a) cohort-style learning, b) advising for dual credit students, c) student academic choice and present pattern of courses, and d) the use of educational pathway roadmaps taken from the GP model. The chapter concludes with an introduction of the next three chapters of this dissertation.

**Problem Statement**

Dual credit standalone programs offer high school students the opportunity to take college classes for both college and high school credit. Unlike the structure of the early college
high school models, dual credit programs offer participating students flexibility in the selection of college courses. Additionally, the standalone dual credit (SDC) option affords students the opportunity to maintain their traditional high school experience while taking college courses. In dual credit programs, high school students are responsible for selecting the classes they take in college. The process of selecting classes presents a major problem for high school dual credit students. Typically, high school students lack the proper counseling to enable them to make the proper selection of college courses. The SDC option does not require structured counseling from either their high school or the host dual credit college. As a result, the lack of structure may lead participants to select college courses that fail to meet postsecondary graduation requirements such as general education, major courses, and elective requirements.

**Dual Credit Programs**

Past researchers have written many studies about the topic of dual enrollment. The concept of dual enrollment originated in the 1970s (Bailey & Karp, 2003; Howley et al., 2013; Lichtenberger et al., 2014). At their core, dual credit offers high school students the opportunity to take college courses (An, 2013; Barnett et al., 2015; Berger et al., 2013; Thompson & Ongaga, 2011). Although the definition is simple, many fail to grasp the concept of dual credit programs (Giani et al., 2014; Kirby, 2007). This confusion may be the result of the many names associated with the programs. Dual credit names include: Dual credit, Dual Enrollment, Early College High School, Middle College, Exam Based Credit, Concurrent Enrollment, and many others. Additionally, because of differences in location, purpose, and funding policy, dual credit programs are as diverse as the students they serve (An, 2015; Mokher & McLendon, 2009; Taylor et al., 2015). Whatever the definition, the success, and expansion of dual credit programs have helped legislators link dual credit as a strategy to help college students increase degree
completion and at the same time shorten degree timelines. In support of this strategy, legislators have started developing supportive legislation.

**Supportive California Legislation for Dual Credit Students**

In support of DC, states have moved towards creating supportive policy and legislation. An example of one such policy movement is the federal and state Guided Pathways movement. In 2015, California passed Assembly Bill 288 (AB288): Public Schools: College and Career Partnership Pathways. The new law allowed high school students tuition-free community college courses. AB 288 also increased the number of college units high school students can enroll in from 11 to 15 units. In 2017, California also passed AB-19: The California Community College California Promise. The California Promise (AB-19) allows California’s first-time freshmen two free years of tuition at a California Community College.

**Benefits of Dual Credit Programs**

Participation in DC programs is still competitive. As a result, participating students tend to have higher grade point averages than their non-dual credit counterparts (An, 2015; Karp et al., 2007; Kim & Bragg, 2008; Kinnick, 2012). The selectiveness of DC programs may result from the many perceived program benefits. Amongst these are the belief that dual credit programs help increase university admissions, GPAs, and college readiness. Yet, this is not necessarily true. Perhaps, the selectiveness of dual credit programs points to already existing participant academic abilities. Subsequently, the benefits of the dual credit programs may be misrepresented. It may be that entering students may already be high-achieving students. While the cause of dual credit student success is unclear, research does prove dual credit participants held higher high school grade point averages, college unit completion,
postsecondary persistence, and degree completion rates (An, 2013; An, 2015; Karp, 2007; Karp et al., 2007).

In 2015, researcher Brian An studied data from a national study of liberal arts education. His study of 3,779 first-year college students revealed dual enrollment helped create an increase in college grade point averages for participating students “even after controlling for race and family background” (An, 2015, p. 115). The same study found dual-enrolled (dual credit) students tended to be more “academically motivated” than non-dual credit students. The research also noted the limitations of these studies and questioned if dual-enrollment or dual credit students were independently responsible for improved grades. However, the research does reflect a strong connection between high college and high school grade point averages and high school students that participate in College Early Start programs. Another important element of DC programs is the belief that the program imparts students with college preparedness skills.

**College preparedness.** Educators and policy makers have long promoted the DC option as a favored strategy to increase high school student college preparedness and postsecondary enrollment (An, 2015; Tobolowsky & Allen, 2016). Proponents of dual enrollment credit the option of DC programs as a method of addressing several common concerns through the following solutions: a) exposing high school students to the rigor of college academic curriculum, b) college readiness, c) a greater college transition for high school students into the college setting, and d) greater retention rates when students transition to college (D’Amico et al., 2010; Lichtenberger et al., 2014; Mechur Karp, 2012; Mokher & McLendon, 2009).

Studies report dual enrollment (dual credit) students are more likely to enroll in postsecondary institutions immediately after high school (Taylor, 2015). The dual credit experience affords participating high school students entry and ease of transition into the college
environment while they are in the structured safety of their high school experience (D’Amico et al., 2013; Pretlow & Wathington, 2014). The results of these studies point to the growth and popularity of the DC option. According to 2016 national figures, DC programs saw a surge of 76% (NCES, 2016). In 2002, about 800,000 high school students participated in DC programs. Fast forward to 2010: the latest NCES figures report a total of 1.3 million DC students (2016). Based on the literature, the evidence reveals that participation in DC programs increases college GPA, unit completion, and postsecondary persistence (An, 2015; Hooker & Brand, 2010).

**College knowledge.** In addition to college readiness, academic preparedness, and increased grade point averages, dual credit may also increase important non-academic skills such as, self-awareness, self-control, purpose, and applicable knowledge needed for college success (Burns & Lewis, 2000; Conley, 2008; Johnson & Brophy, 2006; Mechur Karp, 2012). In a DC setting, participants use the above skills as normative behaviors to better understand the college processes needed to succeed in a college environment. Participation in dual credit exposes students to functional knowledge of college systems, such as matriculation, selection (admission), financial aid, graduation, and other technical processes associated with the college environment. The functional knowledge gained through DC provides participants with advantages over other first-time college peers (D’Amico et al., 2010; Mechur Karp, 2012; Taylor, 2015).

Kanny (2015) and other researchers point out that DC students learn “the hidden curriculum” through the DC experience (Bailey et al., 2002; Hoffman et al., 2009). By taking college classes, DC students engage in learning the hidden curriculum through the following: a) reading a syllabus, b) using instructor office hours, c) time management, d) organizational skills, e) seeking out college math and English tutorial centers, and f) engaging with other students to
form college study groups. For DC students, the combination of academic skills gained, college readiness, and functional college knowledge may serve to provide increased levels of comfort, satisfaction, maturity, and independence in their university experience (An, 2015; An & Taylor, 2015; Mechur Karp, 2012; Smith, 2007).

**Time and money savings.** Equally important to academic and non-academic factors are the financial and temporal benefits students and their families receive from dual credit. These benefits include saving on the cost of college tuition by using dual credit units to earn the degree faster (An, 2015; Johnson & Brophy, 2006; Ozmun, 2013). By taking college classes as high school students, DC students leverage earned college units to save time towards degree completion (Bailey et al., 2002; D’Amico et al., 2013; Pretlow & Wathington, 2014). Depending on the number of college units earned, some dual credit students may save their families the cost of up to two years of college tuition (Hoffman, 2005).

Through dual credit, participants complete lower-division college general education, electives, and prerequisite major coursework requirements. Researchers note how dual credit units help students gain sophomore level status once they enter their postsecondary institutions (Giani et al., 2014; Johnson & Brophy, 2006; Ozmun, 2013; Pretlow & Wathington, 2014). In effect, DC may save students time and money by completing many of their lower-division general education classes before completing high school (Fink et al., 2017; Wang Golmann & Hughes, 2008).

**Maturity, motivation, and independence.** The DC experience affords high school students the opportunity to gain valuable experience in a college setting. Benefits resulting from the DC experience may include a clearer understanding of the college lifestyle, exposure to student services, a grasp of classroom etiquette, and the self-expectations required to succeed in a
traditional college environment (Kanny, 2015; Ozmun, 2013). Participating students may experience how the independence of a college environment differs from the rigidity of their high school experience (Kanny, 2015; Mechur Karp, 2012). Dual credit students must navigate the absence of bells, instructor reminders, and mandated high school attendance. Thus, some students take well to the college experience and gain increased levels of satisfaction and motivation (D’Amico et al., 2010; Weisberg et al., 2011). However, some researchers have questioned the burden placed on students taking college courses at such a young age (Noble et al., 2008).

**Criticism of the Dual Credit Programs**

**Diversity and selectivity.** Another concern expressed by researchers is the cost of attending dual credit programs. They direct one’s attention to the cost associated with DC participation as a factor that excludes students of lower socioeconomic backgrounds (An, 2013; Bailey & Karp 2003; Pretlow & Wathington, 2014; Taylor, 2015). Participation for blacks and Hispanics in DC programs is consistently low (Pretlow & Wathington, 2014; Speroni, 2011; Taylor, 2015). The disparity in participation for blacks and Hispanics is significant.

The literature provides examples of the lack of diversity in dual credit participation. As an example, Pretlow and Wathinton (2014) examined dual credit enrollment in the state of Virginia and found dual credit programs lacked diversity. Their study found 13.8% (n=10,348) of high school seniors participated in dual enrollment classes. Of all dual credit participants, white students made up 61.2% (n=6,271) of dual enrollment participants. Black and Hispanic students made up only 23.7% (n=2,452) and 13.1% (n=1,345) of the dual credit participation respectively. Meade (2012) analyzed data from the City University System of New York (CUNY) found similar disparities in the ethnic make-up of dual credit participation. The study
notes “significant racial and gender disparities” within 17 of CUNY’s community colleges (p.94). Both studies, along with Wozniak and Posner (2013), cite cost, academic preparedness, lack of basic, remedial skills in math and English, and selectivity in the admissions process as primary reasons for the disparities in the ethnic and racial makeup of dual credit participants.

The challenge of selectivity for DC students is twofold. First, program administrators and high school counselors view DC as a program for high-achieving students. As a result, program administrators focus and limit the recruitment of dual credit students to “high-achieving students”. A study conducted through the National Center for Education Evaluation and Regional Assistance concluded dual credit participation was mainly made up of 75% white and Asian female students (Pierson, Hodara, & Luke, 2017). Both of these groups are typically identified as high achieving students. Secondly, program administrators design participation criteria that require high student GPAs or SAT scores. GPA and SAT policies are selective and end up excluding many students of diverse racial and low socioeconomic backgrounds from the recruitment process. Additional barriers for DC participation include transportation and cost associated with program participation (Giani et al., 2014; Roach et al., 2015; Wozniak & Palmer, 2013). The literature did not provide strategies to solve the challenges associated with dual credit participation. Additional areas of concern are the problems faced by dual credit faculty and program administrators.

**Dual credit faculty concerns.** Dual credit faculty are an integral part of the program and foster student success. As such, they serve as frontline participants in the dual-enrollment experience. These faculty face everyday challenges which have led some to voice concerns about dual credit programs. First, faculty were genuinely concerned at the possibility of diluting or “dumbing down” the curriculum for the younger high school population. Specifically, faculty
noted concerns over age-sensitive topics along with typical college materials that may not be appropriate for high school-aged students. Additional studies found DC faculty noted dual enrollment students failed to meet the discourse expectations of their classes. They noted dual-enrollment students possessed limited life experiences on which to participate in the class discourse. As such, faculty became concerned about younger student safety. Specifically, they expressed concerns revolving around younger students’ maturity levels when exposed to discourse on adult topics and issues. Faculty felt they may be risking the psychological safety of their younger dual credit learners.

This concern for younger students moved some dual credit faculty to reduce the rigor of their courses. As a result, dual credit faculty felt the lower level of discourse significantly diminished collegiate classroom interaction (Ferguson et al., 2015; Kanny, 2015; Tobolowsky & Allen, 2016).

**Teaching and loss of classroom autonomy.** Faculty teaching DC students also held the method of teaching high school students in a college setting as a major area of concern. The high school style of teaching uses pedagogical (young learners) practices. Wozniak and Palmer (2013) report faculty concerns over their lack of training in pedagogy designed for effective teaching of young learners. Classes in the college setting require critical thinking and problem-solving skills familiar to the andragogical methods used in a college setting. The teaching of problem solving may be absent in the pedagogical method of teaching in pre-college settings. High school learners are used to learning by transmission of information and through memorization. When working with high school students, the contrast in learning may cause some college instructors to feel they have to adjust their teaching methods to a more pedagogical style of teaching and hence a feeling of loss of classroom autonomy.
In a dual-enrollment classroom setting, faculty felt compelled to provide a dual system of assignments. (Ferguson et al., 2015). For dual enrollment high school teachers teaching college classes, their curriculum had to differentiate from normal similar high school subjects. Teachers in DC felt the dual system of assignments and grading reduced some of their classroom grading autonomy. From the high school dual credit perspective, many teachers felt their courses were more rigorous than university-level courses (Ferguson et al., 2015). In the eyes of some instructors, the rigor of the courses helped dual-enrolled students prepare for the rigor they could expect in a university setting.

**Dual credit lack of advising.** Another major challenge in DC is the lack of coordinated high school and college advising within standalone DC programs. The literature provides a multitude of studies touting the importance of advising/counseling and faculty support for high school students entering college classroom settings (Hoffman et al., 2009; Oliver et al., 2010; Thompson & Ongaga, 2011). Several studies focusing on student perceptions note the high value college students place on educational advising (Whitebook et al., 2008). However, many programs within the DC standalone option do not provide counseling support. This may be due to the independent structure of standalone DC programs.

In most standalone DC programs, program administrators do not build in counseling and advising as a service provided to high school students. Depending on the design and structure of the program, participating students select and enroll in their own college courses. Course selection may be based on interest more than on strategy. High school students may not be fully aware of how course selection impacts the completion college requirements (Hughes, Karp, Bunting, & Friedel, 2005; Stephenson, 2013). The following section is a brief explanation of DC program options, alongside a definition of the three main dual credit options.
The following section is a brief explanation of DC program options, alongside a definition of the three main dual credit options.

**Dual Credit Program Options**

The benefits and challenges of DC programs underlie the complexity of the DC experience. Dual credit does not have a uniform definition that encompasses a variety of DC options. For simplification, this research categorized DC programs into three main categories: a) Exam-based credit, b) Early College Models, and c) Standalone DC programs.

**Exam based credit options.** The first category of DC programs is exam-based credit programs. Examples of programs in this category include Advanced Placement (AP), International Baccalaureate (IB), and the College Level Examination Program (CLEP). What follows is a brief explanation of each type of exam-based credit options. The origins of high school credit options for students go back to the 1950s (Bailey & Karp, 2003; Fincher-Ford, 1996; Howley et al., 2013; Lichtenberger et al., 2014; Smith, 2007). Included in this system are the AP, CLEP, and IB formats. These options are all exam-based options that allow high school students to gain college credits.

**Advanced placement (AP) options.** The design of an AP option originated out of the cold war with Russia. During the period of the cold war, the United States was in an arms and space race with Russia. The U.S. Government felt it needed to prepare more students to enter college. In 1951, the Ford Foundation created the Fund for the Advancement of Education (FAE). The initial FAE report concluded that there needed to be an exam-based system that allowed for advanced placement in college courses. The results of their efforts became known as Advanced Placement or AP exams. In 1954, FAE supported the AP Exam system by creating a high school curriculum that prepares students to take the AP Exam. The following year, FAE
started national implementation of the subject-based credit by exams for high school students (Di Yanni, 2002; Weaver, 2010). Currently, the New York-based College Board organization houses and administers the nationwide AP test. A 2017 College Board report cited more than 1.17 million students took over 3.98 million AP Exams (College Board, 2018).

**The College-Level Program (CLEP) option.** In addition to the AP Exam, the College Board established the College Level Exam Program (CLEP) exam-based credit program (Gussett, 1980). In 1974, the College Board developed CLEP as an option to help returning servicemen integrate back into employment in a postwar economy by earning college credit. The CLEP differs from the AP in that it includes additional subject matter beyond the traditional academic subjects offered by the AP. Unlike AP, the College Board allows people to take CLEP exams post-high school graduation. The CLEP test includes subject tests in English, math, science, and business. According to the College Board (2019), each year over 50,000 military men and women and their respective spouses take the CLEP at no charge. Academic subject tests, along with applicable skill options, afford military members an inexpensive way to complete college units that help them gain post-service employment. The College Board reports that CLEP students increase their probability of gaining a two-year degree by 17%. The College Board also reported CLEP students nominally increased their probability of gaining a bachelor’s degree by 2.6 % (College Board, 2018).

**International Baccalaureate (IB) option.** The third component within the exam-based credit category is the International Baccalaureate (IB) option (Bunnell, 2008; Nugent & Karnes, 2002). The International Baccalaureate Organization, based in Geneva, Switzerland, established the IB test in 1968. IB differs from CLEP and AP in structure and purpose. In the AP model, participating students take high school courses in subjects they plan to test for AP credit. In
contrast, IB participants are part of actual diploma programs in both career and academic programs. Therefore, proponents of IB regard the Diploma based IB system as the more rigorous of the two options. Currently, the IB organization reports that there are 1,750 IB schools in the United States and 4460 throughout the world. Although all three credit-based systems are good options for students, this study excludes AP and IB options. Instead, the study will focus on dual credit programs that allow high school students to take actual college classes in the college setting. The study also excludes early college model programs described in the following section.

**Early College Model options.** The second category of DC programs is Early College Models (ECM). Within ECM exist the two main options: Middle College High Schools (MCHS) and Early College High Schools (ECHS). Both ECM options offer high school students the option to attend high school on a college campus. ECM programs distinguish themselves from exam-based dual credit options by providing a structured brick and mortar environment in a college setting. Additionally, ECM programs design their curriculum with the aim of helping participants complete their high school diploma and a community college associates degree. Although the programs are similar, they draw distinct differences in their purpose and structure.

**Middle College High School.** Designers of the Middle College High School (MCHS) created a system of education designed to serve underrepresented students at risk of dropping out by providing them with a small and supportive environment. In 1974, Janet Lieberman and a group of educators founded the first Middle College High School program at LaGuardia Community College in New York (Bailey, 2015; Bailey & Karp, 2003; Cullen, 1991; Lieberman, 1985). The purpose of Middle College High School was to meet the needs of at-risk
youth by helping them gain a sense of membership and belonging to high school and college environments. At their core, Middle College programs allow high school students to take a combination of high school classes and college classes to meet the high school graduation and college core graduation requirements. A distinct feature of the Middle College High School program is that students attend high school at a college campus (Middle College National Consortium, 2018).

**Early College High School option.** The Early College High School (ECHS) began in 1968 at Bard College in Annandale, New York (Webb & Mayka, 2011). In contrast to MCHS, ECHS students participated in college classes with additional purposes and goals. Students in ECHS take both college and high school classes at a college with the goal of completing both a high school diploma and a college degree. The focus of ECHS was not simply to expose at-risk students to college, but instead to move them towards completion of an associate degree alongside their high school diploma. ECHS programs distinguish themselves from MCHS in that they require a prescribed pattern of courses that lead students towards completion of/a college degree/s. Additionally, participants use their ECHS college units to complete the university admissions requirements. In 2002, the Bill and Melinda Gates Foundation, in collaboration with the National Middle College Consortium and others, worked to help transition MCHS programs to the Early College High School Model (Born, 2006). As a result, many MCHS programs throughout the country have transitioned from MCHS to ECHS programs.

**Standalone dual credit programs.** The third DC option for students is referred to as Standalone dual credit (SDC). The SDC option provides high school students a more flexible approach for taking college courses. Typically, SDC programs are not tied to the completion of a high school diploma. They differ from early college high school models in that they are not
high school programs taught at a college. The SDC Standalone DC option provides high school students the opportunity to take college courses and maintain their enrollment in traditional high school programs.

At their core, SDC programs allow students to take college courses through two main options. First, students take college courses at their high school free of charge. The second option allows students to enroll in traditional community college courses with traditional college students. The second option is sometimes called College Early Start, or DC, and can cost normal state fees per unit. Under dual enrollment, high schools collaborate with community colleges and some universities to offer college career technical education courses not offered at the high school. High schools may also choose to provide college-level courses that may fulfill university general education requirements. Unlike dual enrollment, students may choose to enter the community college as part of the early start program and independently take university general education classes and major preparation classes geared toward lower-division university requirements. Unlike dual enrollment, this option requires regular state tuition and the cost of books. Depending on the school district they belong to, SDC program courses may count for both high school and college credit career technical education units. In some districts, SDC courses may also count to fulfill high school graduation requirements as well as admissions requirements to the university.

**The Guided Pathways Framework**

Guided Pathways (GP) is a method of providing college education that is designed to guide incoming students from college entry through the completion of their educational goals. The GP concept started as a research collaboration between east coast colleges and universities, the Community College Research Center, The Achieving the Dream Foundation, the Lumina...
Foundation, and the Bill and Melinda Gates Foundation. The research carried out by these 
groups resulted in what we now know as Guided Pathways (Bailey et. al., 2015; Eikey et al., 
2017).

The GP 4-pillar framework is a system of education that guides students from entrance 
into a college through graduation (Bailey, 2017; Bailey et al., 2015; Eikey et al., 2017). GP 
anchored the educational approach with a four-pillar framework of educational design. Jinkins 
and fellow researchers (2017) described Guided Pathways as: “In the guided pathways model, 
colleges clearly map out every program, indicating which courses students should take in what 
sequence and highlighting courses that are critical to success in the program, along with “co-
curricular” requirements and progress milestones.” (p.18). What follows is a brief description of 
the Four Pillars Guided Pathway framework.

The Guided Pathways Four Pillars

Guided Pathways differs from the current educational philosophy by providing services 
pre-matriculation through graduation. The 4 Pillars previously referenced are the basis for the 
GP service approach. In contrast, researchers have criticized the community college system for 
offering students a multitude of courses tied to little or no educational outcomes. They refer to 
this style of education as “the cafeteria-style” approach at higher education (Bailey et al., 2015).
The cafeteria analogy presented by Bailey, Jaggars, and Jinkins refers to the current community 
college model, which offers student multitudes of course and educational options with no clear 
path toward a career or specific educational outcomes. The community college system offers 
many of these courses under the umbrella of general education. Consequently, many students 
lack an understanding of which classes to take, the value of each class, and the order in which to 
take these courses. As a result of the current model of community college education, students
become frustrated, confused, and ultimately leave before completion (Bailey et al., 2015; O’Banion, 2016). GP education offers a different and holistic design to education. The following is a brief introduction to the Four Pillars Guided Pathways approach.

**Pillar I: Clarify the Path.** In GP Pillar I, GP campuses seek to clarify a student’s path to college enrollment. Schools work to define a clear matriculation process for first-time freshmen. GP schools provide students various orientations before the students select their first class. Information is key in GP Pillar I. Through the aid of on-boarding orientations, students identify and select majors or career paths with linked course roadmaps to help them understand what to expect at the college. GP students are able to follow a roadmap with a preset pattern of courses that provide clear pathways to a career or to further transfer educational objectives. Additionally, the GP college provides undecided students exploratory career decision-making support systems like counseling classes and career advising.

In the traditional community college model, undecided students struggle to define their path and may take longer with their educational and career goals. In contrast, the GP campus encourages undecided students to select areas of study closely linked to their aspired career or personal interest. Students have the option to select meta-majors or exploratory majors. Selecting a major is a complex act. Incoming freshmen typically do not know their major. As a result, GP campuses provide students with data-driven information, including the cost of the program, job market information, and easily accessible technology-based support systems via the school’s website. Support systems enable undecided students to move in the direction of a specific major or at least in the direction of a meta-major (Couturier, 2014; Jenkins & Cho, 2013; Jenkins et al., 2017; Johnstone & Karandeff, 2017). The meta-majors are groupings of closely related majors within closely related disciplines. Within this meta-major, students follow a
preset pattern of courses that are selected to meet core classes appropriate for all majors within the meta-major grouping. Although students may be undecided, meta-major roadmaps move them in the direction of similar disciplines within their career and educational interest. The GP model refers to the process of helping students clarify their objectives and enter the appropriate field of study through their on-boarding process. GP colleges provide examples of meta-majors in the fields of Business, Science Technology and Math (STEM), Humanities and the Arts, and vocational or allied health programs (Bailey et al., 2015).

**Pillar II: Enter the Path.** In Pillar II, GP colleges provide support systems to help first-time freshmen enter college with appropriate math and English levels. To that end, colleges conduct student placement in math and English through multiple measures of assessment. Measures used may include traditional testing, high school GPA and high school completion levels of math and English. The goal of Pillar II is to ensure appropriate placement by enrolling students in courses that will help them complete their goals faster. In traditional colleges, placement in English and math depend heavily on standard assessment tools like Accuplacer or Compass style math and English assessments to place students into math and English classes. College assessment centers use the assessment test to place students with low scores into basic or remedial coursework. The added courses extend a student’s stay at the college and sometimes cause students to leave before completion of their educational or academic goals. In their 2015 book, Redesigning America's Community Colleges, Bailey, Jaggars, and Jenkins point out remedial education is one of the challenges of the community college system. The research found that students taking basic skill education reflect longer degree completion rates (Bailey et al., 2010; Bailey et al., 2015; Wang et al., 2017). However, the challenges caused by remedial education fostered the development of key strategies to help mitigate these negative impacts.
Remediation presents a challenge of cost and time for students, the states, and the institutions themselves (Bailey, 2009; Dougherty, 2017; Shapiro et al., 2012). In 2017, Complete College America reported statistics from their member colleges, which reflected that 42% of all college students take remedial or basic skills, non-degree applicable courses in math and English. Only 20% of those students complete their remedial courses and enter degree-applicable courses in English and math. The study further found 63% of students in co-requisite remediation courses go on to complete the gateway English and math college level gateway courses versus a completion rate of only 22% for traditional remedial students.

As a result, colleges and states have collaborated to implement remediation strategies to help curb the impact of remediation. One such strategy is using legislation to face the challenge of remediation. In California, legislators have implemented AB 705, the California Acceleration Project (2017), also known as the Seymour Campbell Act. AB 705 calls for all incoming community college freshmen to finish college-level English and math within one year of entrance into the community college system. Clearly, states have taken notice of the cost of remedial education. In addition to the California Community Colleges, the California State University (CSU) system issued the 2017 Executive Order 1110 (EO 1110). In effect, EO 1110 eliminates all basic skills and remedial education by retiring the use of Entry-Level Mathematics Testing (ELM), and English Placement Testing (EPT). Furthermore, EO 1110 does not require incoming freshmen students to take basic skills or remedial courses. AB 705 and EO 1110 serve as part of a bigger national movement towards accelerated education (Managan, 2017). Placement is key in the Guided Pathways Pillar II stage. Colleges decrease the time and money spent by students with correct placement in English and Math.
Pillar III: Stay on the Path. Pillar III provides support to help students stay on track and complete their educational goals. One component of this step is to help prevent students from dropping out when challenging life situations arise. GP advisors and student service professionals monitor student progress with designed check-ins with faculty and counselors. Distinct to their model, GP colleges provide participants with real-time student measurements. These measurements serve to help students access their current status towards degree completion. Advisors work with students to complete educational milestones designed to identify goals and motivate students toward progress. Examples of Pillar III systems include block scheduling and predictive course offerings based on information gathered from individual academic road maps. Colleges-determine which courses to offer based on the frequency of courses required through reviewing students’ academic road maps. This personalized level of course offering differs from traditional practices which offer courses based on departmental and faculty needs. Instead, GP courses are offered based on student need and data taken from educational planning.

Pillar IV: Ensure Learning. Pillar IV involves ensuring students graduate with learned knowledge. In the GP model, colleges work with faculty to develop clearly defined learning outcomes for each class. The GP college makes it a point to post learning outcomes on their website for maximum accessibility for students. For faculty, learning outcomes, educational plans, and student follow-ups provide tools to work with students with clearly defined, measurable outcomes to gauge a students’ progress along the pathway. In GP, progress is not defined by completion of the course material, but by assessed measurable outcomes reflective of student learning progress and the effectiveness of instruction. Instructors connect learning to course outcomes, which are then connected to specific student academic goals. Additionally,
Pillar IV promotes student engagement through faculty and student-led engagement activities. Examples of Pillar IV specific activities include courses tied to major-specific internships, co-ops, service learning, or project-based learning. The end goal of Pillar IV is to connect learning to the student’s major or his or her career objective.

**The Need for Change**

Educators and politicians may still not fully understand the impact of Guided Pathways. However, what community college educators do understand is the need for change. In their May 2019 report, the Federal Reserve reported the 2018 total amount of United States national student loan debt was just under 1.49 trillion dollars. Further, the Federal Reserve also reported the 2018 average individual student loan debt amount at just under $25,000. In addition to debt, students are experiencing longer amounts of time taken to finish their degrees. In their 2016 Signature Report Number 11, the National Student Clearinghouse Research Center reported 31% of community college two-year college students took over six years to complete their two-year college associate degree. College students are taking too long to graduate or to complete their educational objectives, and, as a result, these students take on additional student loan debt.

Student loan debt and delayed graduation times impact both the students and their state of residence. Students in this situation take longer to enter their state’s workforce. As a result, these students delay contributing their skills and talents to their state. Consequently, state legislators and educators have found the need to look for programs to help students complete their degrees. Past examples include programs for low income and under-represented students. These programs have resulted in positive outcomes for these students.

Yet, the benefits serve small amounts of students linked to special populations. Bailey (2017) reports a trend to fund student success programs for a broader range of students. Guided
Pathways serves as an example designed to serve a broader range of students. The Guided Pathways trend is growing on a national level. In 2017, the American Association of Community Colleges reported over 250 colleges implemented Guided Pathways. As such, the literature about Guided Pathways lacks depth.

**Pathway Educational Roadmaps**

One key component of Guided Pathways (GP) is the use of educational roadmaps. The roadmap has been described as a clear map of the courses needed to complete educational or career goals at a college (Bailey, 2017; Bailey et al., 2015). In simple terms, the roadmap lists all of the courses needed, in the necessary order, for students to complete their educational goal. Yet, the concept of the educational map is not concrete and set in stone. Unlike past models, the roadmap is not housed in a college counselor’s office. In GP colleges, academic roadmaps are accessible via the online format. In GP, colleges make academic roadmaps accessible via websites, student portals, or other web-based student resources. The concept of providing students with an educational plan is nothing new. What is different is the belief of GP colleges to make academic roadmaps accessible to students via real time web-based access. In GP, students are not dependent on counselors for access to their educational plans. Accessibility has served as a key element of the Guided Pathways experience.

**The Need for Student Educational Planning**

Judith Scott-Clayton (2011) underlies the importance of following sound educational pathways by noting how lack of planning and structure impacts the community college student journey. She writes, “For many community college students, finding a path to degree completion is like navigating through a river on a dark night” (p. 1). Scott-Clayton’s quote illustrates the difficult reality students face in completing their community college career. The
system requires students to face a complex system of prerequisites, co-requisites, general education, and major requirements. As a result, many community college students fail to complete their academic goals. The National Student Clearinghouse Research Center found that only 29% (n=247,207) of 852,439 community college students completed certificates or associated degrees (2019). The reasons may be vast, but Scott-Clayton and fellow researchers believe community colleges fail to provide students with clear and simple paths to graduation (Bailey, 2017, Bailey et al., 2015; Scott-Clayton, 2011). Proponents of the GP model point to the clear and direct path to graduation provided by the GP roadmap.

The Question of Student Autonomy

It is no wonder that critics of Guided Pathway point to the structure, preset pattern of courses, and defined sequence of semesters as a method of limiting student choice. However, GP proponents view structure and defined courses as positive support for undecided college students. Currently, the community college educational model presents a multitude of choices for students. Although choice is good, many students lack the knowledge to make sound choices. Community colleges offer many degrees and certificates. Within this context, students choose a degree as their major of choice. They must also choose general education and elective courses. For some, the process of choosing courses may cause them undue stress. International students face added stress, as they may come from countries where they are only expected to take courses within their major. Goldin and Katz (2007) noted how North American community colleges are unique in their degree of choices when compared to the rest of the world. The question of student autonomy is front and center for critics of the Guided Pathways. In GP, student choices are organized to optimize student choices and degree completion. GP college administrators may see the process as ideal for the student and for the college.
Student Academic Choice

Researchers found that college students are more likely to succeed in structured programs (Bailey et al., 2015; Keller et al., 2011; Scott-Clayton, 2011). Students face challenges when they have to chart their own path. This may be due to what Scott-Clayton (2011) referenced as Herbert Simon’s concept of bounded rationality. Simon’s concept denotes a process of coming to a decision based on rational choices, but being limited by constraints of an individual’s knowledge and capacity to understand. For example, a college student from a traditional community college must select courses for GE and their major requirements without knowledge of given disciplines, individual course connections to their academic major, and the purpose or rationale for taking the course. One can see how the traditional system of choosing classes may cause that student stress.

In contrast, Guidance Pathways’ educators promote enhanced or strategic options tied to degree or career objectives. Educators in a GP college do not ask students to choose and design their own courses. Instead, students take vetted courses linked to their degree and general education requirements. In effect, the GP model provides a defaulted pattern of courses with preset options that lead to a preset degree. Some GP colleges refer to defaulted choices as enhanced or structured choice options.

Default Choices

In the field of economics, researchers point to default policies as justification for offering structured or enhanced choices. An example of default choices is the practice of opt-out choices used in benefit options. Companies were able to automatically enroll employees into carefully selected health insurance, tax-savings plans, or other benefits by requiring that they opt-out of default choices during the enrollment periods. Most employees did not take the time to read
their options and did not opt out of their default choice. As such, employers were able to improve enrollment into their selected benefit options. Studies found default choices were effective in moving participants to choose carefully selected options in a number of fields such as education, health, and benefits (Botti, 2004; Carroll et al., 2009; Keller et al., 2011). Guided Pathways has implemented a similar approach. In GP, students receive roadmaps with a pre-selected sequence of courses. Further, students also receive course options limited to vetted courses aligned with their degree and career options.

Keller (2011) studied default choices and found they were easier for people to accept. People do not like the anxiety that results from deviating from the status quo. Further, other researchers found that people with less confidence and cognitive skills struggled in determining a decision (Borghans & Golsteyn, 2014). Additionally, people procrastinate in making decisions (Brown et al., 2016). Some accept the validity of the default choice because they assume the entity offering the choice has already vetted the best option. However, Keller (2011) points out the limitations of default or opt-out options. Individuals who make default decisions in avoidance of well-thought-out decisions may not engender commitment to their choice. Default choices are passive and may not hold true perceived value to the individual. Bothi (2004) further points to the challenge of default choices as lacking decision-maker buy-in and therefore causing cognitive dissonance. Her study points to how individuals gain more satisfaction if they are actively involved in choice options. In other words, prescribed choices do not promote decision-maker satisfaction with the choice.

Finally, Keller points to the ethical considerations related to the default choice option. Her study involves whether default choices hold the interest of the individual or of the entity. For educators, her question holds many ethical considerations. On one hand, default options
grant institutional savings in the cost of benefits. Similarly, default choices grant colleges the ability to manage and predict course offerings. Predictive course offerings save schools costs resulting from predictive course planning. Conversely, students may need time to make sound and active choices, which take time to be made. Delayed decisions cost money for the institutions (Carroll et al. 2009). In conclusion, GP colleges depend on academic roadmaps to help guide students to choose academic majors early in their college stay, but some may perceive the GP options as forced or default choices.

**The Structured Choice in the Form of Academic Roadmaps**

Default choices, in the form of academic roadmaps, could be the GP method of lessening the challenge of deciding on a college major or field of study. “A common instructional framework guides curriculum, teaching, assessment, and learning climate. The framework combines specific expectations for student learning, with specific strategies and materials to guide teaching and assessment” (Newmann et al., 2001). Newmann’s definition of common institutional frameworks is not specific to the GP model (Nemann et al., 2001). Yet, it is relevant to the topic of GP academic roadmaps. Roadmaps provide students a clear idea of what is expected and required of them. Specifically, roadmaps list required general education and academic coursework. Further, GP colleges also link coursework within the roadmap to direct career outcomes (Bailey et al., 2015; Scott-Clayton, 2011).

It is important to note that academic roadmaps differ from traditional student educational plans in three key areas. First, GP academic roadmaps for undecided students include coursework linked to a specific meta-major area of study. Second, GP colleges leverage technology to provide 24-hour access to student academic roadmaps. Finally, academic roadmaps include preset major and general education course options that lead to a preset
completion date. The literature lacks clear results as to the impact of GP academic roadmaps. As a result, the clear impact of the GP academic roadmap has not clearly been defined.

**Challenges to the Guided Pathways**

Guided Pathways considers itself an alternative approach to providing a college education. However, for teachers and students, this method may present special challenges. In 2014, Crosta defined the academic student Pathways as “a time-ordered series of courses that students complete as they advance toward their education goals.... degree programs” (p. 118). His definition seems appropriate for traditional first-time freshmen. However, it fails the need for non-traditional community college students.

**The challenge of time.** In Guided Pathways colleges, students enter the college through a process called on-boarding (Bailey et al., 2015). The process of on-boarding requires students to select a major or meta-major at the beginning of their entrance into the college. The major provides students a roadmap specific to their respective area of study. The process of selecting an academic major works well with academically prepared students. However, the process presents challenges for non-traditional students. Most students in the community college do not fit the traditional student mold. These students may have family or work obligations that prevent them from maintaining full-time enrollment. Further, work schedules may prevent them from following a preset pattern of course. As a result, non-traditional community college students may not be able to follow the roadmap. In the case of under-prepared traditional college students, they enter college at an early age and may not be accustomed to the rigors of college coursework. Thus, they also may not be able to complete the requirements of the roadmap. For both groups of students, academic roadmaps may not fit the reality of their situation.
Some researchers recognize the challenges faced by GP students (Van Noy et al., 2016), pointing to the challenges posed when course sequences are not completed in the order outlined in the academic roadmap. When students fail to complete the course sequence, they impact their ability to continue with the next set of classes. Additionally, these students may face a difficult road when trying to complete the prescribed sequence of courses and fulfill the expectation of full-time status. The situation is further complicated when it applies to non-traditional and new, under-prepared students. These students may find it difficult to utilize academic support programs. Students may simply experience a lack of time and knowledge to utilize support services. In short, these students may not be able to follow the Guided Pathways format. Another challenge faced by GP students is the expectation of a required major selection.

**Undecided students.** The need for students to declare a major is crucial in a Guided Pathways college. Leach and Patall’s (2016) study points to the urgency of advising undecided students. Their study found that undecided students are less likely to advance to their second semester in college (Leach & Patall, 2016). Further studies cite how undecided students exhibit lower efficacy towards decision making (Bullock-Yowell et al., 2014). Both studies point to the importance of helping students decide on an academic path to follow. Leach and Patall (2016) further argue that students need advising to help develop the psychological capabilities to make important academic decisions, like that of choosing a major. Researchers further argue that gaining psychological capabilities promote student self-determination. These two skills are necessary for individuals to optimize their individual autonomy (Deci, 1971; Ryan & Deci, 2000; Su & Reeve, 2011). Thus, critics of GP may point to how preset pattern of courses and the timeline restrictions reduce the psychological abilities of undecided students.
College administrators also face challenges when implementing Guided Pathways. For them, they face uphill battles changing or shifting long-established institutional models (Bailey, 2017; Bailey et al., 2015). For years, community colleges have served as open access to educational models. The system provides open access services like remedial education, assessment services, and career counseling. These colleges have prided themselves in giving undecided students the ability to explore majors. By taking general education courses, students explore new majors and career directions.

In contrast, GP seeks to limit remedial education and assessment. Under GP, students start to take major and general education courses immediately. In place of remedial education, students receive support through co-requisite remediation classes. Students take co-requisite remediation along core classes like math, science, and English. Proponents of GP believe this method provides students the opportunity to improve their ability to complete their college degrees. For community colleges and universities, early degree decisions present the opportunity to increase college completion rates. However, some faculty have questioned the impact of the GP model.

**Institutional and Faculty Challenges**

**Faculty concerns.** Community college faculty, alongside university faculty, have also expressed concerns. Faculty expressed concerns regarding the caliber of students entering the community colleges (Leach & Patall, 2016; Rose, 2016; Su & Reeve, 2011). Many students enter community colleges academically under-prepared. As such, students find it difficult to meet the milestones set out by Guided Pathways. As a result, college faculty feel added pressure to help students meet timelines and milestones established by GP (Fischer, 2018). In California, faculty feel added pressure related to the state's accelerated education agenda. Legislation in
California called AB 705 eliminates most university remedial courses. AB 705 requires students to complete college-level English and Math within one year of entering college. This policy has placed added pressure on faculty to help students complete college-level English and math.

**One instructor’s view.** In 2017, Virginia May, of The Academic Senate for California Community Colleges, interviewed Dr. Liam McFaid. As a faculty member of Sacramento City College, he captured the essence of the Guided Pathways challenge by posing the following question: “...are we here for the widest possible access or the best possible outcomes?” (May, 2017). His quote points to the perception that Guided Pathways shifts the focus from access to all to prioritizing educational outcomes. Some faculty in California question if the Guided Pathways system can serve all students. They fear the new GP model will leave behind some students in favor of greater positive outcomes. McNaid further points to support for the current model with the following quote: “We are the last best hope for mass education in the twenty-first century, and this is the real reason why the cafeteria model has persisted for so long. It addresses needs that aren’t economic” (May, 2017). For now, the California Community College system is waiting to see the true impact of the Guided Pathways reform.

Next, the chapter moves to an exploration of cohort-style learning. Cohorts have existed for many years and are common in college retention programs. However, cohort style learning is not common in dual credit learning. The Pathways dual credit program is the focus of this study. The program utilizes cohort style learning and is therefore relevant for exploration within this literature review.

**Cohort Style Learning**

Historically, pre-professional college programs such as medical, law, and graduate business schools have implemented student cohort programs to improve retention and academic
success (Barnett et al., 2000; Hickson, 2018; Maher, 2005). More recently, undergraduate
STEM majors have also started cohort programs (Stolle-McAllister, 2011; Tomasko et al., 2016).
This may be because program administrators view the use of cohorts as an effective way to teach
students with similar majors. Cohorts help students learn through the strength of community
learning.

The Definition of Cohorts

Researchers define cohorts as specially recruited students pursuing the same field of
education. These students enter a specific educational goal as a group and take most of the same
courses. The cohort experience leads to shared educational experiences with peers seeking to
complete similar educational goals (Barnett & Muse, 1993; Lei et al., 2011; Maher, 2004, 2005;
Pemberton & Akkary, 2010). Rausch and colleagues (2012) add to the definition of cohorts by
referring to them as a “community.” “The term ‘community’ is … a learning partnership among
people who find it useful to learn from and with one another about a particular domain. They use
one another’s experience of practice as a learning resource” (Rausch & Crawford, 2012, p. 178).

Cohort programs provide a structured environment that leads to shared experiences.
These shared experiences encourage social relationships that provide peer support to students
(Karp, 2011; Maher, 2005; Norris & Barnett, 1994; Sandoval-Lucero & Chopra, 2010). The
cohort may give students the stability and continuity needed to succeed in college. For some, the
cohort experience is essential to academic retention and success.

The Importance of Cohorts

Whitebook et al. (2008) studied six undergraduate cohorts and traditional undergraduate
programs. The study found that 73% of students found the structure of cohorts extremely
important (Whitebook et al., 2008). In a separate study, college administrators also noted the
importance of cohort learning. Administrators pointed to “increased collegiality, bonding, community, support, cooperation, a sense of belonging, camaraderie, networking, trust, solidarity, and mutual aid students developed through the cohort experience” (Barnett et al., 2000 p. 264). Further, researchers found cohort students retained enrollment at 88% after one year of cohort participation compared to a 64.3% retention rate for non-cohort participants (Barnett et al., 2000; Sandoval-Lucero & Chopra, 2010; Whitebook et al., 2008).

**Cohorts build close student relationships, like family.** Educators have linked cohorts to a variety of benefits. Among these, they believe cohorts help students build close bonds. As a result, students feel they are part of a cohort family. For them, the continuity and stability of a cohort allows for the building of college knowledge related to academic success (Lei et al., 2011; Mandzuk et al., 2005; Pemberton & Akkary, 2010). Cohort participants may form close peer relations that may lead to the formation of close, family-like ties.

Martin (2016) studied graduate students in cohort and traditional educational programs. His study found cohort students felt they had closer bonds compared to non-cohort students. Her study found statistically significant differences in close bond scale scores between cohort (38.82) and non-cohort students (36.45), (diff=100). The results also pointed to significant correlations between close bond scores, student engagement, and program satisfaction. Likewise, Swayze and Jakeman (2014) also found cohort participants were more likely to form close bonds with fellow cohort students compared to their non-cohort counterparts. Finally, Maher (2005) pointed to the importance of the cohort model in her 2005 study. She, along with other researchers, found cohort participants valued the importance of relationships built through the cohort (Maher, 2005; Unzueta et al., 2008).
In earlier research, Maher (2004) referenced the term “agency” in relation to the building of family within cohort groups (p. 20). She and other researchers noted how shared experiences within the cohort helped students build personal relationships that connect participants through membership of the cohort group (Lamb & Jacobs, 2009; Whitebook et al., 2008). These connections help support students through their academic journey. The literature provides examples of how cohort students hold each other accountable with classroom assignments, projects, and other academic requirements (Mandzuk et al., 2005; Sandoval-Lucero & Chopra, 2010; Sathe, 2009). However, cohort membership provides students with more than just academic peer support. Cohorts build bonds that provide emotional and psychological support outside of the classroom (Beck & Kosnik, 2001; Lamb & Jacobs, 2009; Teitel, 1997; Van Noy et al., 2016). These strong bonds may be as strong as family bonds. As a result, cohort students build loyalty with and for each other. These loyalties lead to increased group unity between cohort participants. The loyalty gained through cohorts helps some groups shift classroom power dynamics.

**Cohort group power.** Close-knit cohort groups have used their unity to negotiate with instructors on classroom requirements. Researchers note how cohort individuals start to view themselves as a collective. Through the cohort, students discover they yield considerable influence on instructors and administrators (Barnett & Muse, 1993; Lei et al., 2011; Teitel, 1997). Maher’s (2005) study provides an example of the process. In her study, she notes how one cohort elected a class representative to speak for the group. The student representative negotiated changes in assignments and course deadlines. Students in Maher's example felt they had “more latitude in classroom decisions” (p. 207). However, cohorts also provide benefits to faculty and the host institution.
Instructors and institutional benefit. Researchers have also noted the benefit of cohorts from the perspective of faculty instructors (Lei et al., 2011; Unzueta et al., 2008). In a cohort, instructors have an easier time managing their classes. Faculty hold constant student access to their cohort group. As such, they are able to provide consistent group advising and instruction (Mandzuk et al., 2005). Additionally, the cohort setting provides instructor stability and continuity (Spaid & Duff, 2009). Cohort stability coupled with the ease of managing cohort students may lead instructors and faculty to feel that cohorts are a good method of helping students complete their academic goals.

From the administrative perspective, Barnett and fellow researchers (2000) studied educational administrators and their perceptions of the effect of cohort participation in leadership. Their study found 52% of respondents (n=141) reported structural benefits in the following areas: a) predictability of course offerings and program delivery, and b) enrollment management (Barnett et al., 2000). The results of Barnett’s study reflected positive perceptions from administrators. One administrator noted the following: “We can plan schedules for years in advance” (p. 265). Faculty also reported to their administrators that cohorts help them build closer relationships with students. This may be because cohort learning provided faculty opportunities for stronger communication with their students. Cohorts helped faculty build trust, allegiance, and loyalties (Hickson, 2018; Sathe, 2009; Wathington et al., 2010).

Academic success. Researchers have also noted how cohorts help improve academics (Barnett & Muse 1993; Lei et al., 2011; Pemberton & Akkary, 2010; Zobac et al., 2014). This may be because cohorts help build strong interpersonal relationships between participants. These connections enable peers to provide support between participants, which leads to higher grades and retention rates (Lichtenstein, 2005). Spaid and Duff (2009) point to the stability and
continuity of cohorts as the reason for these students’ academic success. Researchers have also linked cohorts to increased job preparation skills (Beachboard et al., 2011; Swayze & Jakeman, 2014).

**College knowledge and peer support.** Cohort participants experience their educational journey as a group or unit. The safety of the group affords students the opportunity to learn and experience crucial college processes. Through the cohort, students learn the process of enrolling and registering for courses on a college campus. Next, cohort students learn the requirements and expectations of college courses. I will refer to these learned experiences as functional college knowledge. In other words, students learn the basics of college matriculation and course enrollment. Karp (2011) referred to these skills as college know-how or college cultural capital. College cultural capital gives students the knowledge needed to succeed in a higher education environment.

Specifically, functional college knowledge gives students an understanding of college support programs. Colleges and universities refer to support programs as “student services.” These services include programs such as counseling, financial aid, and tutorials. As part of the cohort experience, programs introduced these services to their participants. In contrast, colleges lack services for non-cohort students. As a result, these students must navigate the college experience on their own. Unfortunately, these students may lack basic knowledge needed to access valuable student support services. Researchers note the importance of gaining college knowledge, pointing to knowledge gained through the cohort as a reason for reductions in unnecessary electives. The ability to reduce unnecessary electives and increase target major courses leads to the completion of academic goals (Lei et al., 2011; Unzueta et al., 2008). Yet, cohort style learning programs also hold some drawbacks.
**Drawbacks of the Cohort Model**

**The cohort collective.** Some cohort faculty report uneasiness working with a cohort group (Barnett & Muse, 1993; Mandzuk et al., 2005; Teitel, 1997). They report how cohort participants form a collective group, allowing them to yield considerable classroom influence. As a result, the group gains more influence than they would as individual student voices. As a group, cohorts may choose to impact classroom requirements through negotiations. In turn, cohorts may start to request changes to classroom assignments and deadlines. The result may be positive, but it may also veer towards groupthink. In groupthink, cohort student leaders hold considerable influence in shaping group ideas. As such, some in the group will control the identity and positionality of the cohort. Others may opt-out of sharing their ideas to stay in harmony with the will of the group. Likewise, faculty who go against the will of the group may face adversarial relations with the group (Barnett et al., 2000; Maher, 2004).

**Peer relationships.** In the case of some cohorts, programs do not always match peer groups correctly. Maher’s (2005) studied cohort teachers and students in what she called a lock-step closed program. She found some cohort students who perceived mismatches with their cohort peers. Some cohort students felt intellectually mismatched with their peers. Thus, they did not feel the need to build peer relationships with those they viewed as inferior. These students simply went through peer activities out of obligation, feeling that their mismatched peers had no significant value to offer them (p. 203). Conversely, some students felt pressure when they failed to meet cohort expectations (Barnett et al., 2000; 1995; Barnett & Muse, 1993; Lei et al., 2011; Yerkes, 1995). For example, students felt added stress when they could not keep up with their peers (Pemberton & Akkary, 2010; Yerkes et al., 1996). In addition to the stress of academics, Jaffee (2007) observed how student bonds can lead to the formation of cliques.
Researchers found that these cliques sometimes lead to excessive socialization and negative behaviors within the cohorts. As a result, some formations of cliques may cause some individuals to feel left out and ostracized (McPherson Smith-Lovin & Cook, 2001).

**Chapter Summary**

In conclusion, this chapter explored key concepts related to the design of dual credit programs and specifically the Pathways program. First, the chapter reviewed the literature related to dual credit programs. Second, the chapter examined the concept of cohort style learning. Finally, the chapter included relevant literature on the Guided Pathways framework. The next chapter details the methodologies in the quantitative analysis of this research. In the analysis of data, the researcher used One-Way Anova, Krusdal Walis, and Chi-Square tests. After statistical analysis, the researcher explored frequencies in the comparison of variables related to the GP design of the Pathways program.
CHAPTER 3: METHODOLOGY

This study evaluates the effectiveness of the Pathways Standalone dual credit (SDC) program by comparing it to a traditional SDC program called the Pathways.

**Design of Study**

This study used the program evaluative approach to understand the relation of SDC Pathways programs and support systems by comparing them to a traditional SDC program at the same host community college. The literature describes a program evaluation as the systematic assessment of the worth or merit of some object (Russ-Eft & Preskill, 2009; Trochim & Donnelly, 2001). Russ-Eft and Preskill (2009) identify four commonalities in program evaluation. First, evaluation is a systematic process. By using a quantitative analysis of the program, this dissertation takes into account the first principle of evaluative systematic approach. Second, Russ-Eft and Preskill call for the evaluation of college data related to a specific organization. This dissertation focuses its analysis on a specific program called Pathways and its impact on the host campus and participating students. Third, the evaluation is seen as a method to enhance program knowledge with the goal of enhancing decision-making related to the organization. The findings from this dissertation will be used to enhance the current program and scale the program to serve additional high schools in the host college service area. As such, an understanding of the merit and worth of the Pathways program may help in the decision-making process of improving or deciding the direction of the organization. Finally, the use of the evaluation is either “implicit or explicit” in each of the evaluation commonalities listed above (Russ-Eft & Preskill, 2009, p. 4).
This dissertation conducted a summative evaluation to assess and explore the benefits of key strategies used by the Pathways program. Data collected from the survey, archival data, and assessment scores served to identify differences between Pathways and the traditional SDC program. The findings may provide insights for decision-makers to assess the worth and future direction for the Pathways program and SDC programs within the same college. In the evaluation process, this research serves to provide a systematic comparison of differences between both the traditional SDC model and the Pathways SDC approach. It may also serve as a catalyst to guide the future direction of the SDC at the college.

The Goal of the Study

A central goal held by this study is to gain an understanding of the strengths and benefits of the Pathways SDC program, which may best serve participating SDC students. However, the evaluation of the Pathways program will provide “useful feedback” or information that may aid stakeholders and the organizations in their decision making (Trochim, 2006). The findings collected from this research may influence the stakeholders and move them towards an exploration of the need for a program that serves beyond high-achieving students.

Guiding Research Question

How does the effectiveness of the Pathways program compare to the traditional college standalone dual credit program?

Sub-questions

a) Do entering Pathways students differ from entering control group dual credit students when compared by gender, race, socio-economic status, and pre-college assessment levels in reading, English, & math?

b) Do Pathways students differ from control group dual credit students in levels of academic confidence?
c) Do Pathways students differ from control group dual credit students in perceived levels of SDC support?

d) Do Pathways students differ from control group students in understanding the requirements to complete associate degrees, transfer knowledge, and four-year admissions requirements to the University of California System?

The following sections of this chapter describe the inquiry approach, theoretical framework, methodology, data collection, and method of analysis. Also included in the chapter are considerations of research model threats to validity and reliability. The chapter concludes with a section on the limitations of the study and an introduction to the next two chapters.

**Inquiry Approach**

This study assesses the effectiveness of a standalone dual credit program called Pathways by comparing it to a traditional SDC program at the same college. The Pathways program includes support systems often absent in traditional SDC programs. The study seeks to determine if these Pathways program services helped provide standalone dual credit students with a more supportive experience. The study utilizes a quantitative analysis of archival data from both groups. Additionally, an online student survey measures student perception as to specific SDC and Pathways program benefits and support system components. The study will also view variables from archival data such as college GPA, and assessment scores in English, math and reading for Pathways students. The primary focus of analysis is a comparison between the traditional SDC method of dual credit and the Pathways dual credit method.

The Pathways program differs from traditional standalone dual credit programs in several key areas. First, the program design incorporates a cohort-style learning approach. Pathways students are admitted to the program as a cohort of 30-40 students. They start the program in their freshman year of high school by enrolling as a group in two college classes. One class is a
general education class that counts towards their university admissions requirements and towards their lower division university general education requirements. The second class is a guidance class designed to build rapport and cohesiveness with their classmates. The program refers to this strategy as cohort-style learning because students take the same classes together and support each other through peer support.

The second key difference between the programs is the support services of joint counseling and advising. Pathways provides students with coordinated dual advising from high school and college counselors. Typically, the SDC student gets limited advising geared for high school requirements from only the high school counselor or principal. Students in the traditional model of SDC are expected to navigate the college’s requirements on their own. The SDC process may prove to be complex and challenging for some students. The Pathways program seeks to reduce the burden of this process by providing coordinated counseling from both the college and high school counselors.

A third difference between the programs lies in the preset path embedded in the design of the Pathways program. In contrast to the SDC model where the student selects their own classes, the design of the Pathways program includes an academic road map with preset majors and a preset pattern of course sequences, which lead to an associate degree at the community college. In addition to counting for a degree, courses listed in the academic road map count for high school graduation requirements as well as the lower-division and general education requirements for the University of California system.

Finally, the overall Pathways approach differs from the traditional SDC model by providing support services designed to simplify the process of navigating the SDC experience. The program’s use of a dual-counseling approach, preset academic road maps, and cohort-style
learning provide students with structure and support. In contrast to Pathways, traditional SDC programs do not have a preset academic degree or certificate goals. Also, program design only requires advising that comes from the high school counselor. Finally, traditional SDC students sign up and take college classes on their own without the support of their high school classmates. This research examines the relation of key elements of the Pathways model designed to support students and create a positive SDC experience. Included in the research are the following subsections of analysis: a) a comparison of traditional demographic indicators such as race, gender, first time generation, and socioeconomic status, b) quantitative analysis comparing academic preparedness and postsecondary confidence levels, and c) an overall program evaluation of the Pathways program compared to a traditional SDC program. By comparing both groups, the research adds key insights to assess the effectiveness of the Pathways program.

**Methodology**

The study captured cross-sectional data taken at a point of time to form a picture of the student perceptions related to their dual credit experience. Sections to be compared include the increase of postsecondary confidence, the increase of academic preparedness for college, and an overall program evaluation of three key components of the Pathways model: 1) academic road maps, 2) cohort style learning, and 3) the student support structure of dual high school and college advising. The guiding principle of this study was to determine if the Pathways program is a more effective SDC approach than the traditional SDC early start approach at the same college.

**Methods of Data Collection**

This research relied on two main types of data sources. First, the study used archival data to include participants entering college assessment scores in English, math, and reading. The
The study also used demographic information collected from the college application. This information was used to compare differences in the Pathways students to control group students taken from those dual credit students that met study criteria. Next, the study utilized a student perspective survey to clarify the relation between Pathways and control group students and their relation to their dual credit experience.

The following are the three main areas of data for this research: the college application, assessment scores, and the online survey. Assessment data and data from the college application came from the host college institutional research office (IRO). The student perspective survey served as the third data source.

The researcher acknowledges institutional access and the direct connection with the research participants. Therefore, all data requests of archival and institutional data followed approved IRB protocol. Additionally, survey participants completed a consent form. Student anonymity was key in the consideration of data collection. Therefore, secondary data gathered through the IRO was merged with survey data. Once a merge of data occurred, identifying student IDs were removed from the data set.

**Description of Study Research Population**

The researcher defined the research population through the following required study participation criteria: 1) Any dual credit high school student enrolled in the host college dual credit program, 2) within the time period of spring 2016 through spring 2019. The host college institutional research office identified a total of 7,554 eligible students for this study. These students are known as the control group. The age for this group ranged from 13-19 depending on how long they have participated in the Pathways and the control group program. The second group included in this comparison is the Pathways group. The total number of Pathways
students is. A third subgroup is included in this analysis. The group is called Survey Pathways and it consists of the 35 Pathways students that completed the online survey. The location of both programs is within the same host campus and allowed the researcher a central location to gather and collect data.

**Selection process and rationale.** Sampling for this study consisted of the following process. First, all individuals considered for this study were high school students (pre-college) from the college’s surrounding area. Second, all students in the population of this study completed the host college application for admissions. Finally, all students in the participant population completed the college’s assessment test. Both Pathways students and the control group students met the above selection criteria.

The rationale for selecting participants followed sampling procedures. The study selection was purposeful and directly related to the population impacted by this research. Creswell defines purposeful sampling as “researchers intentionally selecting individuals and sites to learn and understand the phenomenon (Creswell, 2015, p. 205). The population of this study is made up of high school students which participated in the dual credit programs within the host college.

**Data Collection Measures**

The recruitment conducted recruitment through the following strategies. First, the research population was identified through the assistance of the host college’s institutional research office. A query identified all students enrolled in high schools labeled “special admits.” The label of special admits denotes participation in the college's dual credit program called the College Early Start program. Both the control group and Pathways group populations participated in the College Early Start program. Second, the researcher utilized the host college
student email system to invite students to participate in the online survey of this dissertation. The email contained an explanation of the purpose of the research, the background and contact information, and a parent consent form for those that chose to participate. The email and consent form both explained participation was contingent on completion of both the parent and student consent forms.

**Timeline for research.** The researcher requested archival data from the host college in the fall of 2019. Data requested included the time periods of Spring 2016 to Spring 2019. At the start of the spring 2019, the first student online survey was sent electronically to prospective participants that met the study participation criteria. A second invitation to participate in the survey was sent in August of 2019. The message was sent the first week of the fall 19 semester. The invitation gave students a deadline for their participation within two weeks. However, due to low participation the deadline was extended. Data collection ended the last week of December 2019. From January through March 2020, the researcher conducted analysis of the data.

**Data Analysis**

For this dissertation, the researcher implemented a quantitative approach. What follows is an explanation of the three tests used for data analysis. Based on the best fit test for the data, the study utilized three data analysis tests: 1) One-Way ANOVA, 2) Pearson’s Chi-Square, and 3) the Kruskal Wallis. Assumptions for each test are provided followed by an explanation of how to test each assumption and adjust when violations of individual assumptions occur. Data used originated from archival data sources such as the college application, assessment scores, and the student online survey.

**The One-Way ANOVA.** The One-Way ANOVA (analysis of variance) is a test that allows for the identification of significant differences of an interval variable and two or more
groups (Field et al., 2012). Through the identification of differences, research may lead to the need for further causation research projects. For this study, the two independent groups are the Pathways SDC program and the traditional SDC College Early Start program.

**One-Way ANOVA assumptions.** The following are assumptions for the One-Way ANOVA and strategy used for violations of assumptions: 1) Data is interval. This study utilizes One-Way ANOVA models with ordinal data by taking the sum of the data and using it as an interval. 2) Independent variables consist of two or more independent groups. The design of this study includes two independent groups: a) Pathways SDC and b) the College Early Start SDC group. 3) Independent Observations: Samples are independent of each other with no relation to each other. Both the Pathways and College Early Start groups are independent groups of students with no relation to each other. Further, the design of this study calls for each person within each of the two groups to independently take the online student survey. 4) No significant outliers: One-Way ANOVA requires normality in participant responses. In the case of One-Way ANOVA models, which have been identified to include outliers, the researcher has selected to use the Kruskal-Wallis test, which does not hold the assumption of no significant outliers. 5) Dependent variables should be equally and normally distributed for each independent variable. The Shapiro-Wilks test of normality was used to test this assumption. If the data fails the assumption of normality, the Kruskal-Wallis test will be used. 6) Homogeneity of variance (HOV): Each independent group has equal variances. Levene’s test was used to test the variance between the Pathways group and the College Early Start group. If Levene’s test identified a significant violation of the HOV, I used the Kruskal-Wallis test. The more conservative result was accepted.
The Kruskal Wallis. The Kruskal Wallis test is a non-parametric statistical test used to test if two or more independent groups differ (Fields, 2012). The Kruskal Wallis test is used as a non-parametric alternative to the One-Way ANOVA. The test does not assume equality of variance between the groups, and therefore, normality is not required of the test (Field, 2015; Field et al., 2012). This research utilized the Kruskal Wallis as a best fit for the data used in this dissertation.

Kruskal Wallis assumptions. The Kruskal Wallis requires the following assumptions to be met: 1) one independent variable with two or more levels, 2) ordinal, ratio, or interval dependent variables, 3) independent observations, and 4) all groups should have the same shape distributions (Field et al., 2012).

Pearson’s Chi-Square. Pearson’s Chi-Square (F-test) is a statistical test which allows the researcher to see if there are relationships between two categorical variables (Field, 2016; Trochim, 2006). F-tests are used to assess the statistical probability strength of relationships between variables and a preselected value. The F-test also gives odds ratios used in this study to assess differences between Pathways and traditional SDC students at the same college. Individual questions given through the student survey will be used to assess both groups and their relationship to each question related to two main variables: postsecondary confidence, and college knowledge which leads to academic preparedness (Field, 2016). The researcher selected the F-test because both groups answer two thirds of the same categorical questions. By using the F-test, the researcher is able to compare both groups to the calculated expected frequency for each categorical variable.

Pearson’s Chi-Square assumptions. The Chi-Square requires the following assumptions met: 1) variables with ordinal or nominal data. The design of this study includes ordinal data
which meets the requirement of the assumption of ordinal or nominal data. 2) two or more independent groups. This study includes two independent groups: The Pathways SDC program and traditional SDC College Early Start program. 3) the expected frequency for each condition is five or more participants. The design of this study will accept only conditions which include five or more participants for each specific condition or combination of categories. Chi-Square expected frequencies for this study met the requirements of five or more for each condition (Field, 2015, p. 214).

<table>
<thead>
<tr>
<th>Sub-research questions</th>
<th>Statistical Test of Descriptive</th>
<th>Comparison Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Descriptive</td>
<td>Gender</td>
</tr>
<tr>
<td></td>
<td>Kruskal Wallis</td>
<td>Race</td>
</tr>
<tr>
<td></td>
<td>Chi-Square</td>
<td>Socio-Economic</td>
</tr>
<tr>
<td></td>
<td>One Way ANOVA &amp; Kruskal Wallis</td>
<td>Assessment Scores</td>
</tr>
<tr>
<td>b.</td>
<td>Chi Square</td>
<td>Academic Confidence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maturity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Academic Preparation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Versus College Students</td>
</tr>
<tr>
<td>c.</td>
<td>Chi Square</td>
<td>College Counseling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High School Counseling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Parent Support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Teacher support</td>
</tr>
<tr>
<td>d.</td>
<td>Chi Square</td>
<td>Community Colleges</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transfer Process</td>
</tr>
<tr>
<td></td>
<td></td>
<td>University Admissions</td>
</tr>
</tbody>
</table>
What follows is a description of methods used to analyze the data. Data comparisons are based on two main groups: Pathways students and control group students. Both groups completed classes in the same host college and were members of the host colleges College Early Start Program dual credit program.

**Demographic and Precollege Indicators**

*Research sub-question (a): Do entering Pathways students differ from entering control group dual credit students when compared by gender, race, socio-economic status, and pre-college assessment levels in reading, English, & math?*

Analysis of sub-question (a) included two testing models for different variables. The first testing model utilized the One-Way ANOVA. The model analyzed participant pre-the following program variables: a) self-reported high school grade point averages and b) pre-college math, composition, and reading assessments levels. The One-Way ANOVA model answered sub-question (a) by identifying significant differences between groups in the areas of GPA and assessment levels. GPA and assessment levels provide insight to differences in the overall academic strength of both groups.

The results also provided a snapshot of the incoming academic strength of students in each group and consideration for strengths each group might have already brought with them before entering the program. Of special note, some of the data sets were incomplete. This occurred because Pathways student cohorts start at different times and therefore, total completion of units differed.

For the second set of variables for sub-question (a), the researcher utilized a Chi-Square model. The following variables are included in the Chi-Square model: a) race, b) gender, c) self-reported socioeconomic status (SES), self-perceived maturity levels, perceived parental support,
and perceived institutional support and encouragement. The Chi-Square model answered sub-question (a) by identifying any significant representation in gender, race, SES, maturity levels, perceived parental support, and perceived institutional support. The results provided insight to how the two groups differed in self-perceived levels of maturity and perceived parental and institutional support— as well as the relation, if any, of gender, race, and SES to perceived levels of maturity, parental, and institutional support.

**Post-Secondary Academic Confidence**

*Research sub-question (b): Do Pathways students differ from control group dual credit students in levels of academic confidence?*

For sub-question (b), data used was collected from responses to the online survey completed by the research population. The researcher used the One-Way ANOVA to analyze participant post-secondary confidence.

The results answered sub-question (b) by identifying significant differences in postsecondary confidence scores in both groups. Although data from the postsecondary variable is ordinal data, the researcher analyzed the sum of postsecondary confidence responses for each question as interval data. Using the sum of the responses for each question allowed for analysis of interval data appropriate for the One-Way ANOVA model. The results also provided insight as to how both groups differed in their levels increased postsecondary confidence. The results of the model also gave additional insight to student confidence levels and their connection to academic success.

The second part of sub-question (b) included data from individual survey questions related to postsecondary confidence. Nominal data from individual postsecondary survey questions called for the use of the Chi-Square test. The results of the Chi-Square helped define
significant relationships between postsecondary question responses. The model answers sub-question (b) by determining if one group differed in academic confidence levels over the other group. The model identified if academic confidence levels were related to each group.

**Levels of Perceived SDC Student Support**

*Research sub-question (c): Do Pathways students differ from control group dual credit students in perceived levels of SDC support?*

For sub-question (c), Pearson’s Chi-Square test was used to analyze interval data of the sum total of individual survey responses related to perceived levels of student support. The following variable was used: student perceived levels of SDC support. The use of the Chi-Square test allowed for the determination of standardized distributions of responses from both groups within the nominal variable of perceived levels of student support. Variable responses were defined as follows: “Yes, I received SDC support,” or “No, I did not receive SDC support.” The results of the Chi-Square provided the researcher with an understanding of each group and their perceived levels of SDC support.

The second part of sub-question (c) included data from individual survey questions related perceived levels SDC support. Nominal data from individual SDC support questions called for the use of the Chi-Square test. The results of the Chi-Square defined significant relationships between how students from both groups viewed the levels of SDC support from the host college. The model answered sub-question (c) by identifying differences in how each group perceived the college provided SDC support.

**Learned College Knowledge**
Research question (d): Do Pathways students differ from control group students in understanding the requirements to complete associate degrees, transfer knowledge, and four-year admissions requirements to the University of California System?

For sub-question (d), the study used a Chi-Square model. Data taken from the survey included questions related to learned knowledge of the college process leading to certificates, degrees, and transfer to the University of California system. Nominal data from individual SDC support questions called for the use of the Chi-Square test. The results of the Chi-Square relationships between academic groups and their overall college knowledge related to degrees, certificates, and the transfer process.

The Context of the Study

The study takes place in a suburban area of a major town in California’s Central Valley. The Pathways standalone DC program is a collaboration between one medium sized high school and the satellite center of one California community college. The researcher refers to this college as the “host college.” The ED Data Education Data Partnership (2018) reports the population of the high school is just over 1,200 students, while the college population is 23,892 students (CCCO, 2018). Pathways students take classes at the satellite campus, which is located about 45 minutes south of the main campus. The college does not disaggregate information for the satellite campus but estimates the size of the student population at about 1,400 students.

Demographics of the site. The Pathways program high school is in a suburb of a major city in California’s Central Valley. Key statistics reflect the economic stability of the area. Statistics from Ed Data (2018) reflect a 21.3% total free lunch population for the high school. Additionally, the diversity of the area is reflected on the population of the high school. According to the California Department of Education data quest website, White students make
up 20.9% of the population compared to a 29.0% Asian student population. Latino demographics reflect just under 20%, while African American students stand at 7.8%. In comparison, the college enrollment of White students is 19.6% and the Asian population is reported at 13.6%. The Latino/Hispanic and African American populations for the college are at 46.7% and 8.5% respectively. The National Center for Education Statistics (2018) reports 71% of the students at the college receive financial aid. A comparison of the two school sites shows vast differences in the population of the college when compared to the high school. However, the college has a satellite campus in the community, which houses the high school. Pathways students only take classes at the satellite campus.

**Positionality and role of the researcher.** The researcher acknowledges limitations may come from evaluating a program linked to his employment. Herr and Anderson (2009) note the “multiple positionalities” of practitioner researchers (pp. 43-44). They suggest insider knowledge may frame a researcher’s reference to varying vantage points, which define a researcher’s “reality.” As a practitioner within the SDC component of the college, access to key information is granted as part of the job. Also, the researcher acknowledges the position of power held over the research population and how it might impact their treatment of any inquiry linked to the researcher’s name. The researcher also acknowledges the position of power afforded to faculty, who control the grading structure of classes taken through the SDC and Pathways programs. Finally, the population studied in this research is part of a vulnerable research population. As an adult and an educator, the researcher understands the position of power inherently given through normal educator and child educational norms of conduct.

**Validity and Reliability**
Creswell (2013) defines threats to external validity in research as “problems that threaten our ability to draw correct inferences from the sample data to other persons, settings, treatment variables, and measures” (p. 306). Creswell (2013) further notes several threats to validity. The threat to statistical validity is typical when tests are used on populations or variables which violate the test specific assumptions. Special consideration was given to the following primary factors, which pose threats to external validity.

First, threats may result from drawing inferences from cause and effect relationships between independent and dependent variables. This is not a causal study. Therefore, the threat of validity is minimal based on the evaluative design of this survey. The second threat concerned confounding changes in the dependent variables. The findings may reflect observed changes which may not solely be related to participation in SDC or Pathways programs. Selection bias for this study poses another threat to validity for this study. Differences between data for pre-program participation versus data taken after program intervention may differ based on group changes, which occurred during the time elapsed between data collection. Also, the population changed in age and maturation levels throughout the data collection period (four-years).

Finally, validity threats may occur when researchers draw inferences which lead to generalizability of the results. This research is conducted under the evaluative design in order to assess the worth of a specific program within a specific setting. Generalizations of the results are a minimal threat because the findings of this research are specific to improving or validating the strength of a specific SDC program.

**Ethical and Special Considerations**
The researcher has taken special consideration in the requesting of data for the high school population of this research. Although students in SDC programs are college students, they are also high school students, and as such, special consideration was taken to gain permission from students and their families. As such, IRB approval for this research was granted and required consent forms for all participants. Participants of the survey were asked to complete an online survey. They were informed survey completion consisted of a 15 to 30-minute timeline. Data collected from the survey and archival data collected from the college were used in the analysis of the guiding research question and four sub-research questions. Treatment of collected data followed IRB guidelines. Archival data and data collected from the student perception survey were stored in a computer in the researcher’s office and kept under lock. The researcher notes all data is stored safely under lock and key and will be destroyed after the completion of the required 3-year IRB period. However, at the onset of data analysis, data from the online survey was merged with data from the institution. Once the research concluded, all identifying data was immediately destroyed. The guiding principle for analysis of this data is to use the data to communicate the practical significance of how SDC programs like Pathways can benefit the stakeholders, students, and the communities they serve.

Limitations

Creswell (2015) identifies limitations in a study as “limitations or potential weaknesses of their study identified by the researcher” (p. 197). In this study, the researcher identified the following key limitations. First, the study comparisons are limited to students from one host college and not from other colleges. Second, consideration of gathering SDC information from the 115 California’s community colleges would be too time consuming for the scope of this research. Third, the sample size of this research is small for the specific Pathways group. It
consists of 88 students included in an overall sample size of 7,554 students in the larger host college College Early Start control group. Fourth, findings from this research are not generalizable to other SDC populations from other colleges and other states. Fifth, the control group profile is different from the Pathways group in age, maturity, and academic levels. Sixth, the data analysis is limited to archival and survey data. Sixth, the timing of the study is limited to a snapshot of a specific time period, and lastly, the researcher is also limited by time and finances, and access to literature related to standalone DC programs with built in support systems beyond the traditional independent SDC model.

**Chapter Summary**

In closing, this chapter describes the method of analysis for this dissertation. Specifically, this chapter outlines how this study compares the effectiveness of the Pathways program to the traditional standalone DC program housed within the same college. Using a qualitative approach, the researcher looked at pre-college variables, key GP components of the Pathways program, and an online student perception survey to assess the effectiveness of the Pathways model. The findings will help the researcher assess the effective components of the Pathways program and use the knowledge gained to create a new and more effective program. The final chapter of this dissertation lays out recommendations on how this research is relevant to building a new DC Pathways model, which would serve a wider range of academically prepared students.
CHAPTER 4: FINDINGS

This study evaluates the effectiveness of the Pathways dual credit program compared to a traditional standalone dual credit program at the same host college. In this study, the researcher compared a group of traditional standalone dual credit students referred to as the control group (n=7554) to dual credit students in a program called Pathways (n=88). The researcher notes that both groups are part of a single host community college campus and also part of the host campus overall standalone dual credit programs. Additionally, all students were invited to participate in an online survey. A total of 90 students completed the survey process (refer to Table 1). The following guiding research question and sub-questions served as the basis for data analysis.

**Guiding Research Question**

How does the effectiveness of the Pathways program compare to the traditional college standalone dual credit program?

**Sub-questions**

a) Do entering Pathways students differ from entering control group dual credit students when compared by gender, race, socioeconomic status, and pre-college assessment levels in reading, English, & math?

b) Do Pathways students differ from control group dual credit students in levels of academic confidence?

c) Do Pathways students differ from control group dual credit students in perceived levels of SDC support?

d) Do Pathways students differ from control group students in understanding the requirements to complete associate degrees, transfer knowledge, and four-year admissions requirements to the University of California System?

Chapter Four begins by first presenting descriptive characteristics of both control and Pathways groups. Second, the chapter presents an analysis of the following guiding research
question: How does the effectiveness of the Pathways program compare to the traditional college standalone dual credit program? Additionally, four sub-research questions supported the analysis of the guiding question through the following key comparisons: (1) group differences, (2) post-secondary confidence, (3) perceived student support, and (4) learned college knowledge. Third, the chapter concludes by analyzing elements specific to the Pathways program: (1) dual counseling support, (2) cohort-style teaching, (3) learned college knowledge and (4) and pre-set Academic Roadmap. The last section of this chapter presents an introduction to the last chapter of this dissertation.

Descriptive Characteristics

In the fall of 2019, data collection began for this research. The data originated from two main sources: (1) college application archival data and (2) data collected through the dissertation online survey. The researcher identified a total of 7,554 dual credit high school students as the control group. Students identified as the control group met the following study participation criteria: 1) dual credit participants must have taken at least one college course at the host campus, 2) they must have also been part of the host campus College Early Start (CES) dual credit program, and 3) participants must have dual credit courses within the period of spring 2016 through spring 2019. The researcher identified a total of 7,554 students who met the criteria. Henceforth, the study refers to these students as the control group. This study compared control group students against students in the dual credit Pathways (program n=88).

<table>
<thead>
<tr>
<th>Comparison Groups</th>
<th>Population</th>
<th>Completed Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group</td>
<td>7554</td>
<td>55</td>
</tr>
</tbody>
</table>
The study labels the first group as the overall control Group population (n=7554). The second group are members of a special dual credit program called Pathways (n=88). The research uses relevant testing models to compare both control and Pathways groups. In addition, a separate comparison was completed on students that completed the online dissertation survey (see appendix A). Of the eighty-eight Pathways students, a total of 35 Pathways students completed the survey. Moving forward, the researcher identifies the 35 Pathways students as Survey Pathways. In addition to the Survey Pathways, there were a total of 55 students from the control group that also completed the online survey. The following section presents descriptive characteristics for both the control group and Pathways group.

<table>
<thead>
<tr>
<th>Table 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender Comparison of Control Group and Pathways Groups</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Males</th>
<th>%</th>
<th>Females</th>
<th>%</th>
<th>Other</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group</td>
<td>2,897</td>
<td>38.4</td>
<td>4446</td>
<td>58.9</td>
<td>202</td>
<td>2.6</td>
<td>7,554</td>
</tr>
<tr>
<td>Pathways</td>
<td>40</td>
<td>45.4</td>
<td>45</td>
<td>51.1</td>
<td>3</td>
<td>3</td>
<td>88</td>
</tr>
</tbody>
</table>

**Gender and Socioeconomic Characteristics**

As it relates to gender, the control group population consists of 58.9% females (n=4,446), 38.4% males (n=2,897), and 2.6% (n=202) “other”. From the gender data, the researcher notes a disparity in the gender make-up of the control group population. Almost two-thirds of the
control population are female. The control group consists of 61.9% (n=4,676) females, 38% (n=2869) males, and 2.6 reported “other” gender status.

Table 4

<table>
<thead>
<tr>
<th>Socio-economic Low-income Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group (n=7554)</td>
</tr>
<tr>
<td>Pathways (n=88)</td>
</tr>
</tbody>
</table>

*Note. Low income status based on tuition fee waiver eligibility.*

In relation to socio-economic status, the researcher notes study participants self-reported their social economic status through their original submission of the host college application for admissions. Second, the host college verified students met poverty income guidelines for the California Community College Board of Governors (BOGW) tuition fee waiver program. The data reflects a total of 61.9% of control groups students qualified for the BOGW tuition fee waiver program. In contrast, only 2.2% of Pathways students met tuition fee waiver guidelines. Student socioeconomic data points to one key difference between the groups. Almost all Pathways students are not from low-income, while almost two-thirds of control group students are from low-income backgrounds.

Table 5

<table>
<thead>
<tr>
<th>Race</th>
<th>Control group</th>
<th>Pathways</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-race or NA</td>
<td>2,061</td>
<td>10</td>
</tr>
<tr>
<td>Mexican</td>
<td>1,793</td>
<td>2</td>
</tr>
<tr>
<td>White</td>
<td>1,023</td>
<td>6</td>
</tr>
<tr>
<td>Asian Indian</td>
<td>499</td>
<td>44</td>
</tr>
</tbody>
</table>

*Race Comparison*
Control Group Race Characteristics

Self-reported data from the host college application captured control group racial characteristics (n=7554). Control group racial make-up consists of the following groups: 27.2% (n=2061) selected “NA” or did not report a race or ethnicity, 23.7% (n=1,793) were Mexican, 13.5% (n=1023) identified as White, 6.6% (n=499) were Asian Indian, 6.3% (n=477) were Filipino, 5.7% were Black (n=438), 5.1% (n=388) were Other Asians, 2.4% (n=186) were Vietnamese, 2.2% (n=173) were Chinese, 2.1% (n=165) were Cambodian, less than 1% (n=20) were Native Americans, and less than 2.3% (n=178) of smaller racial categories (Hawaiian 2, Korean 12, Other Pacific Islander 33, South Am 16, Central Am 52, Guamanian 2, Japanese 5, Laotian 48, Other Lat, Samoan 8). Control group demographics for Mexicans and Whites are consistent with the overall demographics of the regional host college area. The U.S. Census Bureau (12-16) ACS 5-year estimates show Latinos at 40.5% and Whites at 39.5% make up the largest segments of the regional host college area. The researcher also notes host campus racial categories were determined by California MIS SB29 student multi-ethnicity and SB 28 student expanded ethnicity categories.

Pathways Race Characteristics

<table>
<thead>
<tr>
<th>Race</th>
<th>Count</th>
<th>Percent</th>
<th>TOT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filipino</td>
<td>477</td>
<td>6.3</td>
<td>9</td>
<td>11.3</td>
</tr>
<tr>
<td>Black</td>
<td>438</td>
<td>5.7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other Asian</td>
<td>388</td>
<td>5.1</td>
<td>3</td>
<td>3.4</td>
</tr>
<tr>
<td>Vietnamese</td>
<td>186</td>
<td>2.4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chinese</td>
<td>173</td>
<td>2.2</td>
<td>1</td>
<td>&gt;1</td>
</tr>
<tr>
<td>Cambodian</td>
<td>165</td>
<td>2.1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Native Americans</td>
<td>20</td>
<td>&gt;1</td>
<td>0</td>
<td>&gt;1</td>
</tr>
<tr>
<td>Other</td>
<td>178</td>
<td>2.3</td>
<td>1</td>
<td>&gt;1</td>
</tr>
<tr>
<td>No response</td>
<td>153</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>7554</strong></td>
<td><strong>88</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Next, the following chapter presents demographic group characteristics for Survey Pathways (n=88). Self-reported data from the host college application captured Survey Pathways racial characteristics (n=88). A total of 11.2% (n=10) selected “NA”, 2.2% (n=2) were Mexican, 6.8% (n=6) identified as White, 50% (n=44) were Asian Indian, 11.3% (n=10) were Filipino, 10.2% (n=9) were Other Asians, 3.4% (n=3) were Chinese, less than 1% (n=1) were Cambodian, 1% (n=1) were Central American, and less than 1% reported no response. The researcher notes that within the 10 students that reported “NA”, six of them also reported they were “Hispanic” under the “Ethnicity” category and four reported they were “two or more races”. Survey Pathways demographics for Mexican and Whites are not consistent with the overall demographics of the regional host college area listed above. For the Survey, the dominant racial category belongs to Asian Indian students at 50% of the sub-group population.

**Pathways Gender and Socio-economic Status Characteristics**

Next, the researcher defines Survey differences in gender and socioeconomic status. First, the section details Survey (n=88) Gender characteristics. Pathways gender characteristics reflect females at 51.1% (n=45) of the Survey population and males came in at 45.4% (n=40) participants and 3.4% (n=3) reported “other” in the gender category. As it relates to socioeconomic status, the comparison is much different. All 88 Pathways students completed the host campus college application. When asked to self-identify low-income status, 94.3% (n=86) did not self-identify as low-income and 2.2% (n=2) self-identified as low-income. The socioeconomic status characteristics denote most Pathways students are not from low-income backgrounds.

**Sub-research Question Results of Analysis**
The chapter now moves towards a presentation of results from statistical analysis for each of the four sub-research questions. The study collected data for analysis from data collected through the host college application for admissions. Data for the remaining three sub-research questions originated from control and Pathways online survey participants. A total of 90 participants completed the online survey for this dissertation. Of the 90 participants, a total of 55 non-Pathways and 35 Pathways students completed the online survey process.

Analysis focused on group comparisons within each of the four sub-research questions. Specifically, the study used descriptive statistics for analysis of SQRa, along with Kruskal Wallis and Chi-Square statistical tests to conduct analysis of SQR b, SQRc, and SQRd. Fields refers to the effect “as simply an objective and standardized measure of the magnitude of the observed effect” (Fields, 2012 p.57). Effect size is useful because it provides an objective measure of the importance of the effect. Fields suggests the following guidelines for effect size value: .10=small, .30=medium, and .50=large effect size (Fields, 2012 p. 58). The researcher notes this study used the Epsilon Squared for Kruskal Wallis and Cramer’s V post hoc test to measure effect size for both statistical tests.

**SRQa:** Do entering Pathways students differ from entering control group dual credit students when compared by gender, race, socioeconomic status, and pre-college assessment levels in reading, English, & math?

**Comparison Results for Group Differences**

Sub-research question a (SQRa) compared group differences between dual credit Pathways and control group students in the following key categories: 1) gender, 2) race, 4) socioeconomic status, and 5) pre-college assessment levels in reading, English, & math.
**Gender.** As it relates to gender, the control group population is made up of 58.9% females (n=4,446) compared to Pathways at 51.1 % (n=45). For males, control group populations were made up 38.4% (n=2,897) compared to Pathways males at 45.4 % (n=40). Control group and Pathways group included some participants who self-identified as “other”, with the control group reporting at 2.6% (n=202) and Pathways reporting at 3.4 % (n=3). Noting obvious differences in group sizes, the researcher notes similar percentages in female group characteristics and a significant difference in male student participation between both groups. In the control group, females had almost two-to-one participation when compared to males.

**Comparison by race.** As it relates to race characteristics, the control group population self-reported a total of 23 races, including the “NA” option. However, the Pathways group mainly consists of Asian Indian students. As a result, the make-up of Pathways did not support valid comparisons of other racial categories. Therefore, the researcher identified the comparison of Asian Indian students as a best fit comparison between both groups. A total of 6.6% (n=499) were Asian Indian compared to 50% (n=44) Asian Indian Pathways students. The study provides the results of the comparison of Asian Indian students from both groups under the section labeled “comparison by assessment results”. After careful consideration of race distributions comparison between the control group (n=7554) and Pathways (n=88), the researcher determined that a comparison of racial categories would not yield a fair comparison. The disparity between both groups in the majority of racial categories simply would not support a fair comparison for most racial category groups.

| Table 6 |
| --- | --- | --- | --- |
| Assessment Comparison Asian Indian Pathways vs. Asian Indian Control Group |
| Subject | H | df | p-value < .05 | e² |
| Reading | 2.12 | (1) | .145 |
(Table 6 Continued)

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English</td>
<td>1.21</td>
<td>(1)</td>
<td>.271</td>
</tr>
<tr>
<td>Math</td>
<td>1.44</td>
<td>(1)</td>
<td>.229</td>
<td></td>
</tr>
</tbody>
</table>

*Note. H = Kruskal Wallis, df = Degrees of freedom, \( \varepsilon^2 = \) Epsilon Squared only if p-value < .05

The study concluded a comparison between Asian Indian students from both groups was worth statistical consideration. As such, Kruskal Wallis tests were used to compare both groups in entering reading, English, and math assessment scores. The results indicated no significant difference between both groups in entering assessment scores with reading assessment at \( H \, df \ (1) = 2.12, \, p = .145 \), English assessment at \( H \, df \ (1) = 1.21, \, p = .271 \), and math assessment at \( H \, df \ (1) = 1.44, \, p = .229 \). A summary of the Kruskal Wallis indicate no significant difference associated with entering assessment levels for Asian Indian students in both the control group and the Pathways group. Next, analysis for SQRa moves towards comparisons of socioeconomic status between both groups.

**Comparison by socioeconomic status.** As it relates to socioeconomic status, 61.9% (n=4,676) of the control group self-identified as low-income compared to 2.2 % (n=2) of Pathways students. The results of Pearson’s Chi-Square point to a significant difference in the percentage of low-income students in both groups, \( X^2 \, df \ (1) = 13.05, \, p = 3.05 \, e^{-4} \, \phi_c \ [1] = .374 \). The Cramer’s V post hoc test was used to calculate the Chi-Square effect size. Cramer’s V results indicate medium effect size at \( \phi_c = .374 \). After consideration of effect size, p-value for socioeconomic status comparison represented a medium effect in the difference between both groups.

**Comparison by pre-college assessment levels.** Next, the researcher used Kruskal Wallis tests to compare both groups in reading, English, and math assessment levels. Initially, the researcher utilized the One-Way ANOVA test for analysis of assessment levels. However, the
Kruskal Wallis test was the best fit for this analysis because it measures ranked data used in the reading, English, and Math assessment levels and does not require homogeneity of variance.

Table 7
**Entering Assessment Level Comparisons**

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>H</th>
<th>df</th>
<th>p-value</th>
<th>e²</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading Comparison</strong></td>
<td></td>
<td>13.84</td>
<td>1</td>
<td>1.98 e-4</td>
<td>.049</td>
</tr>
<tr>
<td>Control Group</td>
<td>2.59</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathways Group</td>
<td>2.94</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Difference</td>
<td>.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>English Comparison</strong></td>
<td></td>
<td>11.49</td>
<td>3</td>
<td>.009</td>
<td>.001</td>
</tr>
<tr>
<td>Control Group</td>
<td>2.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathways Group</td>
<td>2.97</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Difference</td>
<td>.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Math Comparison</strong></td>
<td></td>
<td>16.93</td>
<td>5</td>
<td>.004</td>
<td>.007</td>
</tr>
<tr>
<td>Control Group</td>
<td>3.97</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathways Group</td>
<td>4.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Difference</td>
<td>.68</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* H =Kruskal Wallis, df= Degrees of freedom, e²= Epsilon Squared only if p-value <.05

**Comparison of entering reading assessment levels.** Next, the study utilized a Kruskal Wallis test to calculate differences in entering reading assessment levels between both groups. The results of the Kruskal Wallis indicate a significant difference in entering assessment reading assessment levels, $H_{df (1)} = 13.84, p=1.98 e-4, e² = .049$. Analysis of reading level comparisons found Pathways students held a higher difference in mean at $m=2.94$, when compared to control group students at mean=2.59. The difference in mean scores indicates Pathways students scored .35 higher in reading levels than non-Pathway control group students as reflected by the difference in mean scores. The researcher calculated for effect size by
utilizing Epsilon Squared post hoc test after Kruskal Wallis. The results of the Epsilon Squared test point to a small effect size at $e^2 = .049$. Thus, the researcher notes a small effect of importance for the socioeconomic comparison between both groups.

**Comparison of entering English assessment levels.** For analysis of entering English assessment levels, the Kruskal Wallis test again served to calculate differences between both groups. The results of the test indicate significant differences at $H_{df (1)} = 11.49, p = .009, e^2 = .001$. Specifically, Pathways students held a higher difference in mean at $m=2.97$, when compared to control group non-Pathways students at mean=2.70. The difference in mean scores indicates Pathways students scored .27 higher in English levels when compared to non-Pathway control group students. After calculating effect size, the results of Epsilon Squared point to a very small effect size of $e^2 = .001$.

**Comparison of entering math assessment levels.** The last assessment comparison used the Kruskal Wallis test again to analyze differences between both groups in entering Math assessment levels. Comparison of both groups for entering Math assessment scores indicate significant differences at $H_{df (5)} = 16.93, p = .004, e^2 = .007$. Specifically, Pathways students held a higher difference in mean at $m=4.65$ when compared to control group non-Pathways students at mean=3.97. The difference in mean scores indicates Pathways students scored .68 higher in math assessment levels when compared to non-Pathway control group students. After calculating effect size, the results of Epsilon Squared point to a small effect size of $e^2 = .007$.

**SRQb:** Do Pathways students differ from control group dual credit students in levels of academic confidence?
Sub-research question b (SQRb) compared group differences in academic confidence between dual credit Pathways and control group students. Students from both groups were asked questions about how they perceived their academic confidence in the following pre-program areas: (1) ability to succeed in college, (2) maturity to succeed in college classes, (3) academic preparation to succeed in college, and 4) how they felt they compared academically to traditional college students at the host college campus.

**Comparison Results for Pre-college Academic Confidence Areas**

First, the researcher compared perceived levels of participant ability to succeed in college. The results of Chi-Square analysis indicated no significant difference between both groups, $\chi^2 df (2)= .575, p=.749$. Pathways students did not have significantly higher levels of perceived pre-college academic abilities when compared to control group dual credit students.

Second, the researcher compared perceived dual credit student maturity to succeed academically in a college class. Again, the Chi-Square test revealed there was no significant difference between Pathways and control group dual credit students, $\chi^2 df (1)= 2.27, p=.131$. Third, the study compared perceived levels of academic preparedness for college. The results of the Chi-Square analysis again indicated no significant differences, $X^2 df (1)= .192, p=.660$. Finally, the study compared both groups by perceived levels of academic skills compared to traditional
community college students. Again, the Chi-Square test results indicated no significant differences, \(X^2 \text{ df (1)} = .639 \ p=.424\). Overall, the data reflects that both groups of dual credit students have equal levels of perceived academic confidence. The researcher notes effect size was not calculated because there were no statistically significant results for variables analyzed for SQRb.

**SRQc:** Do Pathways students differ from control group dual credit students in perceived levels of SDC support?

Table 9
*Chi-Square Comparison of Both Groups by Dual Credit Support Variables*

<table>
<thead>
<tr>
<th>Questions</th>
<th>(\chi^2)</th>
<th>df</th>
<th>p-value</th>
<th>(\varphi_c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>While in CES, did you get college counseling?</td>
<td>1.89</td>
<td>(1)</td>
<td>.168</td>
<td></td>
</tr>
<tr>
<td>While in CES, did you get high school counseling?</td>
<td>.647</td>
<td>(1)</td>
<td>.420</td>
<td></td>
</tr>
<tr>
<td>While CES, did you feel your parents supported you?</td>
<td>.409</td>
<td>(1)</td>
<td>.522</td>
<td></td>
</tr>
<tr>
<td>Did teachers believe you could succeed in college?</td>
<td>.103</td>
<td>(1)</td>
<td>.748</td>
<td></td>
</tr>
</tbody>
</table>

*Note. \(\chi^2\) = Chi-Square, df = Degrees of freedom, \(\varphi_c\) = Cramer’s V only if p-value <.05*

Sub-research question c (SQRc) compared group differences in student support services received while taking college classes as a dual credit student. The following key areas were examined: 1) community college counselor support, 2) high school counselor support, 3) parent support, and 4) high school teacher belief in participants. The study collected data for this analysis from survey participants who completed the online survey for this dissertation.

**Comparison by Perceived Student Support Areas**

For SQRc, the researcher compared the difference between both groups receiving college counseling while taking dual credit courses. The results of Chi-Square indicated no significant
difference between both groups, $\chi^2 df(1)= 1.89, p=.168$. In effect, one group did not have a higher chance to have already received college counseling services over the other group. Second, the study compared if participants from both groups had received high school counseling services while taking college courses. Again, the Chi-Square test revealed there was no significant difference between both groups receiving high school counseling services, $\chi^2 df(1)= .647, p=.420$. Third, the study compared perceived levels of parent support while taking dual credit college courses. The results of the Chi-Square analysis indicated no significant differences, $\chi^2 df(1)= .409, p=.522$. Finally, the study compared perceived teacher or counselor belief in a dual credit student’s ability to succeed in college classes. The results of the Chi-Square test for this variable yielded no significant differences, $\chi^2 df(1)= .103, p=.748$. Overall, the data reflects both groups did not differ in the support they received while taking dual credit college classes. The researcher notes effect size was not calculated because there were no statistically significant results for variables analyzed for SQRc.

**SRQd:** Do Pathways students differ from control group students in understanding the requirements to complete associate degrees, transfer knowledge, and four-year admissions requirements to the University of California System?

Table 10

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p-value &lt; .05</th>
<th>$\phi_c$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community college knowledge</td>
<td>9.13</td>
<td>(1)</td>
<td>.002</td>
<td>.323</td>
</tr>
<tr>
<td>Transfer Knowledge</td>
<td>8.25</td>
<td>(1)</td>
<td>.004</td>
<td>.088</td>
</tr>
<tr>
<td>Four-Year Admission Requirements</td>
<td>12.66</td>
<td>(1)</td>
<td>3.73 e-4</td>
<td>.383</td>
</tr>
</tbody>
</table>

*Note. $\chi^2$ = Chi-Square, df = Degrees of freedom, $\phi_c$ = Cramer’s V only if p-value < .05*
Sub-research question c (SQRd) compared group differences in participant knowledge in the following key areas: 1) knowledge of the requirements for completion of associate degrees, 2) knowledge of the community college transfer process, and functional knowledge of the four-year admissions requirements. SQRc evaluates if Pathways students felt they had gained functional or working knowledge of all three key areas. The study defines if participation in the dual credit college early start programs (CES) helped high school students gain functional or working knowledge of the three key areas.

**Associate Degree Requirements**

First, the study used the Chi-Square test to compare differences in associate degree requirement knowledge gained after participation in their respective CES. The results of the Chi-Square indicated a significant difference between both groups, $\chi^2 df (1) = 9.13, p = .002, \phi_c [1] = .323$. The results of the test indicate Pathways students felt they know more about community college associate degree requirements. A total of 94.3% (n=33) of the 35 Pathways students and 67.2% (n=39) non-Pathways students said they learned the requirements of a two-year associate degree after participation in college early start dual credit programs. The researcher used Cramer’s V Post hoc test to calculate for effect size, at $\phi_c = .323$. After calculating for effect size, the researcher notes a medium significance between both groups in the effect of the community college variable.

**University Transfer Process**

Second, the study used the Chi-Square test to compare transfer process knowledge gained after participation in their respective CES program. The Chi-Square test results revealed there was a significant difference between both groups, $\chi^2 df (1) = 8.25, p = .004, \phi_c [1] = .088$. The results indicate Pathways students felt they learned more about the transfer process after
participation in CES courses. The researcher notes 93.8% (n=30) of Pathways students and 63.7% (n=36) control group students said they learned the requirements of the transfer process after participation in their respective college early start dual credit programs. Cramer's V Post hoc test was used to calculate effect size, at $\phi_c = .088$. The researcher notes Cramer’s V post hoc test indicates a very small effect when comparing the transfer process knowledge of both groups.

**Four-year University Admissions Requirements**

The final key area of SQRd analysis focused on learned four-year university admission requirements knowledge. Again, the researcher used the Chi-Square test to compare both groups for knowledge gained after participation in their respective CES programs. The Chi-Square test results revealed there was a significant difference between both groups, $X^2 df (1)= 12.66 p=3.73 \times 10^{-4}$, $\phi_c [1] = .383$. The results indicate Pathways students felt they learned more about four-year admissions requirements. The researcher notes 74.3% (n=26) of Pathways students and 36.2% (n=21) of non-Pathways students said they learned the requirements of four-year university admissions requirements after participation in their respective college early start dual credit programs. Cramer's V Post hoc test was used to calculate effect size at $\phi_c = .383$. The medium effect size reflects a moderate significance between both groups related to learned four-year university admission requirements.

**Guided Pathways Analysis**

The next section presents analysis related to Guided Pathways variables specific to the dual credit standalone Pathways program. Analysis for this section did not include statistical comparisons but frequency of responses to questions related to variables within Pillars II through IV. Pillar I was excluded from analysis because it is not in the design of the Pathways program.

**Pillar I: Clarify the Path**
Clarify the Path is the pillar designed to get students on the right path when entering a college as first-time freshmen. However, dual credit Pathways students are high school students taking college classes and not full-time college students. As a result, elements of Pillar I are not included in the design of Pathways. Instead, dual credit students in the Pathways program are required to participate in host college counseling classes. The counseling classes provide information that assist students once they start their undergraduate university experience. Pathways students learn about the process of university admissions, transfer from the community college system, and community college associate degree requirements. The next section presents relevant variables associated with Pillars II, III, and IV.

**Pillar II: Enter the Path**

<table>
<thead>
<tr>
<th>Table 11</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Stay on the Path Support</em></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Pre-Set Pattern of courses</strong></td>
</tr>
<tr>
<td>Pathways Participants</td>
</tr>
<tr>
<td><strong>Online Access to Academic Roadmap</strong></td>
</tr>
<tr>
<td>Pathway Participants</td>
</tr>
<tr>
<td><strong>Completion of educational plan help</strong></td>
</tr>
<tr>
<td>Pathway Participants</td>
</tr>
</tbody>
</table>

*Note. n = number of Pathways that answered the survey question*

As part of Pathways program requirements, participants are required to complete an Academic Roadmap, previously known as a student educational plan. Control group participants are not required to complete a student educational plan. Specific to the Pathways program, the Academic Roadmap includes a preset pattern of courses which leads to a predetermined
associate of science two-year degree. The following questions were the basis for analysis relevant to the effectiveness of the Academic Roadmap.

*Did the preset pattern of Pathways courses help simplify your experience participating in the college early start program at the host college?* This question evaluates the effectiveness of the preset pattern of courses included in the Pathways academic roadmap. Of 35 Pathway students that answered the survey, a total of 28 answered the question. The results indicate 89.3% (n=25) of Pathways students answered yes to the question and only 10.7% (n=3) answered “No or Not sure”. From these results, the researcher notes Pathways students that answered this survey question felt the academic roadmaps assisted them in understanding how the preset pattern of Pathways courses helped them earn their college degree.

In Pillar II, the Guided Pathways framework stresses the significance of leveraging technology to provide real-time access to information that will assist in the educational journey of each student. In the Pathways program, academic roadmaps are an example of crucial information made available by leveraging technologies. Pathways students have access to real time academic roadmaps, which are updated and posted to both their high school and host college websites.

*Did having online access to your Pathways student educational plan at the college and high school help you know exactly what classes to take each semester?* This question evaluates the effectiveness of online student access to their Pathways academic roadmap. Of 35 Pathway students that answered the survey, a total of 30 answered this question. The results indicate 86.7% (n=26) of Pathways students answered “yes” to the question and only 13.3% (n=4) answered “no or not sure”. From these results, the researcher notes Pathways students that
answered this survey question felt online access to their academic roadmaps assisted them in knowing exactly what classes to take every semester.

**Did completing a college student educational plan (SEP) help you understand how Pathways courses help you complete a college degree?** This question evaluates the effectiveness of the Pathways roadmap in helping Pathways students understand the purpose of the preset courses as they relate to their preset associate degree goal. Of 35 Pathway students that answered the survey, a total of 32 answered this question. The results indicate 96.7% (n=31) of Pathways students answered “yes” to the question and only 3.1% (n=1) answered “no or not sure”. From these results, the researcher notes Pathways students that answered this survey question felt the Academic Roadmaps assisted them understanding why the preset pattern of courses helped them earn their associate degree. The researcher notes a comparison was carried out between Pathways and control group survey takers as it relates to completion of an educational plan. The following question was asked of survey takers on both the Pathways group and the control group.

**While participating in the college early start program, did you complete a college student educational plan with a college counselor?** For this question, the researcher used Pearson's Chi Square to compare both groups. The results indicate a significant difference, at $\chi^2_{df (1)} = 7.26, p = .007, \phi_c [1] .301$. Specifically, 84 survey takers from both groups answered this question. 57.1% (n= 48) of the survey takers answered “yes” and 42.9% (n=36) answered “no” to this question. Of those that answered “yes,” 76.7% (n=25) were Pathways students and 46.3% (n=23) were control group survey takers. Post hoc analysis was carried out by using Cramer’s V test. Results indicate a medium effect size for this comparison. Based on the results, a larger percentage of Pathways students reported they completed an educational plan while participating in dual credit courses at the host campus.
Table 12

Stay on the Path Support

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Yes</th>
<th>%</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dual Counseling</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathways Participants</td>
<td>n=30</td>
<td>29</td>
<td>96.7%</td>
<td>1</td>
<td>3.3%</td>
</tr>
<tr>
<td><strong>Cohort Peer Support</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pathway Participants</td>
<td>n=32</td>
<td>28</td>
<td>87.5%</td>
<td>4</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

*Note.* n = number of Pathways that answered the survey question

Specific to Pathways, students are required to participate in both dual counseling from high school and college counselors and they are required to take all classes through cohort-style learning. Pathways students participate in joint high school and host college counselor advising sessions. The intent of joint counseling sessions is to help students get semesterly updates as to their progress in completing both their high school and college academic goals. Pathways students are also required to take dual credit courses through cohort-style learning. Participants of each cohort are enrolled in the same preset pattern of courses with the same group of cohort students. The purpose of the cohort learning is for Pathways participants to provide each other peer support while taking dual credit classes. The following question analyzes the effectiveness of both dual advising from the high school and college counselor and also Pathways cohort-style learning.

*Did meeting with both the Pathways high school and college counselor help you understand the requirements of completing your academic college goal?* This question evaluates the effectiveness of the Pathways dual counseling approach and its effect on student
understanding of the requirements of their academic goals. Of 35 Pathway students that answered the survey, a total of 30 answered this question. The results indicate 96.7% (n=29) of Pathways students answered “yes” to the question and only 3.3% (n=1) answered “no or not sure”. From these results, the researcher notes the majority of Pathways students felt dual counseling sessions helped them understand the requirements of their academic goals.

Did you and your cohort classmates provide each other with support that helped you succeed in a college course? This question evaluates whether or not Pathways students provided each other with peer support while taking dual credit courses. Of 35 Pathways students that answered the survey, a total of 32 answered this question. The results indicate 87.5% (n=28) of Pathways students answered “yes” to the question and only 12.5% (n=4) answered “no or not sure”. From these results, the researcher notes a large percentage of Pathways students felt they received or gave peer support from their classmates.

While participating in the college early start program, did you feel comfortable asking your peers for help with class projects? This question was asked of both the Pathways and control group survey takers. The question measured the existence of peer support in the form of class projects. The researcher used Pearson's Chi Square to carry out the analysis. The results do not indicate a significant difference at $\chi^2 df (1) = .568, p=.450$. A total of 81 students answered this survey question; 39.5% (n= 32) were Pathways and 60.5% (n=49) were control group students. Participants from both groups had similar responses in asking for help from peers on class projects. 84.4% (n=27) of Pathways students and 77.6% (n=38) of control groups felt comfortable asking for help on class projects.

Pillar IV: Ensure Learning
Embedded within Pathways are several key learning goals designed to help participants learn college knowledge needed for post-secondary success. Specifically, this section calculates differences in both groups related to gained knowledge of the following: 1) transfer process, 2) university admissions, 3) college student support services, and 4) post high school college readiness. The following are the results.

**Table 13**

<table>
<thead>
<tr>
<th>Gained Knowledge</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p-value</th>
<th>$\phi_c$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer Process</td>
<td>8.25</td>
<td>1</td>
<td>.004</td>
<td>.088</td>
</tr>
<tr>
<td>University Admissions</td>
<td>12.66</td>
<td>1</td>
<td>.0003</td>
<td>.383</td>
</tr>
<tr>
<td>Student Support Services</td>
<td>4.63</td>
<td>1</td>
<td>.004</td>
<td>.088</td>
</tr>
<tr>
<td>College Preparedness</td>
<td>.792</td>
<td>1</td>
<td>.373</td>
<td></td>
</tr>
</tbody>
</table>

Note: $\chi^2$ = Chi-Square, df = Degrees of freedom, $\phi_c$ = Cramer’s V only if p-value < .050

While participating in college early start programs, have you learned about the transfer process to a university? For this question, the researcher used Pearson's Chi Square to compare both groups. The results indicate a significant difference at $\chi^2$ df (1) = 8.25, p = .004 $\phi_c$ [1] .088. Using Cramer’s V test, Post Hoc analysis was calculated with results indicating a very small effect size. Based on the results, the researcher notes a larger percentage of Pathways reported they learned about the community college transfer process.

Which of the following statements best describes your knowledge of the requirements needed to enter a four-year college or university after high school? For this question, the researcher used Pearson's Chi Square to compare both groups. The results indicate a significant difference at $\chi^2$ df (1) = 12.66 p = 3.73 e-4, $\phi_c$ [1] .383. Using Cramer’s V test, Post Hoc analysis was calculated with results indicating a medium effect size. Based on the results, the researcher notes a significant difference in the learning of university admissions requirements.
Which of the following statements best describes your knowledge of the student college support services? For this question, the researcher used Pearson's Chi Square to compare both groups. The results indicate a significant difference at $\chi^2 (1) = 4.63$, $p = .031$, $\phi_c [1] .223$.

Using Cramer’s V test, Post Hoc analysis was calculated with results indicating a medium effect size. Based on the results, the researcher notes a significant difference in the knowledge of student college support services.

Is participation in the college early start program helping you gain knowledge you will need to succeed in college or university after high school? For this question, the researcher used Pearson's Chi Square to compare both groups. The results do not indicate a significant difference at $\chi^2 (1) = .792$, $p = .373$. Based on the results, there is no significant difference between both groups in college readiness knowledge gained through participation in college early start.

Chapter Summary

Chapter Four served to provide descriptive statistics, including race, gender, socioeconomic status and entering assessment comparisons in reading, English, and math. With the exception of assessment scores, race, and socioeconomic status, the sample of the control group can be assumed representative of demographic populations in the host college area.

Simultaneously, the researcher used Kruskal Wallis and Chi-Square analysis to examine each of the four sub-research questions. The study notes the results of the Kruskal Wallis test and Chi-Square test assumptions were not violated. In general, the analyses pointed to statistically significant findings in several key areas of sub-research questions (b) and (d). For sub-research question c, the results reflected no significant difference in perceived levels of student support in high school counseling, college counseling, and parent support. A discussion of the
findings and recommendations for Pathways program, policy, and practice is presented in Chapter Five.
CHAPTER 5: DISCUSSION

This study focused on the effectiveness of a student support based standalone dual credit program when compared to a traditional standalone dual credit program at the same host campus. Pathways differs from traditional standalone dual credit programs by including student services elements from the Guided Pathways four-pillar framework. Again, the researcher notes the Pathways dual credit program was designed with elements of the Guided Pathways framework but is not part of the host college Guided Pathways programs. At the time of this research, the host campus was in the process of implementing their Pathways’ tracks and dual credit programs were not yet factored into the host campus Guided Pathways designs. The study contributes to the literature of dual credit standalone programs by creating an understanding of how Guided Pathways elements may impact standalone dual credit programs.

This research is a non-experimental quantitative study consisting of one guiding question and supporting four sub-research questions. Sub-research questions were designed to support inquiry towards answering the guiding research question. Data used for the study comparison came from two main sources: 1) archival data from the host campus college application and 2) information gathered through the online survey. Results of a chi-square and Kruskal goodness of fit test supported the assumptions of the sample size and supported the use of both tests.

**Guiding Research Question**

How does the effectiveness of the Pathways program compare to the traditional college standalone dual credit program?

**Sub-questions**
a) Do entering Pathways students differ from entering control group dual credit students when compared by gender, race, socio-economic status, and pre-college assessment levels in reading, English, & math?

b) Do Pathways students differ from control group dual credit students in levels of academic confidence?

c) Do Pathways students differ from control group dual credit students in perceived levels of SDC support?

d) Do Pathways students differ from control group students in understanding the requirements to complete associate degrees, transfer knowledge, and four-year admissions requirements to the University of California System?

**Overall Findings**

**Findings for Sub-question (a)**

Do entering Pathways students differ from entering control group dual credit students when compared by gender, race, socio-economic status, and pre-college assessment levels in reading, English, and mathematics?

**Gender.** The overall gender composition of both groups did not differ as it pertains to the entering gender population of both groups. Female populations were larger for both groups with Control Group at 59.9% (n=4,446) and Pathways at 51.1% (n=45).

**Race.** The findings for differences in the race composition also reflected similarities between both groups. Data collected from the host college application reflected a total of 23 different race options. Pathway students (n=88) were members of only 8 of those race options. Therefore, a comparison of the racial composition of both groups was not relevant. Instead, the researcher identified Asian Indian (n=44, 50%) students as the dominant racial group in Pathways and calculated differences with Asian Indian students (n=499, 6.6%) from the control group.
**Entering assessment scores.** The study utilized the Kruskal Wallis test to calculate group differences in entering Asian Indian student assessment scores. The results indicated no significant differences in entering reading, English, and math assessment scores: reading assessment at $H_{df(1)}= 2.12$, $p=.145$, English assessment at $H_{df(1)}= 1.21$, $p=.271$, and math assessment at $H_{df(1)}= 1.44$, $p=.229$.

A second comparison of entering assessment scores was calculated between both groups through the use of the Kruskal Wallis tests. The comparison differs from the Asian Indian comparison in that it compares all members of Pathways compared to all members of the larger control group. Again, Kruskal Wallis tests were used to calculate differences between both groups. The results indicate significant differences between both groups in all three areas of entering assessment scores: reading at $H_{df(1)}= 13.84$, $p=1.98 \times 10^{-4}$, $e^2 = .049$, English at $H_{df(1)}= 11.49$, $p=.009$, $e^2 = .001$, and Math at $H_{df(5)}= 16.93$, $p=.004$, $e^2=.007$. Mean differences between both groups pointed to Pathways students reflecting higher entering assessment scores: reading mean=.35, English mean=.27, and math mean=.68. The effect size was also calculated using the Post Hoc test Epsilon Squared. The results indicated a very small effect size for reading and English entering assessment scores and medium effect size for math.

**Socio-economic status.** For the most part, the comparison of both groups yielded no significant differences except for the comparison of socio-economic status. The majority of the control group population self-identified as low-income students (n=4,676, 61.9%). In contrast, only a small number of Pathways students identified themselves as low income (n=2, 2.2%). As a result, a Chi-Square comparison pointed to a significant difference in self-identified low-income status between both groups, $X^2_{df(1)}= 13.05$, $p=3.05 \times 10^{-4}$, $\phi_{c[1]} = .374$. 
Implications of sub-question (a). The literature is filled with examples of dual credit students succeeding academically in college courses (An, 2013; An, 2015; Karp, 2007; Karp et al., 2007). However, the literature does not definitively state that dual credit participation is solely responsible for the academic success of students that participate in dual credit programs. Researchers have long criticized the selectivity and lack of diversity of dual credit programs (Pretlow & Wathington, 2014; Speroni, 2011; Taylor, 2015). As such, sub-question (a) supported the criticism of dual credit programs as it pertains to diversity and selectivity.

Academically, participants from both groups reflected initial strong assessment scores, with Pathways students having higher mean differences in all entering assessment scores. In contrast, the findings from the socio-economic comparison point to a great disparity between both groups. The results indicate that 97.8% of Pathways students did not consider themselves to be from low-income families. For control group students, the number was much different. A total of 61.9% of dual credit students reported they were from low-income families. The difference in family income and support may be a reason why dual credit students from affluent backgrounds have better chances of succeeding in college-level classes.

Findings for Sub-question (b)

Do Pathways students differ from control group dual credit students in levels of academic confidence?

Academic confidence. The overall findings from sub-research question (b) point to no significant difference in pre-program perceived academic confidence. Academic confidence was measured in the following areas.

As it pertains to a student’s pre-college belief that they could succeed academically in a college class, the Chi-Square analysis revealed no significant difference between both groups at
Regarding pre-college belief that students were mature enough to take college classes, the Chi-Square calculations revealed no significant difference at $\chi^2 df (2) = .575, p=.749$. As it pertains to the pre-college belief that students were mature enough to take college classes, Chi-Square calculations revealed no significant difference between both groups at $\chi^2 df (1) = .192, p=.660$. The final analysis carried out for research sub-question (b) pertained to dual credit student perceptions of their academic confidence when comparing themselves to traditional community college students. Chi-Square calculations revealed no significant difference between both groups, $X^2 df (1) = .639 p=.424$.

Implications of sub-question (b). The results of this research question indicate participating high school dual credits students have already established levels of academic confidence. These results support the literature which already asserts participants of dual credit students are normally high achieving students. As a result, dual credit students tend to hold better high school grade point averages when compared to their non-dual credit high school student counterparts (An, 2015; Karp et al., 2007; Kim & Bragg, 2008; Kinnick, 2012). The results of sub question (b) further support the literature in that both groups of dual credit students were confident in their ability, maturity, and academic skills to succeed in taking college classes before they participated in dual credit programs.

However, it may be that students in dual credit programs do gain additional skills that help increase student confidence in non-academic areas, such as participating in the college lifestyle, exposure to student services, a grasp of classroom etiquette, and learned self-expectations required to succeed in a traditional college environment (Kanny, 2015; Ozmun, 2013). These additional skills may help affirm, maintain, and increase already established areas of academic confidence in dual credit students. Additionally, the momentum gained from strong
academic and non-academic skills may propel dual credit students and easier experience within the college environment. Researchers found the college experience for dual credit students leads to increased levels of self-satisfaction and motivation (D’Amico et al., 2010; Weisberg et al., 2011).

In spite of the benefits the dual credit experience offers students, some high school students find the dual credit journey difficult to navigate. Unlike students in early college high school programs, dual credit students experience a more independent journey. Standalone dual credit students make choices without standardized support systems like counseling and educational planning for college. These students do not receive student services support enjoyed by structured, brick-and-mortar early college and middle college high school dual credit programs. Research sub-question (c) explores survey participant perceptions of student support services provided through the dual credit standalone experience.

**Findings for Sub-question (c)**

Do Pathways students differ from control group dual credit students in perceived levels of SDC support?

As it pertains to receiving college counseling during dual credit participation, Chi-Square analysis revealed no significant difference between both groups at $\chi^2 df (1) = 1.89, p = .168$.

Second, as it pertains to receiving high school counseling during dual credit participation, Chi-Square analysis revealed no significant difference between both groups at $\chi^2 df (1) = .647, p = .420$.

Third, students were asked if they felt their parents supported them while taking CES classes. Again, the results of the Chi-Square analysis indicated no significant differences, at $\chi^2 df (1) = .409, p = .522$. Finally, the study compared perceived teacher or counselor belief in a dual
credit student’s ability to succeed in college classes. The results of the Chi-Square test for this variable yielded no significant differences, $\chi^2 df (1)= .103, p=.748$.

**Implications of sub-question (c).** Analysis of this question measured if there was a difference between perceived levels of support received by both groups during their dual credit experience. The results indicate that there were not significant differences in all areas of dual credit support measured. In particular, researchers acknowledge the importance of counseling for any college students (Hoffman et al., 2009; Oliver et al., 2010; Thompson & Ongaga, 2011). Several studies focusing on student perceptions note the high-value college students place on educational advising (Whitebook et al., 2008). For this study, the question did not reveal enough information to assess the value of college counseling for dual credit students.

As a counseling practitioner, the researcher acknowledges his own personal belief in the importance of counseling for students. Dual credit students are no different. The challenge for them is navigating two worlds of academic requirements, 1) college degree requirements, and 2) high school graduation requirements. The findings contradict initial beliefs of the researcher related to counseling. Pathways students are required to have counseling and dual credit students are not required to do so. It may be that the small sample size of Pathways students was not enough to secure a valid measurement of dual credit counseling participation. The researcher believed that Pathways students would report higher levels of received counseling as it is required of the Pathways group to receive coordinated high school and college counseling. Perhaps, dual credit students are predisposed to seek counseling on their own because they are already high-achieving students with educated parents who may be informed enough to support and encourage meetings with counselors. College educated parents may serve to impart their experiences and influence to help facilitate their students' experience in high school and dual
credit classes. Parent involvement creates what researchers refer to as social capital. Social capital through parent involvement affords students stability, encouragement, and overall parental influence in their education (Cotton & Wikelund, 1989; Kim & Scheider, 2005; Marrero, 2016). 

**Findings for Sub-question (d)**

Do Pathways students differ from control group students in understanding the requirements to complete associate degrees, transfer knowledge, and four-year admissions requirements to the University of California system?

**Gained knowledge.** Analysis for sub-research question (d) presented the most contrast from the two groups. Specifically, sub-research question d provided significant differences in learned college knowledge between Pathways and control group students. While, no significant differences were reflected from both groups as it relates to perceived student support. The results for sub-research question c were not expected. Pathways students receive dual counseling, educational planning, and support as part of the program. While students in the control group are not required to participate in student support services. It was surprising that the Pathways participants had not significant difference in their perceived value of student services. Both groups valued equally student services like counseling and educational planning. In contrast, the results for sub-research question d were expected. Unlike their Pathways counterparts, students from the control group were not required to follow a pre-set academic roadmap. Control group students were also not specifically taught learning goals related to gained knowledge in admissions, transfer, and associate degree requirements.

As such, the researcher expected participants of the Pathways program to have significant differences in how they learned the following outcome goals: community college associate degree requirements, transfer knowledge to four-year universities, and an understanding of the
admissions requirements for first-time freshmen to the four-year University of California system (The UC). The Pathways program provides more support services for dual credit standalone students. The traditional standalone dual credit program requires students to make independent choices with limited support services. Therefore, it was expected that Pathways students have significant differences in learned college knowledge.

As it pertains to student knowledge of the requirements to earn a two-year associate degree, the Chi-Square test indicated a significant difference between both groups, $\chi^2 df (1)= 9.13, p=.002, \phi_c [1] .323$. As it pertains to student knowledge of the community college transfer process, the Chi-Square test results revealed there was a significant difference between both groups, $\chi^2 df (1)= 8.25, p=.004, \phi_c [1] .088$. Pertaining to student knowledge of the University of California admissions requirements, Chi-Square results revealed there was a significant difference between both groups, $X^2 df (1)= 12.66 p=3.73 e-4, \phi_c [1] = .383$.

**Implications of sub-question (d).** The results of sub-question (d) support the benefits of support services provided by the Pathways program. Findings reflect that Pathways students gained college knowledge, which helped them succeed in the college environment. College support services like counseling, cohort peer support, and student educational planning help students understand and gain college knowledge. As such, students who participate in dual credit programs transition more smoothly from high school to college (D’Amico et al., 2010; Lichtenberger et al., 2014; Mechur Karp, 2012; Mokher & McLendon, 2009). The findings from this researcher supports the inclusion of built-in mandatory support services for dual credit students. Adding mandatory counseling and educational planning may also help extend access to more students and diversify the dual credit population. Within the community college setting, services such as counseling, tutorials, and services for students from low socio-economic
backgrounds have served to diversity the college population. These same support services may do the same to maintain and diversity participation in standalone dual credit programs.

**Findings Related to Guided Pathways Framework**

The following section explores analysis results related to the Four Pillars of Guided Pathways. The researcher notes that Pillar I was not part of the analysis because it was not included in the design of the Pathways program.

**Pillar II: Enter the Path**

Analysis within Pillar II was centered around student perceptions related to the following support service components: (1) academic roadmap with required preset pattern of courses (2) which lead to a preset associate degree goal. Further, students were given (3) online real-time access to their academic roadmap. The next set of analyses measured the impact of all three of those Guided Pathways components.

Overall, Pathways students considered all three components as an important part of their standalone dual credit experience. This research supported the importance of all three Pillar II services. The majority of Pathways students felt the preset pattern of academic roadmap courses helped simplify their dual credit experience (89.3%). Pathways students also indicated the student educational plan (academic roadmap) helped them understand how Pathways courses would help them complete their college degrees (n=31, 96.7%). Finally, a key Guided Pathways component within Pillar II calls to leverage online technology to assist students in staying informed. As such, this study measured Pathways students’ perceptions as to the benefits of having online and real-time access to their individualized academic roadmaps. Again, the majority of Pathways students felt having online access to educational plans helped them know exactly what classes to take each semester (n=26, 86.7%).
This research also sought to determine if completion of academic roadmaps (student educational plans) were common for both control and Pathways student groups. Predictably, Chi-Square comparisons revealed significant differences in the percentages of students from both groups that completed educational plans, at $\chi^2 df (1)= 7.26, p=.007, \phi = .301$. Because academic roadmaps are mandatory for Pathways students, the researcher expected the results of this analysis. However, the findings for control group students were very interesting. Of those that answered this question, 76.7% (n=25) Pathways students and 46.3% (n=23) control groups reported they completed an educational plan with a counselor. Just under half of the control group students completed an educational plan. This is surprising and speaks to the value of the educational plan when students who are not required to complete the plan completed it anyways. In the community college setting, students are not required to complete a full comprehensive educational plan. Control group students were not required but understood the value of educational planning. Although their educational planning did not include preset patterns of courses like those of the Pathways academic roadmaps, they did include at least two semesters of courses in appropriate sequences. As a counseling practitioner, I was gladly surprised control group students recognized the value of the educational plan.

**Implications of Pillar II results.** The findings from this study support previous research in promoting the value of student advising and student educational planning (Donaldson, McKinney, Lee, & Pino, 2016, p.34; Mu, & Fosnacht, 2019). Through mandatory advising, students identify courses and sequences needed to complete their educational goals. Supporters of preset choices point to the ease people experience when choices are simplified for them (Carroll et al., 2009; Borghans & Golsteyn, 2014; Botti, 2004; Keller et al., 2011).
Understanding the value of Guided Pathways academic roadmaps could lead to helping traditional dual credit students have an easier and simpler dual credit experience. The results of this research provide support for the use of preset academic roadmaps. Clearly, Pathways students perceived positive benefits when asked their perceptions of the required Pathways academic roadmap sequence of courses. Scott-Clayton summarized this best when she noted how institutions with structured educational pathways provide students with clear and informed choices (Scott-Clayton, 2011). This research may help standalone dual credit designers to consider implementation of academic roadmaps for all incoming dual credit students.

**Pillar III: Stay on the Path**

Supporting students so they complete their educational goals is key to the Pathways standalone dual credit program and to the Pillar III Guided Pathways model. Under this analysis, the study reviewed the impact of Guided Pathways support services provided to Pathways standalone dual credit students.

Under Pillar III, the analysis was carried out on two critical Guided Pathways elements related to the Pathways program. The first component analyzed was the dual high school and college counseling provided to Pathways students. Pathways participants are required to participate every semester in individual joint high school and college counselor academic roadmap planning. The second, cohort-style learning, includes the Pathways dual credit program, which provides participants with a required cohort-based learning environment. Participants enter as a single cohort, follow the academic roadmap preset pattern of courses, and take all classes with their cohort classmates. What follows is the summary of how these services impacted Pathways dual credit students.
As it relates to dual counseling, a majority of Pathways student survey-takers (n=29, 96.7%) felt joint high school and college counseling helped them understand the requirements of meeting their educational program goals. As it relates to cohort style learning, students were asked if cohort classmates provided each other with the support that helped them succeed in a college course. Again, the majority of Pathways students responded yes (n=28, 87.5%). The study also compared peer support between both groups. Chi-Square analysis revealed there was no significant difference between both groups, at $\chi^2 df (1)= .568, p=.450$. The majority of students in Pathways (n=27, 84.4%) and control group (n=38, 77.6%) students felt they received support from their peers.

**Implications of Pillar III results.** Helping students stay on the Path is crucial within the Guided Pathways model. Specifically, the importance of counseling has always been valued. As such, the researcher was not surprised by the positive results of counseling from Pathways students. However, the results of the cohort-style learning peer support analysis were interesting. The results do not support that cohort-style learning provided significantly different peer support from the peer support received naturally from dual credit students in the traditional program. These results may be due to the current peer-based system already practiced in the high school system. Further research is needed in this area to measure the value of Pathways standalone dual credit cohort-style learning.

Existing research is clear in support of cohort style learning (Barnett et al., 2000; Hickson, 2018; Maher, 2005). This study adds to the research in providing preliminary understanding as to how cohort learning impacts dual credit programs. The findings from this research provided support for the cohort model in dual credit standalone programs. It may also be that through providing cohort style learning peer support, dual credit programs may foster and
maintain increased participation from more students of diverse backgrounds. However, this study is not generalizable to all standalone dual credit programs. Therefore, more research is needed in implementing cohort-style learning in standalone dual credit programs.

**Pillar IV: Ensure Learning**

Pillar IV promotes informed and purposeful learning. As part of Pathways standalone dual credit guidelines, participants are presented with key learning outcomes they will gain at the completion of the program. Among them include gaining knowledge in the following areas: 1) Transfer process, 2) university admissions, and 3) college student support services. Traditional dual credit students are not required to learn about these key areas. However, the research notes how high school students acquire these same skills just by participating in dual credit programs. The following is the analysis of differences between both groups in gaining knowledge in the above key areas.

Overall, there were significant differences between both groups for three of the four key areas. As it relates to gained knowledge of the transfer process, Chi-Square results indicate a significant difference, at $\chi^2 \text{ df (1)} = 8.25, p=0.004 \ \varphi_c [1] .088$. The majority of Pathways students ($n=30, 93.8\%$) students felt they gained transfer knowledge through dual credit programs. More than half of the control group students also felt they learned to transfer knowledge through participation in dual credit programs ($n=36, 66.7\%$). Analysis of gained knowledge of the University of California pointed to similar results. Chi-Square results indicate significant differences, at $\chi^2 \text{ df (1)} = 12.66 p=3.73 e^{-4}, \varphi_c [1] .383$. Again, the majority of Pathways students ($n=26, 73.4\%$) students felt they gained knowledge of the University of California admissions requirements. Less than half of the control group students felt they learned the same admissions requirements ($n=21, 36.2\%$). Finally, the majority of Pathways students
(n=26, 74.3%) felt they gained knowledge of college student support services. Just over half of the control group students felt they had gained knowledge of college support services after participation in dual credit. Chi-Square results validate the significant differences between both groups, at $\chi^2$ df(1) = 4.63, $p=.031$, $\phi_c [1] .223$.

**Implications of Pillar IV.** Although the research points to dual credit students receiving similar gained knowledge benefits, Pathways dual credit program provides statistically more percentages of gained knowledge when compared to the control group participants. The simple implication is that with set goals and clearer direction, dual credit students can gain even more knowledge during their dual credit college experience.

**Study Limitations**

The first limitation encountered is a sample size. Fields (2012) promotes the need for a large sample size in order for it to be representative of the population. The field of research assigns validity when sample sizes are large enough to be representative of the population being studied. The sample size for the Pathways dual credit standalone program was small (N=88) and the overall comparison control group at the same host college was large (N=7554). As such, the researcher used the Kruskal Wallis and Chi-square nonparametric test to calculate the p-value for each respective comparison. Post hoc Cramer’s V and Epsilon Squared tests were conducted for significant value results to account for transparency and confidence in the relationship of strength to each comparison.

The second limitation the researcher encountered was the problem of missing data. Specifically, self-reported entering grade point averages from dual credit students were missing or left blank. This may be because the data was taken from self-reported sections of the host college admissions application. A third limitation is related to a region-specific sample. This
study is an evaluation of one program within a bigger dual credit standalone program at the same
campus. As such, this study is not generalizable to the state the host college resides in or to the
overall dual credit system in the United States. A fourth research limitation were the
requirements of working with underage children. Specifically, underage children require consent
from both the participant and the parent. For an online survey, this proved to be a challenge to
get all interested participants to complete both consent forms via the online medium.

The Department of Health & Human Services Office of Human Research Protections
considers children as part of their criteria for vulnerable subjects. This study worked with high
school students taking college classes. In order to work with these students, the IRB required
students to submit consent forms for themselves and their parents. The researcher acknowledges
the importance of this requirement and notes the challenges of getting participants to complete
both parent and student consent forms for an electronic survey. The study attributes this
limitation as the main reason for low participation rates in the survey. Although over 240
students completed the survey, not all were able to submit the required parent and student
consent form at the conclusion of the data collection phase.

**Recommendations for Research**

This study evaluated the effectiveness of a standalone dual credit program called
Pathways. The findings revealed students felt that Pathways support services made their dual
credit experience easier and that they gained greater learned college knowledge than their
traditional dual credit counterparts’ students. However, the results of the study are not
generalizable. The scope of this study is limited to one host college with a limited sample
population. Further research is needed to evaluate the impact of a support-based standalone dual
credit program. Specifically, the research should explore the following areas: advising services, preset academic roadmaps, and the Guided Pathways approach with dual credit programs.

**Dual Academic Advising in the Standalone Dual Credit Setting**

High school students who select dual credit programs typically advise themselves or receive little to no advising assistance from their dual credit host college campuses. Unlike Middle College or Early College High School dual-credit brick-and-mortar programs, standalone dual credit programs lack structure in the guidance of their students. Participants of these programs are able to select their own classes based on their own self-interest or from the advice of some high school counselors unfamiliar with the college setting. With limited advice, standalone dual credit students may choose to enroll in college courses that may not count for their major or for the general education pattern. Uninformed selection of courses may cause dual credit participants to choose wrong courses, repeat areas in the general education pattern they have already completed, or choose courses that are not appropriate for their academic goals. Pathways students from this study received mandatory coordinated dual advising from both high school and college counselors. In contrast to traditional standalone dual credit students, Pathways students received mandatory counseling every semester they were in the program. Coordinated counseling from both the high school and the college counselor provided participating Pathways students an easier and more efficient advising experience. To that end, the results of this study supported the use of dual advising. Pathways survey participants indicated a positive perception of dual counseling. Specifically, they felt the dual advising helped them to understand the purpose and value of the college courses they were taking. Therefore, more research is needed to explore the benefits of required college advising for standalone dual
credit students. A clearer understanding of the role or required advising for dual credit students would help shape the services needed to support the dual credit student experience.

**Preset Academic Roadmaps in the Standalone Dual Credit Setting**

In addition to dual advising, further research needs to be conducted as to the specific impact of the Guided Pathways style academic roadmaps and their impact on standalone dual credit students. This study evaluated how Pathways students felt or perceived the value of the academic roadmaps they were required to follow. Per program guidelines, Pathways dual credit students followed an academic roadmap with a preset pattern of courses. The pattern of courses was linked to completion of a preset community college associate degree. Study results supported the use of the Guided Pathways style academic roadmap with preset courses and degree sequences. Pathways students felt the academic roadmaps provided them clarity and a clear direction to complete their academic goals.

However, the study did not examine other areas related to the impact of Guided Pathways style academic roadmaps. A clearer understanding is needed as to how the academic roadmap hinders student development in key areas of college readiness, such as the psychological development of critical reasoning and thinking skills needed to select courses and a college major. This research supports the value of academic roadmaps and how they make course selection easier and more efficient for participating dual credit students. Nevertheless, the researcher acknowledges the concern of some over the “dumbing down” of the college process in the name of efficiency. It remains to be seen if the laid-out pattern of courses provided by the academic roadmaps also hinders the development of students’ critical thinking, rationale, and reasoning skills needed to succeed in the upper-division baccalaureate and graduate settings.

**Guided Pathways Framework in the Standalone Dual Credit Setting**
Nationwide, colleges are implementing Guided Pathways style campuses at a rapid pace. However, that is not the case for some individual campuses. At the time of this study, the host community college had not yet completed the implementation of their Guided Pathways design and had not integrated the Standalone Dual Credit Pathways program into the Guided Pathways design. However, the Pathways program included the Guided Pathways four-pillar framework in its design principles. Pathways program students received support in the following: Pillar II required academic roadmap with a preset pattern of courses, Pillar III required dual credit high school and college counseling, cohort-style learning for peer support, and real-time access to the online academic roadmap, and Pillar IV targeted gained college knowledge for community college and university admissions and degree requirements. The results of this survey supported the use of all of the above Guided Pathways elements. Survey participants provided positive feedback for all three Pillars.

Nevertheless, dual credit standalone programs are not common in the design of the Guided Pathways college. Further research is needed to determine how the Guided Pathways model will impact standalone dual credit programs. Specifically, the overall design of dual credit programs is not conducive to the Guided Pathways model. Dual credit students typically do not have specific academic goals. Students in standalone dual credit programs are free to choose courses based on interest and not specific terminal major or academic goals. Some dual credit students receive advising and may select college courses with the goal of completing their lower-division undergraduate requirements for four-year universities. These students enjoy dual credit standalone programs because of the flexibility they receive.

In contrast, Guided Pathways colleges seek to aid students in selecting a major or meta-major as early as possible. Once a major is selected, courses in the major or meta-major are
linked to a specific degree or career objectives. The contrast between the flexibility of standalone, dual credit part-time students and the Guided Pathways education call for more practical research on how to serve dual credit students within the Guided Pathways framework. The Guided Pathways movement is nationwide and has the potential to conflict with the practice of standalone dual credit offerings for high school students. This study examined student perceptions of Guided Pathways elements within three of the four pillars. It did not study the overall place of dual credit standalone programs within the Guided Pathways design.

Recommendations for Policy

Enrollment Diversity

Dual credit programs have long been criticized for their recruitment selectivity and the lack of a diverse participant population (Bailey & Karp, 2003; Barnett et al., 2015; Karp, et al., 2004). Researchers note how dual credit programs typically recruit high achieving White and Asian students (Howley et al., 2013). The results of this study support this criticism. Asians and Whites dominated the dual credit population of the Pathways program. The disparity in diversity may be because Asian and White students typically enjoy more support from their parents, are more affluent, and attend high schools with more resources for students. As a result, they make up the majority of the population of what high school program administrators consider high achieving students. State policymakers must ensure program administrators foster more diverse enrollment in dual credit programs. Mandating diverse enrollments in dual credit programs may motivate dual credit program administrators to seek out more students of color and disadvantaged socioeconomic backgrounds.

Mandatory Counseling
Although the flexibility of standalone dual credit programs is coveted, many participants of these programs lack direction in the selection of courses. This researcher supports previous research on the importance of mandatory advising and counseling for college students (Creveling, & Edelman, 2009; Donaldson, et al., 2016; Pedescleaux, Baxter, & Sidbury, 2008). In the same way college first-time freshmen are required to complete mandatory orientations, dual credit students should also receive mandatory counseling in courses and major objectives. States should facilitate coordinated mandatory advising through legislative policy support and funding for standalone dual credit counseling services. These services could provide dual credit students the tools they need to understand and navigate the college setting. Coordinated high school and college academic and personal counseling could serve to shape a more well-informed targeted selection of college courses for dual credit students.

**Course and Unit Articulations**

Finally, existing research supports the need for states to develop and legislate uniform articulation of courses between high schools, community colleges, and universities (Kim, Barnett, & Bragg, 2003; Townsend & Wilson, 2006). Dual credit students in all three dual credit options (exam-based, early college high schools, and standalone dual credit programs) face many challenges when counting courses earned at the universities they end up attending. Private, public, and out of state institutions of higher learning all have separate policies related to dual credit. If students are lucky, individual campuses and systems may have already articulated courses they have completed. However, many students have to depend on individual campus evaluation of dual credit courses for lower-division courses in general education and major.

Further, high school students also have to navigate the policies of their individual high schools. Some high schools accept dual credit courses for high school graduation credit.
Examples of courses that count for high school admissions credit include United States History, Introduction to U.S. Government, Macroeconomics, Introduction to Statistics, and Calculus. Yet some high school districts only award limited elective credits for college classes. This lack of uniformity is a disservice to high school students. Coordinated efforts to legislate articulation of college, university, and high school courses would define a clearer dual credit path for students and their families. Through articulation, colleges and high schools could remove the ambiguity of how college courses count toward degree completion at their respective institutions.

**Chapter Summary**

This study evaluated the effectiveness of a supportive standalone dual credit program compared to a traditional standalone dual credit program. Specifically, the study calculated differences in student perceptions in key areas. First, the study looked at differences in both programs in student race, gender, socio-economic status, and entering college assessment scores. The results indicated that both the control and Pathways groups were made of high-achieving students from two dominant racial backgrounds: White and Asian students. Second, the study examined differences in academic confidence between both groups. Again, the results of the study supported the literature’s contention that mainly high-achieving students with already strong academic confidence participate in dual credit programs. Third, the study examined how students perceived levels of standalone dual credit program student support. The results for both groups revealed no significant difference between both groups. Finally, the study looked to answer differences in gained knowledge for both groups in the following areas: a) community college degree requirements, b) community college transfer process to the university, and c) admission requirements to the University of California system. Analysis of this process revealed Pathways students had significant differences in perceived knowledge of all three areas.
Specific to Pathways students, this study evaluated student perceptions as to the value of Guided Pathway elements designed under the Guided Pathways Four Pillar Framework. First, the study examined student perceptions of the required academic roadmap. The roadmap differs from traditional student educational plans in that it holds a vetted preset pattern of courses that lead to a preset degree option. Second, the study examined the impact of required dual credit high school and college counseling specific to the Pathways program. Third, the study also captured student perceptions as to the impact of cohort-style learning and peer support specific to the Pathways program. Finally, the study looked at student perceptions as to the functional learned college knowledge they gained through participation in the Pathways program. The results of the survey point to positive student perceptions for all Guided Pathways elements measured in relation to the Pathways program.

This study presents preliminary support for the Pathways standalone dual credit program. However, the research notes the limits of the study. There is no doubt that participating students find value in the program. The study also presents an example of how standalone dual credit programs can fit within Guided Pathways colleges. High school students find comfort and ease with the vetted preset patterns of courses that lead to preset degrees. The researcher also notes the importance of creating uniform policies to make the dual credit journey less stressful for participating students. Furthermore, the researcher also notes the need to integrate recruitment policies and practices that encourage diversity in the population of dual credit programs.
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APPENDIX A: CONSENT FORM

Evaluating the Effectiveness of a Structured and Support Based Standalone Dual Credit Program

College Early Start Research Student Survey and Parent Consent Form

Your child is invited to participate in a web-based online survey designed to better understand College Early Start dual credit students at San Joaquin Delta College. The research is being conducted by Pablo Ortega, a doctoral student at The University of Pacific. The survey should take approximately 20 to 30 minutes to complete. Participation in this survey is voluntary. You may refuse to take part in the research or exit the survey at any time without penalty. All data collected will be used for research purposes only and will remain with the researcher only. Data collected will be used for the purposes of improving the college early start program at San Joaquin Delta College.

Although there are no foreseeable major risks involved in participating in this study, there exist the minimal risk of loss of confidentiality and also a minimal psychological risk that may occur from discomfort in taking this survey. If you find some questions cause you discomfort, you may choose not to answer them without penalty. Your survey is collected online via google docs where data will be stored in a password protected electronic format.

Signing the parent consent form allows this researcher permission to request data through your child’s San Joaquin Delta College Student ID. Specifically, this research will collect data related to your child in the following areas:

1. Information from this student survey
2. Archival data from San Joaquin Delta College transcripts, academic history, assessment levels, and 4) demographic information from the San Joaquin Delta College application.

All data collected will be merged together using the student ID. Once the data is merged, the researcher will remove the student ID. The removal process allows the researcher to generate confidential analysis of all data collected.

You will receive no direct benefits from participating in this research study. However, your responses may help us learn more about the types of students that participate in College Early Start programs. If you have questions at any time about the study or the procedures, the researcher can be reached via phone at 408.221.6217 or via email at p_ortega1@pacific.edu. Dr. Robert Calvert, Faculty Advisor, can be reached at rbcals@gmail.com.

Participating students that complete the survey will be entered into a raffle to win a Nintendo Switch Game Console. The raffle drawing will take place on Friday September 27, 2019. The winner will be notified via email through their San Joaquin Delta College student email.

If you have additional questions, concerns, or complaints that you wish to address with someone other than the lead researcher, you may contact the Office of Research and Sponsored Programs to speak to someone independent of the research team at (209) 946-3903 or IRB@pacific.edu

Please read and check one of the following:

Once you have read the above, please select your choice regarding your child’s participation in this research survey. Student/child name:

I have read this form and know what the survey is about. Please check your selection.

My child may take part in this survey ______ My child may not take part in this survey ______

Student signature: ___________________________ Date ________________

Parent signature: ____________________________ Date ________________

IRB Approved: 8/19/19

Valid through 6/30/20
Subject: Take Online Survey for chance at $50 Visa Gift Card

Dear student,

My name is Pablo Ortega and I am a doctoral student at the University of Pacific. You are invited to participate in an online research survey regarding your experiences taking college classes at Delta College as a high school student. The survey takes about 20-30 minutes to complete and is made up of multiple choice questions.

Participants that complete the survey and consent form process will be entered into a drawing for a $50 gift certificate. Drawing will take place January 2, 2020 and you will be notified via email January 3rd.

Required eligibility to participate in the online research survey:

- You must be a current/former high school college early start or dual enrollment student at Delta College.
- You must have taken at least one Delta College course as a high school student in the time periods of spring 2016 through spring 2019.

To participate, please click on the following hyperlink https://forms.gle/w1XaNF7Xx7jBv5c6 to go directly to the online survey.

- You are asked to complete the voluntary survey as soon as possible but no later than one week after receiving this email.
- You are also asked to complete the attached consent form.

Once you have completed the voluntary survey, I will send you the consent form with instructions. You can also fill out the attached consent form and return it to me. I will reach out to you once you have completed the survey with instructions on how to return the consent form.

Note: You must complete the survey and the consent form in order to be entered into the drawing for the $50 Visa Gift Certificate. If you are under 18 years of age, your signature as well as your parents signature is required on the consent form.

Thank you so much for your consideration in taking this survey. Your insights are very valuable to us and may be used to improve the college early start program at Delta College for future students. Remember, I need both the survey and the consent form in order for you to be entered into the drawing.

Warm regards,

Pablo Ortega

Doctoral Student (IRB 19-99)
San Joaquin Delta College Counselor
Research sponsored by The University of Pacific Benerd School of Education
Online College Early Start Student Survey

This online research survey is sent to you because you are a former or current Delta College student and College Early Start student. A College Early Start student is a high school student that enrolled and completed Delta College courses through the college early start program at Delta College. Your insights as a current or former college early start students are important and will help my research improve college early start programs at Delta College.

Your participation is voluntary and information collected will be identified through your Delta ID. Information collected through this survey will be stored in a confidential place and will not be shared with anyone. Data collected from this survey will be merged with archival data about the student collected from San Joaquin Delta College. Specifically, data collected will include your child's academic transcripts, assessment scores, and demographic information collected from the San Joaquin Delta College Application. Once data is merged, the student identification number will be removed from the data file in order to create a confidential analysis of the data.

The survey requires 15-30 minutes to complete. Thank you for your participation. If you want to discuss the survey or have additional questions you may call me (the researcher) or the University of Pacific IRB office at (209) 946-3903 or email atrb@pacific.edu referencing Pacific IRB #19-99.

PLEASE NOTE: After submission of this survey, an electronic consent form requiring the student and parent signatures will be emailed to you. Note: If the participant is 18 years of age or older, only participant signature is required. Once consent forms are signed, please return electronically via email or Docu-sign. Information collected in this survey will only be used once your consent form is signed and returned.

All participants with completed consent forms will be entered into a drawing for a $50 Visa gift certificate. Drawing is held on January 2, 2020. Winners and non-winners will be notified via email on January 3, 2019.

DEADLINES: PLEASE SUBMIT SURVEY AND RETURN SIGNED CONSENT FORMS WITHIN 1 WEEK OF SURVEY COMPLETION.

Researcher: Pablo Ortega  University of the Pacific Doctoral Student  cell phone: 408.221.6217

* Required

1. Email address *
Please tell us about yourself.

2. Please enter your Delta ID.
   Example of proper Delta ID format (98-000-0000)

3. Please enter your complete delta college email.

Please note, your email will be used to send you the electronic consent form.

4. Please provide your parent email address.

Please note, your parent’s email will be used to send them electronic consent form.
5. What is your current age?

   *Mark only one oval.*
   - [ ] 13-14
   - [ ] 15-16
   - [ ] 17
   - [ ] 18 or over

6. What high school are you currently attending or graduated from?
   (full name of your primary high school of attendance)

   ___________________________________________________________

7. What is your college early start high school of origin?
   Please enter the full name of the high school. (PLEASE DO NOT ABBREVIATE YOUR HIGH SCHOOLS NAME)

   ___________________________________________________________

8. What is your gender?

   *Mark only one oval.*
   - [ ] Male
   - [ ] Female
   - [ ] Other
   - [ ] Prefer not to answer
9. Are you a current or former participant of the MHHS Mustang College Early Start Pathways program?

*Mark only one oval.*

☐ Yes
☐ No

10. What is your current educational grade level?

*Mark only one oval.*

☐ 9th
☐ 10th
☐ 11th
☐ 12th
☐ Graduate from high school
☐ No longer enrolled in high school

11. Please check the options you identify with (you are not required to answer)

*Check all that apply.*

☐ White
☐ American Indian or Alaska Native
☐ African American or Black
☐ Hispanic/Latino
☐ Asian
☐ Multi-racial
☐ Other
12. Has there been a time in the last 6 months when you were hungry and you did not have any food to eat at home?

*Mark only one oval.*

☐ Yes
☐ No

13. Please check any support program/s you participated in while taking college courses through the college early start program.

*Check all that apply.*

☐ Tutorials/Writing lab/Math Lab
☐ Instructor lead tutoring after or before class
☐ Counseling/Advising
☐ Library Services

14. Before you started taking college classes did you feel you could succeed academically in college courses?

*Mark only one oval.*

☐ Yes
☐ Not sure
☐ No
15. Before you started taking college classes as a high school student, did you feel you were mature enough to take college classes at San Joaquin Delta College?

*Mark only one oval.*

- Yes
- Not sure
- No

16. Before you started taking college classes, did you feel you were academically prepared to succeed in college level courses?

*Mark only one oval.*

- Yes
- Not sure
- No

17. Before you started taking college classes, did you feel your parents believed you could succeed in College Early Start courses?

*Mark only one oval.*

- Yes
- Not sure
- No
18. 5. Before you started taking college classes, did you think your high school teachers or counselors believed you could succeed in college level courses?

Mark only one oval.

☐ Yes
☐ Not sure
☐ No

19. 6. How do you feel your academic skills compare to the academic skills of traditional community college students in your college classes?

Mark only one oval.

☐ Above
☐ Slightly above
☐ Equal
☐ Slightly below
☐ Below

20. 7. While participating in the college early start program, did you feel supported by your parents?

Mark only one oval.

☐ Yes
☐ Not sure
☐ No
21. While participating in the college early start program, did you feel comfortable asking your peers for help with class projects?

**Mark only one oval.**

- [ ] Yes
- [ ] Not sure
- [ ] No

22. While participating in the college early start program, did you receive academic advising or academic counseling from college staff or instructors?

**Mark only one oval.**

- [ ] Yes
- [ ] Not sure
- [ ] No

23. While participating in the college early start program, did a high school counselor help you select the college courses needed to complete your college academic goals?

**Mark only one oval.**

- [ ] Yes
- [ ] Not sure
- [ ] No
24. While participating in the college early start program, did you complete a college student educational plan with a college counselor?

*Mark only one oval.*

- Yes
- Not sure
- No

25. While participating in the college early start program, did you take classes that later you discovered you did not need to take?

*Mark only one oval.*

- Yes
- Not sure
- No

26. Which of the following statements best describes your knowledge of the requirements needed to earn a two-year degree at the community college?

*Mark only one oval.*

- I already knew the requirements to earn an associate degree before CES and still feel comfortable knowing what’s required
- Before CES, I did not know the classes required to earn an associate degree but after CES I now know the requirements of earning a two-year degree.
- Before CES, I did not know the requirements needed to earn a two-year associate degree, and after CES, I still don’t know the requirements.
- None of these.

Note: CES references the abbreviated form of the College Early Start Program.
27. Which of the following statements best describes your knowledge of the requirements needed to enter a four-year college or university after high school?

**Mark only one oval.**

- I already knew the requirements to enter a four-year university after high school and after feel comfortable knowing the requirements to enter a four-year university after high school.
- Before CES, I did not know the requirements to enter a four-year university after high school but after CES I now know the requirements to enter a four-year university.
- Before CES, I did not know the requirements to enter a four-year university after high school, and after CES, I still don't know the requirements.
- None of these.

28. While participating in college early start programs, have you learned about the transfer process to a university?

**Mark only one oval.**

- Yes
- Not sure
- No
29. Which of the following statements best describes your knowledge of the student college support services? (examples: tutorials, counseling, financial aid)

Mark only one oval.

☐ I already knew about student support services at the college and still feel comfortable with my knowledge about student support services.

☐ Before CES, I did not know about support services, but after CES, I now know about student support services offered by the college.

☐ Before CES, I did not know about student support services at the college and after CES, I still don't know about student support services offered at the college.

☐ None of these.

30. Is participation in the college early start program helping you gain knowledge you will need to succeed in college or university after high school?

Mark only one oval.

☐ Yes

☐ Not sure

☐ No

31. Is participation in the college early start program helping you understand what is expected of a college student?

Mark only one oval.

☐ Yes

☐ Not sure

☐ No

Complete this section only if you participated in the MHHS Mustang Early College Pathways.
32. Did taking guidance courses in the Pathways program help you better understand how to succeed in a college environment?

Mark only one oval.

☐ Yes
☐ No
☐ I didn't take guidance courses.

33. Did completing a college student educational plan (SEP) help you understand how Pathways courses help you complete a college degree? (SEP is a student educational road map that charts out the courses needed to complete your educational goal)

Mark only one oval.

☐ Yes
☐ No
☐ I didn't complete an SEP

34. Did you and your cohort classmates provide each other with support that helped you succeed in a college course?

Mark only one oval.

☐ Yes
☐ Not sure
☐ No
35. Which of the following statements best describes your intent to enter a four-year college or university after high school?

**Mark only one oval.**

- [ ] I feel confident I will attend a college or university after high school, and after participating in Pathways I still feel confident I will attend college after high school.
- [ ] Before Pathways, I did not feel confident I would attend college or university directly after high school, but after Pathways, I now feel confident I will attend college or university after high school.
- [ ] Before Pathways, I did not feel confident I would attend college or university directly after high school, after Pathways I still don’t feel confident I will attend college or university after high school.
- [ ] None of these

36. Did the preset pattern of Pathways courses help simplify your experience participating in the college early start program at San Joaquin Delta College?

**Mark only one oval.**

- [ ] Yes
- [ ] Not sure
- [ ] No

37. Did meeting with both the Pathways high school and college counselor help you understand the requirements of completing your academic college goal?

**Mark only one oval.**

- [ ] Yes
- [ ] Not sure
- [ ] No
25. Did having online access to your Pathways student educational plan at the college and high school help you know exactly what classes to take each semester?

Mark only one oval.

☐ Yes
☐ Not sure
☐ No