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How Dual Enrollment Shapes College Readiness: Student Reflections from California's College
and Career Access Pathways Program

A dissertation submitted in partial satisfaction of the
requirements for the degree for the degree Doctor of Education

by

Ayesha Zia

2026

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ABSTRACT OF THE DISSERTATION

How Dual Enrollment Shapes College Readiness: Student Reflections from California's College
and Career Access Pathways Program

by

Ayesha Zia

Doctor of Education

University of California, Los Angeles, 2026

Professor Jordan Rickles, Co-Chair

Professor Mark Hansen, Co-Chair

In California, college readiness is an ongoing concern as the state pushes to increase college completion rates. Dual enrollment has expanded rapidly as a strategy for increasing college access and preparing students for postsecondary education. This qualitative study examined how former participants in California's College and Career Access Pathways (CCAP) dual enrollment program perceived the influence of their dual enrollment experiences on their college readiness and transition to higher education. Data were collected through semi-structured interviews with 19 former CCAP students who participated in dual enrollment on their high school campuses between 2022 and 2025 and completed at least six units of college coursework after graduation. The results indicated that both first-generation and continuing-generation students perceived CCAP dual enrollment as beneficial for college readiness by providing early exposure to college expectations, independent learning, time management, and college-level

coursework. However, students had limited exposure to college support services and the social environment of college, and some, particularly STEM students, still struggled with increased rigor and independence after transitioning to a university. The findings suggest that although high school-based dual enrollment can support college readiness, simply providing access to college coursework may not fully prepare students for the academic and institutional demands they will encounter after high school. This study can guide higher education partnerships in understanding the value of dual enrollment for college readiness while identifying ways to strengthen the authenticity of dual enrollment experiences.

The dissertation of Ayesha Zia is approved.

Kevin Eagan

Jordan Rickles, Committee Co-Chair

Mark P. Hansen, Committee Co-Chair

University of California, Los Angeles

2026

DEDICATION

I dedicate this dissertation to my husband, Amir, whose unwavering support has carried me not only through this journey, but through every step of my career. Thank you for always believing in me and for the many sacrifices you made during the days and nights I spent working on this project.

To my beautiful and incredible daughters, Sidra, Safora, and Ameera, thank you for being my constant cheerleaders throughout this process. You encouraged me when I felt overwhelmed, reminded me that I could finish, and celebrated every step along the way. Your love and encouragement meant more to me than you will ever know.

I am also deeply grateful for the love and support I have received from my mother-in-law, family, in-laws, and friends throughout this journey. I feel incredibly fortunate to have such wonderful people in my life. I love you all very much, and I share this accomplishment with each of you.

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Most importantly, I want to thank my husband and daughters, who supported me through the many long days and nights devoted to this dissertation. They gave me the time and space I needed to complete this work, encouraged me when I needed it most, and made sacrifices alongside me throughout this process. I am grateful to them, and I am very much looking forward to having more time to spend together again.

VITA

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CHAPTER ONE: INTRODUCTION

This study investigated the implementation of College and Career Access Pathways (CCAP) dual enrollment through one California community college, focusing on how these courses develop college readiness among students at the partner high school sites. After 18 years of extensive research, Dr. David T. Conley (2010) came to define college and career readiness as the degree to which students possess the knowledge, skills, and dispositions necessary to successfully enter and persist in post-secondary education or post-high school training, without the need for remediation. His framework for college and career readiness is built on what he calls the “four keys” that students need to develop to succeed in postsecondary education and career pathways. Conley emphasizes that readiness must be understood beyond a cut score or GPA; rather, the definition is actionable, focusing on what students should know and be able to do in general terms. Guided by this framework, the goal of this study is to examine how participation in CCAP dual enrollment contributes to—or falls short of—developing these dimensions of college and career readiness.

Background to the Problem

California’s Master Plan for Higher Education was established in 1960 and spurred significant growth in college enrollment and completion rates, including new campuses being built and existing campuses expanded, growth that was crucial in 1960, when only 11 percent of adults of prime working age (25-54) had a bachelor's degree. By 2022, about 55 percent of working-age Californians (ages 25–64) had earned some form of postsecondary credential, including an associate’s degree, bachelor’s degree, or certificate (Johnson & Perez, 2024). Of those, roughly one-third or 36.5% of adults had earned a bachelor’s degree or higher by 2023, according to the U.S. Census. Although this percentage represents steady progress compared to

prior decades, progress still falls short of the levels needed to meet projected workforce demands (Johnson & Perez, 2024). The Governor of California has set a goal for 70% of working-age adults to earn a postsecondary credential by 2030; however, current attainment levels remain 14-15 percentage points below this target and three points below the state's 40% bachelor's degree goal (Governor of California, 2022; Johnson & Perez, 2024).

Moreover, California has been reported as ranking near the bottom of the states in baccalaureate attainment (Geiser & Atkinson, 2010; Johnson & Perez, 2024; Shut Out, 2021): a recently released Public Policy Institute of California (PPIC) 2026 report indicates that despite progress, California “still has a long way to go to catch up with states that have the best outcomes” and currently ranks 26th in BA attainment (Wigul & Johnson, 2026). Compared to young adults in other states, California-born young adults are less likely to earn a bachelor's degree. Researchers partly tie this to California having one of the lowest rates of direct enrollment into four-year colleges and persistent challenges in transfer from community colleges (Mejia et al., 2023a; Wigul & Johnson, 2026). Although many California students begin their postsecondary education at a community college, only 16% of students who first enrolled at a California community college earned a bachelor's degree from a UC or CSU within eight years, compared with 72% of students who began at a UC or CSU (Mejia & Johnson, 2025).

Degree attainment is not only critical to meeting the State's workforce needs, persistent low degree completion rates are a concern as higher education has been and remains one of the greatest drivers of social mobility, and a bachelor's degree provides the best chance for attaining a job and economic security (Bohn, 2014; Bragg & Taylor, 2014; Johnson et al., 2016; Legislative Analyst Office, 2024; Mejia et al., 2023a; Reber & Smith, 2023; Torche, 2011; Torpey, 2021) as well as improving long-term economic and career outcomes (Lundy-Wagner et

al., 2026; Wigul & Johnson, 2026). Notably, the University of California reported that their first-generation graduates surpassed their parents' median household income within six years of graduation (University of California Office of the President, Institutional Research and Academic Planning [UC IRAP], 2017) which highlights the importance of college completion. Expanding meaningful access to higher education is critical for both California residents and the state's economy. Although the number of high school graduates is expected to remain relatively stable over the next decade, increasing investments in college access could lead to higher rates of college enrollment (Johnson et al., 2019b)

Demographic shifts in California's college-age population are also noteworthy. A solid majority of California's future college-age population now comes from demographic groups that have been historically underrepresented in higher education, including Latinos, African Americans, and those who are low income or the first in their families to go to college. For example, first-generation students comprised 42% of University of California undergraduates and 45% of incoming freshmen (UC IRAP, 2017), and the same UC report showed that their first-generation students often enter higher education with fewer familial resources and less exposure to college-going knowledge than their continuing-generation peers. They are also more likely to come from lower-income households and linguistically diverse backgrounds. State and national research shows that these demographic groups are less likely to complete a college degree than their peers (Legislative Analyst's Office, 2024; Johnson et al., 2019; Johnson & Perez, 2024; Mejia et al., 2023a; Mejia & Johnson, 2025; Perez & Gomez, 2024; Perez et al., 2025; Rodriguez et al., 2019; Shut Out, 2021; University of California, 2025b; Velasco et al., 2024b; Yue et al., 2018; Zinshteyn, 2024). Despite strong educational aspirations among Latinos and low-income Californians (PPIC, 2018), significant barriers with respect to college readiness,

access to college, and college completion continue to lower underrepresented students' odds of obtaining college degrees (Johnson et al., 2019; Lundy-Wagner et al., 2026).

From Access to Outcomes: The Push for Dual Enrollment

The reality is that more California students are graduating high school: 87% in 2025, according to the California Department of Education (2025); however, many high school graduates are entering college without the requisite skills needed to succeed in college (Chen, 2020; Conley, 2010; Hall, 2023; Moore et al., 2010; Venezia et al., 2004) which impacts completion. California has therefore made significant investments to improve college (and career) readiness. In 2022, the State launched the Golden State Pathways Program (GSPP), a \$500 million initiative designed to integrate college-preparatory coursework with career pathways. Central to this is dual enrollment, which is seen as a way to improve student outcomes (Hsieh, 2025) and improve student preparation.

Dual enrollment, which allows high school students to take college courses while still in high school for college credit has emerged as a leading strategy to get students ready for college. Dual enrollment courses are offered by community colleges and four-year universities, allowing younger students to earn college credit (while in some cases simultaneously satisfying high school graduation requirements). Dual enrollment can take several forms. Traditional dual enrollment typically takes place on college campuses, where courses are taught by college faculty and primarily enroll traditional college students, with only a small number of high school students participating. In this paper, I refer to this model as *independent dual enrollment*, in which students individually enroll in college courses on college campuses alongside college

students ¹. Another increasingly common model in California is *College and Career Access Pathways (CCAP) dual enrollment*, in which community colleges partner with local school districts to offer college courses specifically to high school students, on their high school campuses. This study focuses specifically on students who participated in CCAP dual enrollment. However, because much of the existing research examines dual enrollment more broadly and does not distinguish between specific models, I often draw on broader dual enrollment literature. Nationally, high school-based dual enrollment is the most common form of dual enrollment, with approximately 80% of dual enrollment students taking college courses at their high school (Fink, 2026).

California's CCAP dual enrollment programs operate under Education Code 76004 and are distinct from independent dual enrollment governed by Ed Code 48800, which includes individual special admits and earlier partnership models emphasizing advanced scholastic or vocational work. CCAP dual enrollment has changed the way dual credit has been offered in the State. Assembly Bill (AB) 288 states that CCAP programs must have a specific purpose of serving students who may not already be college-bound or who are underrepresented in higher education. The definition of "college-bound" and "underrepresented in higher education" is then locally defined by the district's governing board. Under California law, these partnerships are intended to create more seamless pathways from high school to community college by

¹ Also referred to as the "à la carte" model of dual enrollment (Ryu et al., 2024)

supporting career technical education, preparation for transfer, improved high school completion, and the development of college and career readiness. Since AB 288, California has enacted additional legislation and policy reforms aimed at reducing barriers to dual enrollment. CCAP agreements also support more intensive dual enrollment structures, including Early College High School models where students complete a structured sequence of college courses while still enrolled in high school, on their high school site, often with the opportunity to earn an associate degree.

Dual enrollment has been associated with a host of positive outcomes, including improving college access and success (An, 2015; An & Taylor, 2019; Burns et al., 2019; Fink et al., 2017; Fink & Jenkins, 2023; Rodriguez et al., 2023). More recent research suggests these benefits may extend beyond postsecondary education, with dual enrollment participants earning 4% to 9% higher wages after high school graduation (Dhaliwal et al., 2025). Countrywide, dual enrollment interest and participation have seen a remarkable surge over the past two decades, with some reports suggesting that almost 90% of high schools nationally are now offering dual credit courses (National Alliance of Concurrent Enrollment Partnerships, n.d.; Shivji & Wilson, 2019). As of 2024, one-fifth (20.4%) of U.S. community college enrollment consisted of high school students (American Association of Community Colleges, 2024). This growth is enthusiastically supported by students, parents, policymakers, and administrators (Taylor et al., 2022). Nationally, dual enrollment participation expanded from an estimated 300,000 students in the early 2000s to approximately 1.5 million students in 2021–22 (Fink, 2024; Taylor et al., 2022; Velasco et al., 2024a), with some recent estimates suggesting participation may have exceeded 2 million by 2022–23 (Velasco et al., 2024a; Williams, 2024).

From Early Access to Inclusive Access: The Rise of CCAP

Many states, including California, have seen growth in dual enrollment through efforts to remove barriers to access and bring college courses directly onto high school campuses, intentionally expanding access for historically underserved students. Dual enrollment is one of the fastest-growing areas of California higher education. Community college dual enrollment increased from approximately 37,000 full-time equivalent students in 2018-19 to more than 65,000 in 2025-26, a 76% increase in just six years (Legislative Analyst's Office [LAO], 2026). Dual enrollment is growing much faster than other types of enrollment: growth has far outpaced regular credit enrollment, noncredit enrollment, and incarcerated student enrollment (LAO, 2026). In fact, CCAP dual enrollment is creating a new kind of enrollment pressure for California community colleges because of its rapid expansion (LAO, 2026). This growth took shape through Assembly Bill 288 (AB 288), passed in 2015 and implemented in 2016, which created CCAP partnerships between community colleges and K–12 school districts. These agreements aim to increase college access, especially for underrepresented students, by waiving fees, providing free textbooks, and allowing up to 15 college units per term. They allow dual enrollment courses to be offered on high school campuses during the regular school day, enabling entire groups of high school students to enroll together while waiving college enrollment fees.

The rapid growth of dual enrollment in California reflects decades of evolving policies designed to expand college access for high school students. The Public Policy Institute of California (PPIC), a nonprofit, nonpartisan research institute focused on California policies, reports that one-third of high school students in the State are now taking dual enrollment (Ugo &

Assan, 2026), with a significant increase in the number of 9th graders and even middle schoolers through middle college and early college initiatives.

Although independent dual enrollment existed in California in limited forms before 2000, subsequent legislation like SB 379 (2013) and AB 413 (2019) codified early college and middle college high school structures. Independent dual enrollment held on college campuses or outside the regular high school day presented significant barriers for many students. Commitments such as employment, extracurricular activities, and family responsibilities often limited students' ability to participate in dual enrollment (Feger & Miles, 2020; Hooper & Harrington, 2022). Restrictive eligibility criteria prevented some students from participating. In particular, minimum GPA requirements were barriers for certain students. Furthermore, the self-selection nature of independent dual enrollment models (students had to opt in and navigate the process independently), coupled with limited advising, meant that many students, particularly those historically marginalized in higher education, were left out due to a lack of knowledge, guidance, or encouragement.

Statement of the Problem

Despite increasing access to higher education in California, college completion rates remain a significant concern, particularly among students who begin their postsecondary education at community colleges (Edmunds et al., 2017; Jackson et al., 2019; Johnson & Cuellar Mejia, 2026). California Governor Newsom has set a goal of 70% of working-age Californians (ages 25-64) to earn a postsecondary degree, certificate, or credential by 2030. This initiative aims to align higher education with workforce needs. Achieving this goal requires not only increasing access to higher education but also ensuring that students enter college prepared to succeed. A growing body of research points to gaps in college readiness as a key contributor to a

lack of college completion and persistent educational inequities (An & Taylor, 2019; Conley, 2012; Jackson & Kurlaender, 2014). That is, students who enter college academically and institutionally prepared are more likely to avoid remediation, persist, and successfully complete college-level coursework (An & Taylor, 2015; Belfield et al., 2020; Conley, 2010; Roderick et al., 2009).

However, many California high school students demonstrate low levels of college readiness (Hurtt et al., 2023; Ugo & Assan, 2025) despite high rates of high school completion. While 87% of California high school students graduate within four years, only 23% meet statewide test standards for academic preparedness, and just over half (52%) are considered college or career ready based on broader readiness indicators (Ugo & Assan, 2025; Ugo & Assan, 2026). These readiness gaps can persist as students transition into postsecondary education. In fact, recent internal reporting from institutions such as UC San Diego highlights that many first-year college students arrive without mathematics skills and writing proficiency (University of California San Diego, 2025). This data suggests that graduation alone does not necessarily reflect students' readiness for postsecondary success. According to Conley (2010), certain academic skills and behaviors are necessary for high school students to meet college level expectations, yet many current high school systems do not adequately prepare students in these areas.

These readiness gaps are especially consequential in California's post-AB 705 policy environment, where most students begin directly in transfer-level coursework and placement into remedial courses is no longer permitted. In addition, there is pressure to succeed in an educational system that enrolls a high proportion of students from groups that have historically experienced lower persistence and graduation rates. For example, only 15% of low-income

students are considered college ready, compared to 31% of their higher-income peers, with similarly pronounced gaps across racial and ethnic groups (Ugo & Assan, 2026).

Efforts to improve college readiness at the high school level have increasingly focused on expanding access to dual enrollment, particularly those dual enrollment courses offered during the regular high school day and designed to serve students who are not traditionally college-bound or who are underrepresented in higher education (California Community Colleges Chancellor's Office, 2016a, p. 6). While CCAP is positioned as a readiness intervention for historically underserved groups, there is limited evidence demonstrating how dual enrollment offered to high school students in a cohort on their high school campus supports the development of college readiness. Approximately one-third of high school students in the state participate in dual enrollment; however, at the moment, only 12% of these students are classified as college ready according to state metrics (Ugo & Assan, 2026). These findings raise important questions about how participation in college-level coursework during high school translates into meaningful preparation for college success. Similarly, limited qualitative research in the State has examined students' perceptions of the value of their dual enrollment experiences and how they perceive their experiences contribute towards the competencies associated with college readiness. Although dual enrollment is generally associated with positive educational and long-term economic outcomes, research also suggests these benefits are not always experienced equally across student groups (Dhaliwal et al., 2025; Taylor et al., 2022). If CCAP programs are not evaluated for their effectiveness and impact, they may fail to build the academic and college readiness skills students need and even limit their ability to reduce existing educational inequities, particularly for first-generation students who often enter college with gaps in academic preparation (Chen & Carroll, 2005; Conley, 2012; Stebleton & Soria, 2013) and are

especially vulnerable to struggling in higher education. This uncertainty represents a significant policy and practice problem as California continues to expand CCAP as a central strategy for promoting equitable postsecondary outcomes.

Gaps in Research

Despite substantial growth in the dual enrollment studies and literature, researchers continue to identify a need for studies examining students lived experiences, program implementation, and outcomes beyond traditional academic measures (Taylor et al., 2022). Existing research on dual enrollment historically has focused heavily on academic outcomes such as persistence, GPA, and credit accumulation (An & Taylor, 2015; Taylor et al., 2022). While qualitative studies do exist, they represent a much smaller piece of the literature, and only a limited number draw directly on students' voices to understand their lived experiences in dual enrollment.

This gap is particularly evident in California, where CCAP dual enrollment has expanded rapidly under state policy and is increasingly offered on high school campuses during the regular school day. While previous qualitative research on CCAP dual enrollment has primarily centered on staff perspectives or program implementation (Delgado, 2024; Salazar, 2024), far less attention has been given to how students themselves make sense of their transition from high school to college after completing CCAP coursework. Aside from Ulloa's (2024) examination of students' transition experiences, the field lacks studies that capture students' own interpretations of how CCAP prepared them for post-secondary expectations. Taylor et al. (2022) further emphasize the need to diversify the types of outcomes examined in dual enrollment research, calling for greater attention to students' lived experiences and short-term gains and to identify

major gaps in dual enrollment scholarship, including how the design, location and structure of dual enrollment shape outcomes.

Moreover, limited research has examined how CCAP dual enrollment helps students get ready for college beyond just academic skills. Conley's (2010) framework conceptualizes college readiness as academic skills, cognitive strategies, academic behaviors, and contextual knowledge necessary to navigate postsecondary environments successfully, skills that he identifies as essential but often underdeveloped among first-generation and underrepresented students. Prior research suggests that even well-designed readiness programs do not support these areas evenly (An & Taylor, 2015; Bragg & Taylor, 2014; Fink, 2025) and that readiness development varies based on program design and delivery. With continued state funding and increased pressure for students and families to participate in dual enrollment initiatives, further qualitative inquiry is necessary to understand dual enrollment's role in developing college readiness.

Study Overview

Research Questions

The purpose of this study is to examine how participation in CCAP dual enrollment develops former students' college readiness from the students' perspectives.

This study aims to answer these questions:

R1: How do former CCAP dual enrollment students describe the role of dual enrollment courses in preparing them for higher education, particularly in comparison to preparation received in high school courses?

RQ2: What similarities and differences emerge in how first-generation and continuing-generation students describe the impact of CCAP dual enrollment?

Overview of Research Design

This study used a descriptive qualitative design, appropriate for describing and analyzing the experiences of students participating in a program (Merriam, 2009). This approach allowed for an in-depth exploration of participants' experiences in dual enrollment, including their interpretations of key transition knowledge and skills after participating. Data was collected through a semi-structured interview approach with 19 participants who were dually enrolled through Coastal Gateway College (CGC) between 2022 and 2025. Participants were 18 years or older and had previously completed at least one CCAP dual enrollment course in California while in high school and were currently enrolled in a postsecondary institution, such as a community college or four-year university.

Once participants were selected, 45- 60-minute interviews were conducted via Zoom or in person. During these interviews, participants were asked to share their experiences with dual enrollment. Interview transcripts were then analyzed using both deductive and inductive coding approaches. Additionally, coding was informed by Conley's (2010) college readiness framework.

Study Significance

Recent growth in dual enrollment participation in California has been driven by the 2016 CCAP initiative, which offers courses on high school campuses and prioritizes partnerships with historically marginalized communities. High school-based dual enrollment is the most common form of dual enrollment, with approximately 80% of dual enrollment students nationally taking college courses at their high school (Fink, 2026). In California, CCAP dual enrollment is growing much faster than other types of enrollment and the state continues to support dual enrollment with over \$700 million in funding and multiple laws and initiatives such as AB 288,

CCAP, and Vision 2030 (Zhou et al., 2025). Policymakers and educators are working to expand dual enrollment opportunities and promote earlier access to these programs in high school (Friedmann et al., 2024). During this time of growth, the findings of this study can help dual enrollment leaders and practitioners better understand the experiences of dual-enrolled students in the high school environment and identify improvements that would better serve students.

This study also answers a call to action. In Taylor et al.'s (2022) comprehensive research agenda for the dual enrollment community, they identify key priorities in dual enrollment research, including the need to “center equity and justice” (p. 14) and examine the impacts of dual enrollment programs on short-term outcomes such as learning, college aspirations, and readiness. This includes a call for qualitative research, as existing research has “only scratched the surface of the dual enrollment student experience” and more work is needed to inform policy and best practices (p. 25). Although qualitative research on student experiences may not always be generalizable to all students, the findings can still have significant impact by elevating the voices of students whose experiences do not easily conform to dominant narratives (Taylor et al., 2022).

Definitions

College Readiness: The preparation needed for a student to enroll and succeed—without remediation—in credit-bearing college courses, completing them with the proficiency to advance further. It includes academic knowledge, cognitive strategies, behaviors, and an understanding of the college environment (Conley, 2010).

College and Career Access Pathways (CCAP): The program/policy framework created under AB 288, which enables dual enrollment partnerships formed between California community colleges and K–12 school districts under Education Code §76004. CCAP agreements allow

colleges to offer courses on high school campuses during the regular school day and are specifically designed to expand access for students who have been historically underrepresented in higher education or who are not already college bound.

CCAP Dual Enrollment: For the purposes of this study, this model of dual enrollment is defined as a structured, school-based form of dual enrollment in which high school students take college courses through formal CCAP partnerships, often in cohort-based settings on high school campuses. This is distinguished from independent dual enrollment, in which students independently enroll in college courses on college campuses alongside traditional college students.

Dual Enrollment: Dual enrollment is used in many different ways in California. For the purposes of this study, the term is a description of a student's enrollment status for students who are enrolled in both college and high school at the same time. In the California Community Colleges system, dual enrollment students are classified as "special admit students" under state policy.

Early College High School: A structured dual enrollment model in which high school students complete a planned sequence of college-level coursework on their high school campus while earning their high school diploma, often with the opportunity to earn substantial college credit or an associate degree, while still getting support from the high school. In California, Early College High School models may operate through CCAP agreements between K–12 and community college districts. Early College High School differs from the high-school-based CCAP model examined in this study because students typically participate in a more comprehensive and intentionally sequenced program of college coursework.

First-Generation College Student: In this study, “first-generation college student” follows the University of California definition: a student whose parent(s) or guardian(s) have not earned a four-year college degree (University of California, 2025a).

Students from Underrepresented Backgrounds: In this study, I often refer to historically underserved students or students from underrepresented backgrounds in postsecondary education. The descriptor refers to students from groups who have had limited access to postsecondary education or to high-quality educational supports or services. These are students who are first-generation college students, come from racial/ethnic groups historically underrepresented in higher education, are from low-income backgrounds (as defined by free/reduced-price lunch or Pell eligibility), or attend high schools in underserved or rural communities. Note: Different studies and datasets use various descriptors and definitions for student groups, especially when describing race and ethnicity, and no single terminology is perfect (Career Ladders Project [CLP], 2025)

CHAPTER TWO: LITERATURE REVIEW

This chapter presents an overview of literature related to college readiness and dual enrollment. The chapter begins with a mention of the traditional measures of college readiness and their limitations and then introduces a broader conceptual model—Conley’s framework. The next sections examine research on the challenges students face when transitioning to college and the ways dual enrollment has been positioned as a readiness strategy. This includes evidence on how dual enrollment shapes college outcomes and develops college readiness. Structural factors, such as program intensity, course type, instructor type, and course location, are also explored. Because this study focuses on the CCAP model, the review describes its growth, success data, and limitations.

Traditional Indicators of College Readiness and Their Limitations

The literature shows that college readiness plays a crucial role in ensuring students' success in higher education (Conley, 2010; Conley, 2012; Center for Community College Student Engagement [CCSE], 2016; Roderick et al., 2009; Venezia et al., 2004). College readiness has traditionally been measured using academic indicators such as high school coursework, grades, and standardized test scores (Conley, 2007; Desjardins & Lindsay, 2008; Porter & Polikoff, 2012; Roderick et al., 2009). However, these measures have been widely critiqued for relying on narrow metrics that do not fully capture students’ preparedness for postsecondary education. As Conley (2010) argues, the current educational system continues to focus on “redundant and overlapping measures of English and mathematics” (p. 1029). The focus on academic preparedness neglects other essential skills necessary for college success, such as creativity, critical thinking, self-efficacy, self-regulation, and college knowledge (Barnes

et al., 2017). In addition, students have different interests and post-high school aspirations, which can also influence the specific knowledge and skill profiles they need to be ready for college or their careers (Conley, 2010). Empirical evidence further suggests that assessment-based readiness standards inconsistently predict college success, particularly for low-income students and multilingual learners (Rickles et al., 2023). Such findings mirror concerns raised in California research where measures such as Smarter Balanced assessments and Common Core-aligned standards are intended to signal college readiness but do not always account for the academic, behavioral, and other challenges students face when transitioning to college (Hurt et al., 2023; Kurlaender et al., 2019). These limitations suggest the need to examine how students experience and develop readiness beyond traditional metrics, particularly within programs such as dual enrollment.

Conceptualizing College Readiness: Four Keys of College Readiness

Traditional research on college readiness with a focus on academic outcomes has notable limitations, so scholars have increasingly turned to multidimensional frameworks like Conley's readiness framework that recognizes that readiness for college means more than just academic knowledge and addresses different but interconnected aspects of preparedness. In his foundational text, *College and Career Ready: Helping All Students Succeed Beyond High School* (2010), Conley defines readiness as when a student "can qualify for and succeed in entry-level, credit-bearing college courses leading to a baccalaureate or certificate, or career pathway-oriented training programs without the need for remedial or developmental coursework" (p. 1). This study draws on David Conley's college readiness framework, first articulated in 2007 and 2010 and later revised in 2012. Conley outlines four dimensions of college readiness which he interchangeably calls the "Four Keys of College and Career Readiness," and deems essential for

students to enroll and successfully complete postsecondary coursework. Notably, all components are actionable; in other words, they can be taught and learned and are not personality traits or general cognitive abilities.

1. Key Cognitive Strategies: Critical thinking skills needed to learn material at a deeper level and to make connections among subjects.
2. Key Content Knowledge: Mastery of essential academic concepts, factual information, as well as attitudes toward learning
3. Key Learning Skills and Techniques: These include student ownership of learning and specific learning techniques such as time management, effective study habits, note-taking, and the ability to persist through academic challenges.
4. Key Transition Knowledge and Skills: This domain encompasses the information, and awareness students need to successfully navigate the transition to life beyond high school.

Conley (2010) suggests that few high school programs attend to these dimensions in any systematic way. Therefore, students who do have access to information on how to master these areas and understand the importance of doing so have a distinct advantage over students who lack such awareness. A review of research on dual enrollment indicates that Conley's college readiness framework is frequently cited and widely used as a useful lens for understanding student success (An & Taylor, 2015; Bragg & Taylor, 2014; Karp, 2012; Schrynemakers et al., 2019; Youngs, 2021). In particular, studies examining academically underprepared students and postsecondary completion have applied Conley's Four Keys to analyze and predict students' success in postsecondary settings (Karp, 2012; Schrynemakers et al., 2019). Conley (2010) and

Karp (2012) both emphasize that college readiness involves far more than academic skills, helping explain why even academically strong students sometimes drop out.

Conley (2011) presented at a conference where he compared the US education system to other countries, noting some of the flaws. For one, senior year (12th grade) in U.S. high schools is often perceived as the least academically demanding, with a credit-based high school diploma and the college admission system that allows students to stockpile required credits earlier in high school. Students are often least engaged during this year; whereas, in other countries, this senior year is spent on preparing for college and taking general education college courses so when the student begins college, they can begin their major coursework. Conley also criticizes relationships between US high schools with partnering colleges, especially those high schools that have fewer students attending college and higher enrollments of students from low-income families and first-generation students. He points out that other countries with centralized university systems tend to offer more guidance to students. For example, centralized systems such as the UK's UCAS, France's Parcoursup, and the Finnish public education system streamline high school and college pathways, whereas the U.S. higher education system requires students to develop significant contextual knowledge on their own. This lack of built-in guidance can be more challenging for those students whose family members may not have attended college (UC IRAP, 2017). Notably, Conley (2010) encourages dual enrollment as a way to strengthen and develop postsecondary partnerships.

Updating the Four Keys of College Readiness: Adding Ownership of Learning

While the four keys framework has remained conceptually consistent, in 2014, Conley and Eric French revised their definition of college readiness to include student ownership of learning (SOL), suggesting that students who have ownership of learning can be successful in a wide range of learning environments, even when they have less interaction with the instructor or poor instruction. Ownership of learning falls under the key learning skills and techniques, and according to Conley and French (2014), includes extrinsic motivation, goal setting, self-efficacy, self-monitoring and persistence with challenging tasks. Ultimately, they argue that it is these elements which allow students to be successful with completing complex assignments, solving challenging problems and producing high-quality work. That is, while ownership of learning cannot fully compensate for fundamental deficits in content knowledge or achievement gaps, it can help students overcome specific shortcomings and acquire the necessary knowledge to succeed. This skill, although not easily measured or taught, can support students who are underprepared for college. In other studies, SOL has been shown to lead to higher learning success than passive, teacher-centered instruction (Sakai & Bakke, 2022). Chan et al. (2014) also argue for the importance of ownership of learning for student success and as an effective and practical way to support all students in meeting academic and behavioral goals. Giving students an active role in their learning can allow them to be more engaged, better understand learning goals, gather evidence of their own progress and figure out where they need to improve (Chan et al., 2014). It “empower [s] students by teaching them how to take an active role in their education and providing them opportunities to do so” (Chan et al., 2014, p.105). Developing and reflecting on learning strategies trains students’ self-monitoring skills and stimulates metacognition (Conley & French, 2014).

Misalignment Between High School and College in the USA

Misalignment between high school graduation requirements and college can leave students underprepared for their first semester, where early failure significantly increases dropout risk (CCSSE, 2016). Researchers have consistently noted that the transition from high school to college involves more than just a change in setting; it also requires a shift in rigor, preparation, and expectations (Raymond, 2020; Venezia & Jaeger, 2013). Conley (2010) and his team spent 18 years studying what it takes to succeed in college, looking closely at entry level courses and instructor input. Their work, along with that of other researchers, affirmed that college classes are not only harder, but college instructors move at a faster pace, focus on different parts of the material and have very different goals than high school teachers (Conley, 2010; Venezia & Jaeger, 2013). Assessments are also different. Instead of relying on memorization or worksheets, students are often asked to apply critical thinking to draw conclusions from lectures and readings, apply what they have learned, and demonstrate understanding in research essays or more complex exams. Beyond academics, students are also expected to be independent and responsible, meet with instructors if they need help, and seek out campus resources when necessary. These expectations can be quite different from what students experienced in high school, and many are unprepared for the shift (Conley, 2010).

Research suggests that high schools with high concentrations of students in poverty offer less rigorous instruction than high schools with more advantaged students, limiting their readiness for college and contributing to inequities in college access and outcomes (Nowicki, 2019; U.S. Government Accountability Office, 2018; Venezia & Jaeger, 2013). For example, students in these schools have less access to college-preparatory courses, especially advanced

classes like calculus, physics, and AP courses, which adds another layer to existing equity gaps when students arrive at the postsecondary institution.

The Importance of College Readiness for Student Success

Under President Obama, the United States Department of Education prioritized “college and career readiness” for all students (U.S. Department of Education, 2010). President Biden’s education agenda also emphasized improved college access, affordability, and degree completion for underserved students with a commitment to supports and programs that prepare for college success and workforce opportunities (U.S. Department of Education, 2023). These priorities are consistent with research that suggests that underprepared students face academic, psychological, and behavioral challenges that negatively affect their college experience (Metzer & Grant, 2016). Such students are more likely to earn lower GPAs, struggle academically, and drop out at higher rates than their better-prepared peers (Metzer & Grant, 2016; Moore et al., 2010; Sanchez, 2024).

Academically, underprepared students struggle with complex literary tasks (Perin, 2013) and may have to take remedial work that does not count towards their degree (Chen & Simone, 2016; Metzer & Grant, 2016). If developmental courses are not an option, they may not even register in college level math and are at risk of inefficient or confusing pathways, according to a study done by Park et al. (2018). In addition, many students lack understanding of the rigor of college-level work, frequently do not prepare for placement exams, and lack the study skills, time-management strategies and self-regulation necessary to succeed (CCSSE, 2016). They experience isolation and stigmatization when labelled as “unprepared” (Yadusky et al., 2020) and are unable to adapt to the independent living and studying required in college (Thompson et al., 2021). Beyond academic deficits, underprepared students frequently demonstrate reduced motivation (Gabriel, 2018), and lack of engagement with academic and career planning

resources, often underestimating the need for help. Students who enter college unprepared often face other multiple challenges, including financial stress, difficulty meeting academic expectations, and feelings of not belonging, and have limited knowledge of career pathways and opportunities (CCSE, 2016; Tinto, 2004; Nix et al., 2021). These challenges can contribute to increased stress, isolation, and mental health concerns, which in turn are associated with enrollment interruptions and early attrition (Althaus-Cressman, 2023; Cabell, 2024; Joseph et al., 2023).

First-Generation Students and College Readiness

Research suggests that first-generation students enter college with lower levels of academic readiness and are more likely to require remediation, delay enrollment, attend part-time, and experience interruptions in attendance, all factors that could impact a successful transition to higher education (Chen & Carroll, 2005). More recent research also indicates that first-generation students face greater challenges with academic performance, persistence, and degree completion than their continuing-generation peers (Weisen et al., 2024). First-generation students often enter college with less transition knowledge, fewer academic support resources, and limited access to familial guidance about navigating higher education, making the transition to college more challenging than for continuing-generation students (Musawar & Zulfikar, 2025; Pascarella et al., 2004). Ward et al. (2012) and Conley (2010) argue that first-generation students can lack the cultural capital that helps students transition to higher education and eventually navigate college systems, expectations, and norms. These challenges can be compounded when their first-generation status overlaps with other marginalized identities, including race, class, gender, or age (Ward et al., 2012). Uncertainty about academic expectations and course requirements can lead to feelings of stress about whether they belong in college (Godsoe, 2018)

and one study shows how they have fewer effective ways of handling stress and challenges that come with higher education, which can hinder their ability to successfully transition to and persist in postsecondary education (Musawar & Zulfiqar, 2025). In addition, in the absence of family members who attended college, students are often left to navigate admissions, placement, and academic support systems on their own (Althaus-Cressman, 2023; Conley, 2010; Mohker & Jacobson, 2021; Pruitt & Bhardwaj, 2024). Beyond academic skills, research consistently shows that many students, especially first-generation students, enter college unfamiliar with key academic norms, such as attending office hours, time management, study skills, participating in class discussions, or communicating with faculty in ways considered appropriate in academic spaces (Conley, 2010; Pruitt & Bhardwaj, 2024). Mohker and Jacobson (2021) also observed that students from disadvantaged backgrounds tend to rely more on their high schools for support but may not receive adequate resources or guidance if the institutions lack the resources, awareness or counseling capacities. In their study, Leary et al. (2023) found that although first-generation students initially perceived themselves as academically prepared for college, many later recognized gaps in their readiness as they encountered college-level expectations. Students most often struggled with non-academic transition skills, including time management, effective study strategies, critical thinking, and prioritization, and frequently underestimated both the rigor and workload of college coursework.

Evidence of College Readiness Gaps in California

States are making college and career readiness (CCR) the focus of their educational strategies (English et al., 2016) and at least 42 states use at least one CCR indicator for federal or state high school accountability requirements (Hyslop, 2025). In 2010, California adopted

Common Core State Standards (CCSS), and the aligned Smarter Balanced Assessment to improve college and career readiness (Kurlaender et al., 2019).

However, California students still generally are not meeting readiness standards based on current state measures: Smarter Balanced Assessment Consortium (SBAC) testing, A–G coursework, earned college credit, and State Seal of Biliteracy criteria (Kurlaender et al., 2019; Ugo & Assan, 2025; Ugo & Assan, 2026). Recent data indicate that only 45% of California high school graduates meet the state's overall college and career readiness indicators (Ugo & Assan, 2025). However, when readiness is measured using 11th-grade Smarter Balanced Assessment Consortium (SBAC) scores alone, only 23% of graduates were deemed college-ready in 2025, with scores declining post-pandemic and persistent equity gaps (Hurtt et al., 2023; Ugo & Assan, 2026). There are significant disparities in college readiness among different student groups. Socioeconomically disadvantaged (SED) students and English Learners (EL) have much lower readiness levels compared to their peers. Racial/ethnic gaps are evident, with Asian/Pacific Islander and White students performing better than Black and Latino students (Hurtt et al., 2023; Kurlaender et al., 2019; Reed et al., 2023). This echoes prior research that suggests underprepared student groups disproportionately include first-generation, low-income, and minority students, reflecting persistent equity issues in higher education (Metzer & Grant, 2016; Roderick et al., 2009). Readiness gaps are driven by unequal access to college-preparatory coursework rather than individual ability alone. For certain critical gateway courses such as mathematics, course-taking patterns diverge sharply by race and ethnicity, with Black, Latinx, and Pacific Islander students in the state more likely to enroll in lower-level math courses during their senior year, while Asian American and Filipino students are more likely to complete

calculus or AP-level math. These patterns suggest that many students enter college without the preparation necessary for college-level STEM coursework (Reed et al., 2023).

Disparities in readiness are also seen by income level. Approximately 14% of low-income students in the State met college readiness standards, compared to 30% of their higher-income peers (Ugo & Assan, 2026). These disparities are particularly consequential in California's post-AB 705 policy environment, where most students now enroll directly into transfer-level coursework rather than taking traditional remedial sequence; however, Rodriguez et al. (2017) and Hern et al. (2020) reported that before its passage, approximately 80% of California Community College students, 30% of CSU students, and fewer than 10% of UC students were placed into remedial coursework, with these students experiencing significantly lower rates of transfer and degree completion. Therefore, many California students enter postsecondary education with measurable readiness gaps, but these indicators don't explain how students themselves perceive their preparedness.

Dual Enrollment as a Strategy for College Readiness

In California, Governor Newsom has worked with the legislature to provide billions of dollars in targeted areas such as dual enrollment (California Governor's Office, 2025). Dual enrollment initiatives are aimed at helping students complete a post-secondary degree or credential and enter the workforce. Although dual enrollment has well-documented academic benefits, less is known about the extent to which dual enrollment prepares students for the move to college (An & Taylor, 2019; DeHay, 2019), particularly when dual enrollment is offered on the high school site. Studies show that the probability of taking a remedial course for students who participated in dual enrollment is lower than for those who did not participate in dual enrollment (An, 2013; Kim & Bragg, 2008), a pattern also seen when students take rigorous

coursework in high school (Kurlaender et al., 2019). Dual enrollment is often described as a trial period (An & Loes, 2025), providing students with an “authentic” college experience and exposure to the hidden curriculum of higher education (Kanny, 2015; Takano, 2021), a type of “anticipatory socialization and role practice” (Karp, 2012). However, the extent to which this occurs varies by program structure and context (Fink, 2026).

Dual enrollment courses may be offered on college campuses or high school sites and may be taught by college instructors or credentialed high school teachers. Growing evidence suggests that dual enrollment is not a uniform experience as students' opportunities to develop college readiness depend on program design, including course location, instructor type, modality, and the degree to which students are exposed to authentic college expectations (Fink, 2026). As a result, students' opportunities to engage in anticipatory socialization may be different across dual enrollment programs. The “hidden curriculum” referenced in the dual enrollment literature typically includes norms such as understanding faculty expectations, following a syllabus, engaging in academic discourse, seeking help through office hours, and navigating institutional resources (Karp, 2012; Kanny, 2015). An & Loes (2025) discuss how dual enrollment helps students better understand the expectations and structure of college. Yet research indicates that these norms may be more fully revealed in programs where students are in a college environment or interact directly with college faculty rather than in dual enrollment courses offered exclusively on high school campuses (Lile et al., 2017). This variation highlights the need for greater

attention to how, where, and by whom dual enrollment courses are delivered, as these factors may influence the extent of the college environment in student experience (Lile et al., 2017).

Evidence of Dual Enrollment Effectiveness

Dual enrollment has been widely promoted as a mechanism to improve student outcomes and strengthen students' preparation for postsecondary education (Purnell et al., 2024; Rodriguez et al., 2021a), and its momentum has established it as an important pathway to postsecondary education and degree attainment (Belfield et al., 2023; Fink et al., 2017). Nationally, more than 2.8 million students participated in dual enrollment during the 2023–2024 academic year, with nearly three-quarters enrolled through community colleges, highlighting the growing role of dual enrollment in the transition from high school to college (Fink, 2026). Although a lot of research consistently demonstrates the academic benefits of dual enrollment, most studies have focused on enrollment, persistence, GPA, or degree completion. Considerably less is known about how students themselves describe the ways dual enrollment prepared them for college or how different program models shape those experiences. That is, most of the quantitative literature documenting the academic benefits of dual enrollment does not consistently distinguish between courses offered on college campuses versus high school sites, nor between courses taught by college faculty and those taught by qualified high school instructors.

However, the overall evidence base demonstrates positive academic outcomes associated with dual enrollment participation. Dual-enrolled students are more likely to persist in college (An, 2015; An & Loes, 2025; Burns et al., 2019; Gallardo, 2024; Grubb et al., 2017; Schaller et al., 2023; Towns, 2021). Students who take accelerated coursework, especially dual enrollment, have stronger postsecondary enrollment and earnings outcomes by their early 20s compared to those who take no accelerated coursework (An & Loes, 2025; Dhaliwal et al., 2025; Henneberger

et al., 2020; Velasco et al., 2025), although these benefits are not always equitable across all student populations. Students who participate in dual enrollment are more likely to graduate high school (Lee et al., 2022; Lile et al., 2017), enroll in college—particularly in four-year institutions (An, 2013, 2015; A & Loes, 2025; Burns et al., 2019; Giani et al., 2014; Grubb et al., 2017; Ryu et al., 2024; Struhl & Vargas, 2012; Towns, 2021; Zinth & Barnett, 2018). Dual enrollment participants also tend to earn higher grades and GPAs (An, 2015; Kirby et al., 2023; Lee & Villarreal, 2023; Schaller et al., 2023; Towns, 2021) and accumulate more college credits while in high school (Fink et al., 2017; Giani et al., 2014; Struhl & Vargas, 2012). Evidence also suggests that dual enrolled students who start with lower GPAs experience similar gains (Career Ladders Project [CLP], 2025).

In the long term, dual enrollment is associated with greater postsecondary achievement, including degree attainment, full-time attendance, and higher overall completion rates (Lee & Villarreal, 2023; Career Ladders Project & Kern Community College District, 2022; Fink et al., 2017; Ryu et al., 2024; Schaller et al., 2023). Furthermore, some studies suggest that it reduces time to graduation and the number of semesters required to finish a degree, helping students progress efficiently through college (Gallardo, 2024; Schaller et al., 2023). Even when students are less academically prepared, or at risk of failing, they are still more likely to enroll in college and earn a degree within four years if they participated in dual enrollment (Lee & Villarreal, 2023). These programs also serve as means for students to save money on college tuition and to prepare for the demanding responsibilities of college (Cribb, 2021).

Dual Enrollment as an Equity Strategy

Historically, students from underrepresented backgrounds have been less likely to participate in dual enrollment programs; Taylor (2015) suggested that White students tend to

experience greater long-term benefits from dual enrollment than students of color, including higher college acceptance rates. However, a growing body of research finds that dual enrollment improves college access, persistence, and transfer outcomes for low-income students, English learners, and students of color (Karp et al., 2007; Rodríguez et al., 2021a), while also increasing students' awareness of college opportunities and strengthening confidence among those who may question their readiness for higher education (Burns et al., 2019; Giani et al., 2014). In some studies, the benefits of dual enrollment were more pronounced for low-income, first-generation, and racially minoritized students which suggests that dual enrollment may help close equity gaps for historically underrepresented students (Lee et al., 2022). For instance, Ganzert (2012) found that dual enrollment participation was associated with higher first-year GPAs and graduation rates for non-white students and higher graduation rates for female students in their study of 15,527 North Carolina community college students.

An (2013) and Kanny (2015) found that dual credit plays a compensatory role, providing more significant advantages to first-generation college students than to those whose parents have a college education. In terms of race, African American students who took part in a dual enrollment program known as the Linked Learning pathway were more likely to attend a four-year college compared to their matched peers (Taylor et al., 2022). Another North Carolina quasi-experimental study reported favorable outcomes from the early college dual enrollment participation on voting participation and reduced participation in the criminal justice system with higher impacts for black males and economically disadvantaged white students (Swiderski et al., 2021).

Dual Enrollment, Academic Behaviors, and College Knowledge

Dual enrollment provides an opportunity for students to transition more seamlessly from high school to college. Dual enrollment research suggests that participation can support the development of academic behaviors and skills associated with college readiness (An & Taylor, 2015; Lile et al., 2017; Youngs, 2021). Lile et al. (2017) found that dual enrollment helped students develop a clearer understanding of the college-student role, including the skills required for college. Using a nationally representative sample of more than 22,000 postsecondary students, and socialization theory, An & Loes (2025) examined the relationship between dual enrollment participation, engagement, persistence, and transfer patterns. They argued that dual enrollment can be a valuable college readiness strategy as it allows students to better understand the expectations and structure of college and that academic success in college requires independence and more self-accountability in their coursework than what they see in K-12 education.

However, some of the research treats dual enrollment as a single, uniform experience, often without clearly distinguishing where courses are taken (e.g., on a high school campus versus a college campus) or how program structure and course location may shape students' experiences. Considering course location and program type may therefore be important for understanding variation in how dual enrollment supports students' transition to college.

An and Taylor (2015) examined whether high school students who participated in dual enrollment programs were more college-ready than those who did not earn college credit in high school. Using data from the Wabash National Study, the researchers assessed college readiness at the end of students' first year of college based on David Conley's readiness framework. Their study revealed that dual enrollees were more college-ready than non-dual enrollees in three of

the four dimensions: key cognitive strategies, key content knowledge, and key learning skills and techniques. However, there was no significant difference in key transition knowledge and skills between dual enrollees and non-dual enrollees, showing that the program positively impacted college readiness, but exposure to institutional navigation and contextual knowledge may be more limited.

College Campus Based Dual Enrollment and Academic Behaviors

Research further demonstrates the complexity of course location. Research on campus-based dual enrollment suggests that taking college courses on a college campus supports the development of academic behaviors associated with college readiness, including time management, note-taking, communication, and critical thinking (An & Taylor, 2015; Lile et al., 2017). An's (2015) study indicated that dual-enrolled students show higher levels of academic motivation and engagement than nonparticipants. Kanny's (2015) and Johnson's (2021) qualitative studies of high school students taking dual enrollment courses on a community college campus found that early exposure to college coursework led to the development of several key academic behaviors associated with college success, such as self-regulation, help-seeking, independent study strategies, time management, and persistence, largely through early exposure to college expectations. Taking college classes while still in high school can help students better understand how college works and what is expected of them (Johnson et al., 2021; Kanny, 2015). Specifically, Kanny (2015) interviewed five low-income dual-enrollment high school seniors who took classes at community college. Students appreciated the exposure to college-student experience, including academic expectations and the structure of college classes. The students reported gaining important nonacademic skills for succeeding in a college environment as well as academic skills in understanding expectations of adult learners and

gaining self-knowledge of learning styles. Negative aspects of their experiences included feeling judged or targeted for being high school students, and a lack of advising support (Kanny, 2015). Statewide research shows that taking courses on a college campus rather than at the high school is associated with a lower probability of passing but a higher probability of enrolling at a community college after high school (Fink, 2026).

Through taking college classes while in high school, students often learn that they need to take more responsibility for asking professors for help, which is different from the way support is usually provided in high school (Kanny, 2015). Having this early experience can make the transition to college feel less overwhelming and help students feel more prepared for college life (Garcia, 2014). In Imani Cabell's (2024) study of Black students dual-enrolled on a college campus, students similarly described learning to monitor their own progress, set academic goals, and take greater responsibility for their learning. They developed strong relationships with instructors, staff, and mentors who helped them understand how college works and provided crucial guidance and advocacy, helping students feel more confident about their chances of success in college. Peer networks also provide a sense of belonging, mutual support, and motivation. Cabell (2024) reported that students built friendships with other dual enrollees that reinforced time management and self-direction. Taczak and Thelin's (2009) study showed that programs where high school students take college classes do not always work the way people hope and can lead to more problems for the high school students. Limited interaction between dual-enrolled and traditionally enrolled college students prevented dual enrollees from fully experiencing college life and led to uneven classroom dynamic, and frustration. So, as Fink (2026) noted, characteristics such as course location, instructor type, and instructional modality influence students' experiences and postsecondary outcomes.

Research Comparing Dual Enrollment Across College and High School Sites

Several comparative studies suggest that the location of dual enrollment courses may shape students' academic outcomes and experiences, with some studies showing stronger outcomes for students who complete dual enrollment courses on college campuses, including higher first-year GPAs and persistence rates (Alsup & Depenhart, 2022; DeHay, 2019). Smith (2007) found that dual enrollment students taking classes at the college campus had higher educational aspirations than students taking classes on the high school campus.

West (2021) and Lile et al. (2017) found that students felt prepared for college regardless of whether courses were taken at a high school, college campus or online, but participants preferred college campuses for the “real college” experiences, suggesting a connection of a college environment and identity. Students on the community college campus also expressed increased feelings of social acceptance and comfort, because of the interactions with a diverse group of peers (Lile et al., 2017).

In contrast, students taking the dual enrollment course at the high school site reported feeling more like they were not at the level as college students. They also reported stress from balancing high school and college coursework and limited exposure to the college atmosphere and diverse peer groups. Bragg and Taylor (2015) examined the implementation and short-term outcomes of two College and Career Readiness programs in Illinois. Although these programs were not dual enrollment initiatives, the findings offer relevant insight into the role of instructional context. Both programs improved short-term outcomes for readiness, but River College's comprehensive model offered on the college campus produced slightly better results. Students reported that they liked being on the campus, and they became more used to what they needed to do for college. However, the college campus model also posed access challenges such

as lack of transportation which limited participation for some students, particularly those from low-income backgrounds. Both models are beneficial, however. Arnold et al., (2017) examined whether student achievement in dual enrollment courses differed based on course delivery environment and compared dual enrollment students' outcomes to those of academically comparable non-dual enrollment peers and found that participation in dual enrollment courses is associated with stronger academic performance and that students who completed courses on a college campus earned lower grades than those who took the same courses online or at the high school in English and mathematics. They attributed this difference to the familiar environment, less rigor and increased support.

Other studies show that location may not significantly affect outcomes. Studies by Hu and Chan (2021) and Zhang and Redmer (2020) found no differences in college readiness or early academic momentum based on where dual enrollment courses were taken but student background factors such as socioeconomic status and race/ethnicity played a stronger role and participation itself, regardless of location, had positive effects.

Dual Enrollment Impact on Aspirations and Career Goals

Dual enrollment may also influence students' subsequent academic and career pathways. Within California's CCAP program, Rodriguez et al. (2023) found that participants have relatively high college-going rates at 82%; however, the descriptive nature of their research does not establish that dual enrollment caused students to attend college. Dual enrollment may also shape the types of institutions students consider and their postsecondary choices Liu et al. (2022) examined the impact of dual enrollment on students' college application and admission decisions and found that participation increased the number of four-year colleges students applied to, as well as their likelihood of applying to moderately and highly selective institutions, although it

did not increase the overall probability of applying to college. They found that the effects of dual enrollment on overall four-year college applications and admissions were particularly pronounced among Black students in their study, suggesting that dual enrollment may influence postsecondary choices for students who have historically been underrepresented in higher education. Similarly, Lee et al. (2022) found that dual enrollment participation was associated with an increased likelihood of enrolling in college and choosing a four-year institution over a two-year institution. However, the influence of dual enrollment on students' aspirations and postsecondary choices may vary. In a qualitative study of Latinx students who had earned dual credit in high school and later enrolled in engineering programs at a four-year university, Allen et al. (2020) found that dual credit was not a substantial influence on participants' college-going decisions. Instead, students described other factors like family members, peers, and other college-readiness programs as more influential in shaping their college aspirations and choices.

Hu and Chan (2024) looked at a nationally representative longitudinal sample and found that students who participated in dual enrollment were 1.38 times more likely to major in STEM than students who did not participate in dual enrollment. The authors suggest that dual enrollment may provide students with early access to college-level courses and learning experiences that can contribute to the development of students' academic trajectories. However, they also found that taking dual enrollment courses specifically in math or science was not significantly associated with STEM major choice. Collectively, these studies show that dual enrollment may influence students' postsecondary pathways, including where they apply and

enroll and what they choose to study. However, less is known about how students perceive their dual enrollment experiences as influencing decisions about their majors and future careers.

Advanced Placement vs. Dual Enrollment

Advanced Placement and dual enrollment are both ways to bolster college readiness and expose students to rigorous college work. Norris-Shu (2018) examined whether undergraduate students perceived that participation in Advanced Placement (AP), dual enrollment, or both programs contributed to their college readiness and concluded that students rated AP and dual enrollment similarly across most college readiness skills but felt that dual-enrollment was more beneficial than AP in the area of independent learning. Toblowsky and Allen (2016) argued that although AP courses and many high school-based dual enrollment courses can provide academically rigorous coursework, they do not expose students to the college environment, limiting opportunities for students to experience the campus culture. Wyatt et al. (2015) similarly found that both Advanced Placement and dual enrollment were associated with positive postsecondary outcomes, although students earning AP exam scores of 3 or higher showed the greatest persistence, graduation, and first-year GPA outcomes. The authors of this study also found that students completing dual enrollment through four-year institutions had the highest rates of four-year college enrollment, suggesting that the benefits of dual enrollment may vary depending on program characteristics.

Recent CCRC research suggests that AP and dual enrollment may provide different but complementary forms of preparation. That is, Velasco et al. (2025) found that students who combined dual enrollment and AP/IB coursework demonstrated some of the strongest postsecondary and earnings outcomes, suggesting that students can benefit from participating in both accelerated pathways when available.

Variation in Dual Enrollment

Dual Enrollment Intensity

Studies have demonstrated a positive correlation between the number of dual enrollment courses or credits a student completes and their postsecondary achievements. Students who complete at least two dual enrollment courses are more likely to enroll in college, persist, and earn a degree within six years than nonparticipants (Friedmann et al., 2024; Giani et al., 2014). Additionally, the number of credits earned is associated with higher GPAs, graduation rates, college enrollment, and persistence (Dingess, 2018; Garbee, 2015; Kim & Bragg, 2008).

However, scholars have questioned whether the benefits of dual enrollment continue to increase indefinitely or level off at certain points (Taylor et al., 2022). Some research suggests that a moderate amount (one or two courses) may provide the greatest benefits (An, 2013; Karp et al., 2007), while other studies indicate that advantages grow for students who accumulate six, ten, or even twelve or more credits (An, 2013; Radunzel et al., 2014; Villarreal, 2017).

Dual Enrollment Course Type

The type of dual enrollment class students take can matter. Previous research has found that dual enrollment in all core academic subjects generally improves students' college enrollment and degree completion, dual enrollment in math and even English seems to exert the largest influence on grades and baccalaureate attainment (Arnold et al., 2017; Giani et al., 2014). Each additional math class raises the odds of attaining a bachelor's degree within 6 years by a factor of 1.60–1.89 (Giani et al., 2014). Recent studies in California provide further evidence of the benefits of taking English and math through dual enrollment (Friedmann et al., 2024; Rodriguez et al., 2023, 2025)—especially for college readiness, momentum, and associate's degree attainment, higher college completion, and GPAs. This effect is particularly strong for

underrepresented students (Latino, Black, and first-generation students). In contrast, students taking only non-transferable or developmental courses may not gain the same meaningful college advantages, emphasizing the importance of making sure students have access to these transferable courses through dual enrollment. However, even participating in CTE dual enrollment increases the likelihood of enrolling in a four-year institution and increases college GPA by 0.26 points (Karp et al., 2007).

Dual Enrollment Instructor Type

Nationally, the most common dual enrollment model involves certified high school instructors teaching college courses on the high school campus, making questions about instructor type and instructional setting particularly important (Fink, 2026). An unresolved debate in the dual enrollment space is whether outcomes vary depending on whether courses are taught by high school instructors or college faculty (Hornbeck, 2023; Taylor et al., 2022). Ryu et al. (2023) reported that when students take dual enrollment courses with college faculty, they are less likely to pass and tend to earn lower grades than when the same courses are taught by high school teachers—differences that may reflect variations in grading practices and rigor expectation. However, the same study found that students who take dual enrollment with college instructors are more likely to enroll in college later. Students occasionally favor dual enrollment classes led by college instructors anyway because they believe these courses offer more scheduling options and are less challenging than their high school classes (Hornbeck, 2023). Yet, principals in Hornbeck’s (2023) study expressed concerns about rigor when courses were college-taught and preferred high school-taught sections for better content alignment with secondary standards.

Some studies find a relationship between instructor type and student outcomes. Johnston (2023) found a strong relationship between instructor type, classroom climate, and student achievement. That is, Early College High School students taught by credentialed high school teachers in high school classrooms scored an average of 1.02 points higher (a full letter grade) than their peers taught by college faculty in college classrooms and the study attributed part of that success to the supportive atmosphere and strong student-teacher relationships in high school classrooms. Conversely, Zinth (2015) and Taylor et al. (2022) raised concerns about content consistency and instructor qualifications when high school teachers deliver college courses, underscoring tensions in maintaining rigor across settings. There is a call for more credentialed high school teachers (Johnston, 2023) and stronger collaboration between high school dual enrollment teachers and college faculty (Hooker, 2019; Johnston, 2023). Phelps and Chan (2016) found that compared with dual credit courses completed on the college campuses, dual enrollment courses offered at the high school and taught by high school CTE instructors consistently predicted higher levels of college student success and stronger labor market outcomes. These findings, together, suggest that instructional context and course delivery model, particularly high school-based dual enrollment, may play a critical role in supporting students' postsecondary persistence and long-term outcomes.

Early College Models

Early College High School (ECHS) is a comprehensive model of dual enrollment which blends high school and college experiences. ECHSs integrate college coursework into students' high school schedules and also provide academic, social, and advising support. This model was developed to expand postsecondary opportunities for students who have traditionally been underrepresented in higher education, including low-income students, first-generation college

students, and students from historically marginalized racial and ethnic groups (Edmunds et al., 2020). Edmunds et al. (2020) followed 4,054 early college students and found that these students were more likely to complete a postsecondary credential than students who attended traditional high schools. Researchers suggested the success rates were due to the integrated structure of early colleges, where students were exposed to college-preparatory coursework as well as wrap-around support. A follow up evaluation by Song (2016) found that early college students were more likely to enroll in college and earn a credential and that positive impacts did not differ much by gender, race/ethnicity, or low-income status. Song attributed the effectiveness of early college models to creating a comprehensive college-going environment that ultimately changes students' educational trajectories. In later research, Song et al. (2021) also found that students admitted to early colleges were significantly more likely to complete postsecondary credentials than control students. Six years after expected high school graduation, 45.4% of early college students had completed a postsecondary degree compared with 33.5% of control students, suggesting that early college students completed degrees both earlier and faster. These findings suggest that comprehensive dual enrollment models combining college coursework with structured academic and advising supports may promote college readiness beyond the benefits of college coursework alone.

Rationale for the Inclusive Models of Dual Enrollment

Past dual enrollment programs have been criticized as being “programs of privilege” due to structural barriers that limit equitable participation and rely on exclusionary eligibility practices such as GPA thresholds and counselor approval (Fink & Jenkins, 2023; Ryu et al., 2024; Stankas & Aschenbach, 2023). Fink et al. (2022) argued that many dual enrollment programs historically functioned as “random acts” with course offerings determined primarily by

instructor availability or high school requests rather than what was best for students' academic pathways. Without proper guidance, dual enrollment becomes a means for academically strong students to supplement advanced coursework, which can reinforce privilege rather than expand access (Spencer & Maldonado, 2021). National and district-level research consistently shows that underrepresented students—particularly first-generation students, students of color, English language learners, students with disabilities, and other historically underserved groups were frequently excluded from participation (Fink, 2021; Fink et al., 2022; Fink et al., 2025; WWC, 2017). Some districts and high schools may not offer dual enrollment classes (Taylor et al., 2022), and students face additional access barriers including a lack of advising and support, limited awareness, and financial constraints (Hooper & Harrington, 2022; Stankas & Aschenbach, 2023; U.S. Department of Education, 2017).

Even when opportunities are available, students of color, from low-income backgrounds, male students, individuals with lower academic performance, English language learners, students with disabilities, foster youth, and those experiencing homelessness participate in dual enrollment at lower rates compared to their peers (Adan et al., 2024; CCRC, 2012; Friedmann et al., 2020; Giani, 2024; Hooker et al., 2021; Hooper & Harrington, 2022; Lee & Villarreal, 2021; Lumina Foundation, n.d.; Taylor et al., 2022; Xu et al., 2021). Although some programs have effectively boosted participation among students from low-income backgrounds (Edmunds et al., 2022), research finds that the gains in college enrollment and degree completion are weaker for racialized minority students than for the overall population (Taylor et al., 2022). That is, even when underrepresented students enroll in dual enrollment programs, the benefits are not always distributed equally (Miller et al., 2018; Taylor et al., 2022), which shows the necessity for higher

education institutions and partnering school districts to increase robust and targeted support (Fink et al., 2025; Lee & Villarreal, 2023).

CCAP as California's Dual Enrollment Model

In 2015, AB 288 formalized the College and Career Pathways framework (CCAP) in the Education Code (EC § 76004). Legislation including AB 30, AB 359, and SB 1244 has since expanded the reach and structure of dual enrollment programs by refining partnership agreements between community colleges and high schools and encouraging broader access for high school students (Kurlaender et al., 2021). AB 731 (2025) is a recent bill that would eliminate restrictions such as the four-course limit for part-time students, principal recommendations and even allow courses to be offered in synchronous or asynchronous online formats. SB 1244 (2024) expands CCAP agreements to allow community college districts to enter into agreements with districts and high schools outside of their primary service area. This flexibility ensures that juvenile justice-involved students in alternative learning settings can now also participate.

Each of these bills and reforms is part of a statewide movement to eliminate barriers that limit dual enrollment, a pathway credited with improving graduation rates and increasing college and career readiness. Unlike traditional dual enrollment, which often focused on providing academically advanced students with opportunities to accelerate college coursework, CCAP was intentionally designed as an equity-oriented model that expands access to students historically underrepresented in higher education. Recognizing the potential for dual enrollment to close equity gaps, California has substantially increased its investment in these programs. These investments are central to the Governor's California Blueprint goal that 70% of working-age adults will earn a postsecondary credential by 2030 (Governor of California, 2022; Johnson &

Perez, 2024). Governor Gavin Newsom committed \$700 million in 2023 to enhance dual enrollment access and build integrated college and career pathways, including \$500 million for the Golden State Pathways Program and \$200 million for expanding dual enrollment opportunities (Rodriguez et al., 2024). Building on Vision 2030, California Community Colleges Chancellor Sonya Christian has proposed a “9th Grade to Baccalaureate Strategy” (Gallegos, 2023; Stankas & Aschenbach, 2023) in which dual enrollment becomes the default rather than the exception for high school students (California Community Colleges Chancellor’s Office, 2024). This strategy reframes dual enrollment not merely as a college access tool but as a core component of California’s equity and college readiness agenda.

California offers several pathways for high school students to enroll in college coursework, each governed by different sections of the Education Code. Non-CCAP dual enrollment, including individual “special admit” students, operates under Education Code §48800, which authorizes high school students to enroll in college courses to access “advanced scholastic and vocational work.” Individual dual enrollment occurs when a student independently enrolls in college courses outside of a formal program; while no legislated structure defines this model, high schools and colleges may still provide advising or support to help students navigate enrollment. Non-CCAP partnerships also fall under §48800 and are established through a memorandum of understanding (MOU) between the college and the high school. Historically, these partnerships predate CCAP legislation and often emphasized career technical education. Because §48800 requires that courses be open to the general public if colleges claim apportionment, non-CCAP courses may only be closed to the public when they are funded through mechanisms other than apportionment, such as grants or contracts with the K–12 district (CCCCO, 2016).

In contrast, CCAP programs, authorized under Education Code §76004, were created to expand access for students who are underrepresented in higher education and not traditionally college bound. CCAP legislation allows colleges and K–12 districts to offer closed-course, dual enrollment sections on high school campuses and to claim apportionment for these offerings—an exception not permitted under §48800. CCAP partnerships also require joint boards, annual reporting, and a big focus on increasing college and career readiness for underserved students. These structural and legislative distinctions between CCAP, non-CCAP partnerships, and individual dual enrollment are essential for understanding the policy context and scope of this study.

The CCAP initiative integrates early college and career exploration courses to create structured pathways toward certificates, associate’s degrees, and transfer. To support this effort, CCAP funding provides dedicated resources for local educational agencies (LEAs) and community colleges to establish formal partnerships that expand access for underrepresented and non-college-bound students and, specifically, to give Black, Latino, socioeconomically disadvantaged, and first-generation students greater access to college courses (Rodriguez and Gao, 2023; Stankas & Aschenbach, 2023). As of 2025, funding pays for tuition, fees, and textbooks.

The Growth of California's CCAP Model

Since its implementation, CCAP has become the fastest-growing form of dual enrollment in the state (Kurlaender et al., 2021; Rodriguez et al., 2023), with enrollment rising from just 4,757 students in 2016-7 to 93,703 students in the 2023-24 year (Rodriguez et al., 2024). Now comprising 45% of all dual enrollment participation in the State, CCAP dual enrollment is the primary driver of dual enrollment growth in California (Friedmann et al., 2024; Zhou et al.,

2025). Since 2016–17, CCAP has expanded in areas like the Inland Empire, San Joaquin Valley, and North/Far North (Zhou et al., 2025). Multiple sources (Adan et al., 2024; Friedmann et al., 2024; Rodriguez et al., 2024) confirm particularly steep increases among 11th and 12th grade students.

Rodriguez et al. (2024) report that 97% of dual enrollment in California now is offered by the California Community Colleges (CCCs) at little or no cost to students. CCAP programs continue to grow (Adan et al., 2024; Rodriguez et al., 2023) across all high school grade levels with significant pressure on both K–12 and college systems to scale up at unprecedented speed with younger students in middle school, 9th and 10th grades also participating (Echelmann, 2025; Russo, 2025).

Early evidence links this expansion to significant academic and equity gains from dual enrollment. CCAP students show higher rates of success than peers from similar backgrounds not enrolled in dual enrollment (Rodriguez et al., 2023). Recent data from the California Community Colleges Chancellor’s Office (2025) shows not only continued annual growth in K–12 Special Admit (dual enrollment) participation but that CCAP students are successfully completing college coursework across a wide range of course categories and high school sites. Despite these positive trends, Zhou et al. (2025) report that only around 3% of the class of 2024 graduated with at least 12 college credits, which is the Chancellor's goal for all students, under Vision 2030.

Participation and Geographic Variation in CCAP Dual Enrollment

Although dual enrollment participation has expanded substantially across California, participation continues to vary by region and student demographics (Zhou et al., 2025). Rodriguez & Gao (2021b) found that dual enrollment programs, including CCAP, are more

prevalent in high-poverty and high-Black/Latino districts in California. Dual enrollment models vary geographically across California. CCAP colleges are concentrated in Los Angeles and Orange Counties (around 33%), while ECHS programs are more concentrated in the Bay Area (around 35%) (Rodriguez & Gao, 2021b). Yet, despite this concentration, inequities in participation do persist based on race and region, with Black and Latino students in Los Angeles and Orange County remaining underrepresented (Adan et al., 2024). In the class of 2024, Latinos accounted for 49% of dual enrollment participants despite representing 57% of California high school students statewide, while Black students represented only 3% of dual enrollment participants compared to 5% of the statewide high school population (Zhou et al., 2025). Rural areas face challenges offering dual enrollment, with one of the biggest challenges being finding qualified faculty (Rodriguez & Gao, 2021a; Zinth, 2022), which mirrors national trends (Harmon & Johnson, 2024). Counties with high 9th-grade participation tend to have high participation across all grades, leading researchers to suggest the need for intentional planning to provide access (Friedmann et al., 2024).

CCAP School and Student Characteristics

Local school and district characteristics shape participation. According to researchers at PPIC, dual enrollment high schools share many demographic traits with non-dual enrollment schools, such as Latino student representation, but tend to be larger and post stronger outcomes – higher SBAC proficiency, A–G completion, graduation, and college attendance rates (Rodriguez & Gao, 2021a). Among program types, CCAP high schools enroll a larger proportion of Latino students (around 56%) than other schools and report a higher college attendance rate (about 67%), with approximately 42% enrolling in a California community college (Rodriguez et al., 2023). As of 2021, ECHS through CCAP was implemented at 26 colleges and Middle College

High Schools (MCHS) were implemented at 17 colleges. Early College or Middle College High Schools often attract higher-achieving students, while schools with dual enrollment programs typically have more experienced and graduate-level teachers. Rodriguez and Gao (2021a) found that Latino students are now equitably represented in CCAP programs and nearly equitably represented in MCHS relative to their share of the state's high school population. However, ECHS programs continue to show notable underrepresentation of Latino students, signaling disparities in access across program types and regions.

CCAP Course Enrollments

California high school students enroll in a wide range of community college courses, with social and behavioral sciences and humanities accounting for the largest share of dual enrollment coursework: about 60% of dual enrollment courses taken by the class of 2024 were in five subject areas—social and behavioral science (23%), humanities (14%, including English), fine and applied arts (8%), mathematics (7%), and interdisciplinary studies (6%) (Zhou et al., 2025). In recent years, colleges have also increased transferable credits that support college completion (Rodriguez et al., 2023; Rodriguez et al., 2024). This shift has contributed to growth of transferable course completion among dual enrollees since 2017 (Zhou et al., 2025). For example, the number of students completing English composition courses tripled to over 23,000 in 2024, while those completing transfer-level math courses more than doubled to over 18,000 (Zhou et al., 2025). These courses satisfy the Intersegmental General Education Transfer Curriculum (IGETC) requirements in California.

While high schools often request career-focused courses, many of these courses may not be transferable or included in a program of study, creating some tension between colleges wanting to meet the needs and demands of the high school partner and their desire to create a

pathway into a program of study, especially since with few exceptions, career-focused dual enrollment courses tend to be “one-off courses” (Rodriguez et al., 2023, p.23). This growing emphasis on transferable coursework, alongside CCAP's continued support for career education pathways (Rodriguez & Gao, 2021c), reflects California’s broader goal of promoting both college readiness and career preparation. The types of dual enrollment courses students complete may influence not only credit accumulation but also the extent to which participation contributes to college readiness and successful transfer.

Equity Gains and Ongoing Challenges with CCAP

Data coming in regarding CCAP classes looks promising. CCAP programs meet many of the expectations associated with dual enrollment, showing strong outcomes in both college access and early postsecondary success (Rodriguez et al., 2023). PPIC reports that 82% of CCAP participants enroll in college within a year of graduation, in contrast to the statewide average of 66% for all high school graduates (Rodriguez et al., 2023). A majority, 51%, attend California Community Colleges, while 31% proceed directly to four-year universities.

CCAP students also show stronger academic momentum than those not enrolled in dual programs. In their initial year at community college, 38% of these students complete transfer-level math and 59% finish transfer-level English, whereas only 23% and 42% of their non-dual counterparts achieve the same, respectively (Rodriguez et al., 2023). They also tend to earn higher first-year GPAs, accumulate more credits, and are more likely to complete associate degrees or certificates. However, CCAP students are slightly less likely to reach the 60-credit milestone or complete a degree within three years than those in more selective dual enrollment models (Rodriguez et al., 2023). Compared to students from Early College or Middle College High Schools, those in CCAP are more inclined to start at two-year colleges, which raises

concerns about possible "undermatching" and its effects on earning a bachelor's degree (Rodriguez et al., 2023).

CCAP has made measurable progress in broadening access for historically underrepresented students. The demographics of students in CCAP programs more closely mirror California's overall high school population compared to non-CCAP dual enrollment: Latino students make up 56%, Asian students 13%, and Black students 4% of those involved in CCAP (Rodriguez et al., 2024). This trend highlights CCAP's increasing role in promoting equity and access, with the most significant growth in participation seen among Latino students, who are still underrepresented in other early college initiatives (Adan et al., 2024; CCCCCO, 2025; Friedmann et al., 2024). Research attributes this success to offering classes on high school campuses, during the school day, which removes key barriers such as transportation and scheduling conflicts (Hutchins et al., 2024).

Despite these gains, equity gaps do persist and widen over time (Friedmann et al., 2024). In 2021-22, the 9th grade dual enrollment rates were fairly balanced among different racial and ethnic groups, with 7% of Asian students, 5% of both Latinx and White students, and 3% of Black students participating. By the 12th grade, although overall participation rose, disparities became more pronounced: 25% of Asian students were involved, compared to 18% of White students, 15% of Latinx students, and 11% of Black students (Friedmann et al., 2024). Similar trend emerges with socioeconomic status: SED and non-SED students participate at comparable rates in 9th grade, but gaps favoring non-SED students grow in later years (Friedmann et al., 2024). The participation trends show that CCAP is quite successful in lowering initial access barriers but becomes less effective over the years in maintaining equitable participation over the years, especially for historically underrepresented students. A related disparity appears for first-

generation students, who benefit from CCAP but still lag behind their continuing-generation peers, indicating that structural factors beyond CCAP's design continue to shape long-term outcomes (Rodriguez et al., 2023).

Disparities are also more pronounced in transfer-level English and math dual enrollment classes, showing up in both students' access to these programs and their success (Rodriguez et al., 2024). Pacific Islander and Latine/x students have the lowest math participation rates, while Pacific Islander, Latine/x, Indigenous, and Black students experience lower pass rates in both math and English compared to statewide averages (Adan et al., 2024; Rodriguez et al., 2024). Although CCAP students overall show improved momentum, Black students remain underrepresented and have lower success rates in transfer-level courses. In contrast, Asian and White students accumulate more credits and complete transfer-level requirements at higher rates (Rodriguez et al., 2024) and female students also remain overrepresented (Rodriguez et al., 2024; Zhou et al., 2025). Asian students in the class of 2024 earned an average of 11 credits—2–4 more than other groups—and had higher rates of completing IGETC English (28%) and math (27%) (Zhou et al., 2025). These patterns indicate that CCAP participation is not benefiting student groups evenly.

At the same time, CCAP participation still yields meaningful gains. For example, Black and Latino CCAP students outperform peers from the same groups who do not participate in dual enrollment. Notably, CCAP math participation is associated with higher completion of transfer-level math in high school, increased degree attainment for community college entrants (40–45% compared to 35% for non-CCAP students), higher first-year GPAs, and stronger early-college momentum, particularly for Latino, Black, and first-generation students (Rodriguez et al., 2025). Zhou et al. (2025) also report rapid growth in transfer-level English and ESL due to CCAP, from

under 10,000 students in 2016–17 to 30,000 in 2023–24, with strong success rates (over 85% in English). Gaps remain in participation and limited, inconsistent dual enrollment ESL offerings.

Limitations and Logistical Challenges of CCAP

Implementation challenges remain with CCAP dual enrollment. Dual enrollment courses do not always count toward high school graduation, and credit policies differ by district (CLP, 2025; Rodriguez et al., 2025). Some districts offer GPA boosts for dual enrollment courses, while others do not (Rodriguez et al., 2025). There are also structural and logistical barriers: high schools and colleges in California tend to have differing academic calendars which create coordinating challenges (Rodriguez et al., 2025). CCAP programs face staffing constraints, particularly in recruiting instructors who meet minimum qualifications to teach transfer-level courses (Rodriguez et al., 2021c). In addition, both K–12 districts and community colleges have expressed concerns about the long-term financial sustainability of compensating faculty and expanding dual enrollment programs (Hooker, 2019). Other challenges include a shortage of qualified instructors, limited training of faculty, counselors, and administration in supporting underrepresented and multilingual students and collecting actionable data (Rodriguez et al., 2025).

These challenges echo concerns long documented in dual enrollment research. Without advising and program-level planning, students often take courses that do not count toward their intended major, do not accumulate meaningfully toward a degree, or even place them off track as the dual enrollment courses may not cover the standards students need to master for high school achievement (Cassidy et al., 2011). In certain instances, such as when students take a condensed or online college class to replace two semesters of high school credits, they may miss out on essential information and academic behaviors required in college (Taylor et al., 2022). Taczak

and Thelin (2009) suggest that students at a younger age might not be "intellectually, experientially, and emotionally ready to do college-level work" (p. 8), raising concerns about whether these students were inadvertently set up for failure. In their study of a concurrent dual enrollment class, younger students struggled with critical analysis, audience awareness, thesis development and college-level writing (Taczak & Thelin, 2009). Instructors frequently had to lower the course difficulty or adjust their grading to address the diverse levels of student preparedness. Students themselves report challenges in navigating college systems, including financial aid processes and purchasing books (Tulloch, 2024). Curriculum can also create challenges as dual enrollment programs are not standardized in the way AP coursework is, and course quality can vary by institution and instructor. An (2013) asserts that this variability might diminish both the comparability and the overall effectiveness of dual enrollment.

Failing the course, whether at the high school or college level, can also negatively impact students' GPA and self-confidence as they transition to college and college aspirations (Taylor et al., 2022). Students have reported feeling discouraged and even reconsidered their college plans due to poor performance in dual enrollment courses. However, some students viewed failure as a learning opportunity to improve their study habits and effort (Taylor et al., 2022). Failing a dual enrollment course can also necessitate retaking courses for high school graduation. The failed course becomes part of the student's permanent transcript (CCCCO, nd)

Parents at the high school level struggle with the FERPA regulations that lead to parents having limited access to their students' college educational records and grades, even when the student is a minor (U.S. Department of Education, Student Privacy Policy Office, n.d.). This can be further exacerbated when students as young as 11 and 12 are taking dual enrollment classes (Russo, 2025). Emotional outcomes of dual enrollment remain understudied. Although stress,

loneliness, imposter syndrome, and a sense of belonging are often overlooked in quantitative research, qualitative studies indicate their importance (Schaller et al., 2023). Keeping all this in mind, these studies show that while dual enrollment does provide important opportunities, its effectiveness comes with challenges.

Recommendations Emerging from CCAP Research

To address persistent inequities and uneven outcomes, research on CCAP and dual enrollment has led to a set of common recommendations aimed at improving both access and student success. Researchers and policy groups emphasize the importance of better alignment between high school and college systems, enhanced student support, and more deliberate practices focused on equity (Rodriguez et al., 2023). Researchers suggest that schools should prioritize transfer-level English, math, and general education courses and expand the pool of qualified instructors to teach these courses (Rodriguez et al., 2023), while expanding universal access to dual enrollment opportunities (Education Trust–West, 2024). Schools should track not just participation but outcomes by subgroup to identify persistent equity gaps (Friedmann et al., 2024).

There is also a call for targeted interventions for underrepresented students (Spencer & Maldonado, 2021) including offering college success courses to provide key “transition and navigational knowledge and skills (Rodriguez et al., 2023) and linking CCAP students to college resources such as tutoring, counseling, and mental health services (Friedmann et al., 2024; Rodriguez et al., 2023). Researchers also urge colleges to ensure course clarity and use data systems to monitor outcomes (Rodriguez et al., 2023). Finally, researchers stress that online dual enrollment courses should be high-quality and well-supported, with collaboration between high

school staff and college instructors to promote student engagement and success (Friedmann et al., 2024).

Recent statewide data reinforce these recommendations but also push to continue to expand access for underrepresented students through CCAP partnerships and the State continues to invest in dual enrollment initiatives such as the CCAP, Middle College, and Golden State Pathways Program Grant. Legislation like AB 288, AB 30, and SB 1244 have been key in strengthening collaboration between K–12 and higher education (Zhou et al., 2025).

Chapter Summary

This chapter reviewed the literature on college readiness, dual enrollment, and California's College and Career Access Pathways (CCAP) initiative. The chapter's examination of dual enrollment literature shows the positive impact on student outcomes, academic behaviors, and college knowledge. Research suggests that both campus-based and high school-based dual enrollment can positively influence college readiness, but students' experiences may differ depending on where and how courses are offered. The chapter took a close look at CCAP, California's primary dual enrollment model. CCAP students generally experience positive outcomes; CCAP has improved equity and access in the State; however, participation and success gaps still exist by race, socioeconomic status, and first-generation status. Although the literature affirmed the academic and college readiness benefits associated with dual enrollment participation, further research is required to see how former CCAP students perceive their dual enrollment experiences on their high school campus and the subsequent impact on college readiness and postsecondary transitions. Many dual enrollment programs may not have qualitative information about the student experience which leaves important questions unanswered about how and why these programs influence students' preparation for college.

CHAPTER THREE: METHODS

The primary purpose of this study was to explore how former College and Career Access Pathways (CCAP) dual enrollment students in California perceive their readiness for college after completing high school. College readiness serves as an indicator of the extent to which students can successfully perform in college (An, 2015). This study is informed by David T. Conley's (2010) framework of college and career readiness, which serves as a conceptual lens for understanding how students develop the knowledge, skills, and behaviors necessary for post-secondary success.

To accomplish this purpose, the following research questions guided this study:

RQ1: How do former CCAP dual enrollment students describe the role of dual enrollment in preparing them for higher education, particularly in comparison to the preparation they received in high school courses?

RQ2: What similarities and differences emerge in how first-generation and continuing-generation students describe their transition to college after participation in CCAP dual enrollment?

This chapter describes the research methodology used to examine participants' reflections on how their CCAP dual enrollment experiences shaped their preparation for postsecondary education. The focus of this study is particularly timely given California's expansion of CCAP dual enrollment following the passage of Assembly Bill 288, which authorized community colleges to offer college courses on high school campuses during the regular school day for students who may not already be college-bound or who are underrepresented in higher education. Therefore, this study addresses a gap in the literature by examining students' perspectives on

college readiness following participation in cohort-based dual enrollment programs offered on high school campuses, a context that remains underexplored in existing research.

Research Design and Rationale

This study used a qualitative research design to explore how former CCAP dual enrollment students perceive their college readiness. According to Merriam (2009), the basic qualitative study is the most common form of qualitative study in the field of education. A qualitative approach was appropriate for this study because the goal is to understand participants' interpretations and perceptions of their preparation, elements that cannot be captured through quantitative indicators (Creswell & Poth, 2018; Merriam & Tisdell, 2016). A qualitative methodology invited dialogue and provided insight into participants' perceptions. The individual former CCAP student was the unit of analysis. I used semi-structured interviews, which were recorded and transcribed for analysis; this approach enabled getting participants' authentic perspectives, including their feelings, perceptions, and lived experiences (Johnson et al., 2020). Semi-structured interviews worked well for my type of research as certain questions could be asked of all participants to gather consistent information and serve as a guide to the researcher, but the format also allows researchers to respond and adapt to participants' responses, explore new ideas, and better understand how individuals interpret their experiences (Merriam & Tisdell, 2016).

In qualitative research, some participants are better positioned to provide rich, detailed insights that directly inform the research questions (Johnson et al., 2020). As a result, purposive sampling was used to recruit former CCAP dual enrollment students who could speak to their experiences in both dual enrollment and post-secondary settings. In addition, convenience sampling was used to support recruitment efforts by including participants who were accessible

and willing to participate, while still meeting the study's criteria. During interviews, I asked students to describe the ways their CCAP dual enrollment course prepared them for college and how this compared to the preparation they received in their non-dual enrollment high school classes. To address the second research question, I compared the responses of first-generation and continuing-generation students to examine potential differences in how these groups interpreted and applied their experiences.

Role of the Researcher

As the primary researcher, I played a significant role in all phases of the study: the development of interview questions, participant recruitment, data collection, and analysis. I designed the semi-structured interview protocol, conducted all interviews, and made key decisions regarding participant selection and where the interviews took place. As the researcher, I also brought size, scope professional knowledge of dual enrollment programming within the California community college system. As a full-time English faculty member at Coastal Gateway College (CGC), I have been actively involved in the development and implementation of CCAP dual enrollment programs at my college from 2022 to 2024. I participated in the planning and launch of multiple programs at my college in collaboration with dual enrollment coordinators, deans, and high school partners, and I have taught several dual enrollment courses across different high school sites. Because some participants knew me through my work in dual enrollment, I emphasized that participation was voluntary, confidential, and would have no impact on their education today.

Research Setting

Data for this study was collected from a community college located in Southern California. The pseudonym Coastal Gateway College was assigned to the campus through which

participants completed their dual enrollment coursework while enrolled in high school. The selection of this site was informed by the size, scope, and growth of its dual enrollment program, as well as its focus on expanding access for historically underrepresented student populations. The demographic composition of the student body and the structure of the dual enrollment program made this site particularly relevant for examining students' perceptions of college readiness within a CCAP dual enrollment context.

The college is part of a district of three colleges and is considered a mid-size college, enrolling approximately 11,000 students in the 2023–24 academic year, with nearly three-quarters of students enrolled part-time. The college serves a racially and ethnically diverse student population, with approximately one-third of students identifying as Hispanic/Latinx, 30% as Asian, and just over 20% as White. Smaller proportions of students identify as multiracial, Black/African American, Filipino, Native Hawaiian/Pacific Islander, or American Indian/Alaska Native. More than 90% of students are California residents for tuition purposes (Coastal Gateway College Office of Research, Planning, and Institutional Effectiveness, 2024). The institution holds designation as a Hispanic-Serving Institution (HSI), defined by the U.S. Department of Education as an institution with a high enrollment of students who identify as Hispanic or Latino. CGC had the second-highest acceptance rates for transfer students overall in Orange County and had the highest acceptance rates for transfer students who identify as Hispanic in Orange County, with a Hispanic transfer acceptance rate of 92.6% for Fall 2023. The college also notes that it ranks among the top 10% of California community colleges in combined transfer rates to CSU and UC institutions (Coastal Gateway College, 2024).

In terms of dual enrollment, Coastal Gateway College has experienced large growth in dual enrollment participation over the past five years, with both unduplicated headcount and total

course enrollments increasing over 80% since 2021-22. Dual enrollment at Coastal Gateway College operates at significant scale, serving tens of thousands of course enrollments annually and a racially and socioeconomically diverse student population, with Asian and Hispanic/Latinx students comprising the majority of participants. A substantial share of dual enrollment students come from lower-income backgrounds and approximately 15% of dual enrollment participants identified as first-generation college students, highlighting the program's reach to a diverse student body.

In 2025–26, Coastal Gateway College's CCAP program demonstrated significant growth, offering more than 120 sections across approximately twenty high schools in several school districts, with a fill rate of approximately 80%. Student headcount has increased more than fivefold since 2018–19, rising from approximately 530 to 5,000 students last year. Dual enrollment is a dominant factor in the college's efforts to increase enrollment. Prior to Summer 2022, implementation primarily focused on core general education courses at a single high school site, while later years have seen growth in both the number of participating schools and the range of courses offered (Institutional Dual Enrollment Dashboard, 2026). By 2025–2026, offerings include a broader mix of general education, career and technical education, and specialized college readiness courses. Core transferable courses such as English composition, mathematics, biology, psychology, sociology, history, and geography are commonly offered on the high school campus and will be the focus of my study as they are the most common and accessible form of dual enrollment.

In terms of academic outcomes, dual enrollment students demonstrate strong performance, with a course success rate of 92%, compared to 78% for the overall student population (2024–25). Additionally, in terms of gateway course completion, two-thirds of dual

enrollment students complete transfer-level English within their first year of college, though completion rates in transfer-level mathematics remain below 25%.

Sample Selection and Rationale

This study used purposeful sampling to recruit participants from a large, heterogeneous population. Perez (2024) explains that when researchers are using qualitative methods to study large, heterogeneous populations, they should identify meaningful attributes and define subgroups based on those attributes and decide on the minimum number of people they want to interview in each group. This study's population was current college students who previously participated in CCAP dual enrollment courses provided by CGC while in high school. Students could currently be attending college anywhere, not just CGC. The courses were offered during the regular school day and were designed to provide structured access to college coursework for high school students. Participants completed one or more CCAP dual enrollment courses during the 2022–2023, 2023–2024, or 2024–2025 academic years. Limiting the time frame they took dual enrollment increased the likelihood of obtaining accurate, detailed reflections about students' CCAP participation and their transition to college. During my recruitment, several participants met my criteria but had also completed independent dual enrollment courses outside the structured CCAP model. I included these students and found that it allowed for a more nuanced understanding of how different dual enrollment experiences may shape students' perceptions of college readiness and transition.

At the time of the interview, participants were required to have completed at least six units of postsecondary coursework following high school graduation. The completion of six units ensured that students had engaged in a minimum of one term of college-level coursework, providing sufficient postsecondary experience to reflect on and evaluate their dual enrollment

experiences. Since all participants completed their dual enrollment courses through the same college (CGC) my study benefited from consistency in the partnering community college while still capturing variation in students' experiences across high school sites, courses, and instructor context and environment. While selecting participants, I also considered students' generational status (first-generation or continuing-generation college students) and current postsecondary enrollment (community college or four-year university). These characteristics resulted in four participant subgroups: (a) first-generation students attending a community college, (b) first-generation students attending a four-year university, (c) continuing-generation students attending a community college, and (d) continuing-generation students attending a four-year university. A minimum of three participants were interviewed from each subgroup. The goal of seeking representation from both first-generation and continuing-generation students was to examine differences in access to college knowledge and support, which are central to the study's second research question and to Conley's (2010) college readiness framework. Including students from different post-secondary settings allowed for a better understanding of how CCAP dual enrollment preparation is perceived and applied across varied college environments.

Recruitment

In the recruitment process, I used purposive sampling. CGC's Office of Research, Planning, and Institutional Effectiveness (ORPIE) pulled a list of former CCAP students who met the eligibility criteria and emailed them a screening questionnaire (Appendix A and B) on my behalf. For the purposes of this study, recruitment was limited to students who completed their CCAP courses at high school sites. This criterion was used to ensure a more consistent examination of the high school-based dual enrollment experience, which reflects the primary CCAP model under investigation. While CCAP funding also supports independent dual

enrollment courses offered on the college campus or online, these delivery models differ in structure, level of independence, and student experience and therefore were not the focus of this investigation.

The email (Appendix A) explained the study and eligibility criteria and a link to the survey. The screening questionnaire (Appendix B) further confirmed eligibility and allowed students to indicate consent to be contacted for a follow-up interview. Specifically, the questionnaire verified that participants had completed at least one CCAP dual enrollment course during high school and identified whether they were first-generation or continuing-generation college students.

Institutional records indicated that the CCAP program generated 5,928 course enrollments between the 2022–2023 and 2024–2025 academic years, representing 1,796 unique students who met the study's eligibility criteria. ORPIE distributed recruitment emails to these eligible students through the college's Slate communication system. Of the 1,796 eligible students, 1,743 recruitment emails were successfully sent, while 53 students were not contacted because they had opted out of institutional communications, had invalid email addresses, or experienced other system-related delivery failures. An additional 121 emails were returned as undeliverable, likely because many former dual enrollment students had used high school email accounts that were no longer active after graduation.

Fifty-three students completed the screening questionnaire, met the eligibility criteria, and agreed to participate in an interview. Of those, nineteen participants ultimately scheduled and completed semi-structured interviews. Although recruitment focused on students who completed CCAP courses at participating high school sites, several participants also reported completing independent dual enrollment coursework alongside participating in the structured

CCAP model. These participants were still retained because they met all eligibility requirements and were able to provide detailed reflections on their CCAP experiences while also offering additional insight into how different dual enrollment pathways influenced their perceptions of college readiness and the transition to higher education.

Data Collection

The data collection method was semi-structured interviews. Following recruitment, I scheduled these interviews using Calendly which allowed students to choose a time and modality. Calendly sent students a link for the Zoom room and we met at the scheduled time. I interviewed students individually. Semi-structured interviews allowed participants to describe their CCAP experience in detail while giving me some flexibility to ask follow-up questions. Semi-structured interviews are generally guided by open-ended questions around themes or topics rather than a rigid sequence, allowing the conversation to evolve naturally (Merriam, 2009). They also encouraged participants to share their experiences without being constrained by only pre-planned questions (Holstein & Gubrium, 2004) while I was able to guide the discussion.

Interviews were conducted individually and lasted approximately 30-60 minutes. Of the 19 completed interviews, three were conducted in person and sixteen were conducted via Zoom. For in-person interviews, an iPhone was used as a recording device. For interviews conducted via Zoom, recordings and automated transcripts were generated using the Zoom platform and subsequently reviewed for accuracy. Interviews were audio-recorded with permission and later transcribed and coded for analysis.

The semi-structured interview protocol (Appendix C) consisted of open-ended questions designed to explore participants' backgrounds, dual enrollment (CCAP) experiences, and transition to their postsecondary institution. Initial questions gathered demographic and

educational background information, including current college enrollment, major, and family college experience. Later questions focused on participants' dual enrollment experiences and how these experiences influenced their college decisions, sense of preparedness, and perceptions of academic rigor; the protocol also included questions aligned with Conley's (2010) key dimensions of college readiness, such as academic skills, learning behaviors, help-seeking practices, and interactions with instructors. Participants were encouraged to compare their dual enrollment experiences with their college experiences, particularly in relation to workload, expectations, and navigating college systems. Finally, participants were asked to reflect on the perceived impact of dual enrollment on their academic journey, including benefits, challenges, and even recommendations for future students. Each interview concluded with an opportunity for participants to ask questions.

Data Analyses

Interview data were analyzed using an inductive thematic coding process to identify patterns connected to my research questions. Following each interview, audio recordings were reviewed, transcripts were verified for accuracy, and transcripts were imported into ATLAS.ti to facilitate data organization and coding. I read the interview transcripts closely to allow themes to emerge from the data rather than relying on pre-established categories. Initial coding involved a line-by-line analysis of participants' responses, during which recurring ideas were identified related to students' CCAP dual enrollment experiences and their transition into college. I used open coding and initially created 318 codes. I then engaged in more focused coding, using ATLAS.ti, grouping similar codes into broader categories and themes such as 'Transition Shock' or 'College Knowledge'.

Throughout data collection, I also took brief analytic notes and wrote memos about early impressions, especially when students talked about differences between high school and college, the impact of their dual enrollment classes, and moments when they felt prepared or unprepared during their first term of college.

Positionality

As a dual enrollment instructor and faculty member who has helped develop and implement dual enrollment programs at my college, I recognize I already have assumptions about the purpose of dual enrollment as well as hopes about how it supports first-generation and underserved students. I have developed a strong belief in the opportunities that dual enrollment can provide. However, throughout the study, I made a conscious effort to remain open to participants' perspectives: I recognized that I had to really listen to what students were saying, allowing their perspectives to emerge naturally rather than directing them toward particular responses. To mitigate potential researcher bias, I designed interview questions that were open-ended and non-leading to encourage participants to share their experiences authentically and in their own words, being open to hearing about possible negative impacts as well.

Four participants in this study were former students whom I had previously taught in dual enrollment courses. Although these students met the same eligibility criteria as all other participants, I recognize that our prior instructor-student relationship could have influenced their willingness to share critical or negative experiences. At the time of the interviews, I no longer served, nor would I serve, as their instructor. To minimize the potential influence of a prior relationship, I emphasized that there were no right or wrong answers and that I was interested in understanding their honest experiences. Throughout each interview, I sought to create a

conversational, respectful, and nonjudgmental environment that encouraged participants to speak openly.

I also bring my own lived experience as a South Asian woman who was the first person in my immediate family to navigate higher education in the United States. These experiences shape why I care about issues of access, equity, and college readiness, but could influence what I focused on during the interviews and analysis. To manage this, I made a conscious effort to center participants' voices. I relied on open coding, analytic memos, and repeated review of interview transcripts to ensure that themes emerged from participants' experiences rather than from my own expectations or assumptions.

Conclusion

This chapter described the methodology used to explore the experiences and perceptions of students who participated in a CCAP dual enrollment program and subsequently matriculated to post-secondary institutions. It outlined the research design, methodology including recruitment and data collection methods. Chapter 4 presents the findings that emerged from the semi-structured interviews, organized around the study's research questions and the themes identified through data analysis.

CHAPTER FOUR: FINDINGS

The problem addressed in this study is that academic preparedness is widely considered a critical, yet often underdeveloped, factor in students' ability to succeed in college (An, 2015; Conley, 2010; Kurlaender et al., 2019; Schnieders et al., 2023). Scholars increasingly argue that academic preparedness extends beyond academic performance alone and includes not only cognitive indicators but also behaviors and dispositions that influence students' ability to navigate college-level learning environments (Conley, 2010; Nagaoka et al., 2013; Porter & Polikoff, 2012). Despite the rapid expansion of dual enrollment programs across California and the United States, few studies have examined how these programs in high school support the development of college readiness (Taylor et al., 2022), particularly from the perspective of students themselves.

This chapter presents the findings from semi-structured interviews conducted with former College and Career Access Pathways (CCAP) dual enrollment students who subsequently enrolled in two-year and four-year postsecondary institutions. Participants represented a range of academic backgrounds, educational pathways, and college transition experiences following their participation in dual enrollment courses at their high school.

The findings are organized around the study's two research questions. The first research question was how former CCAP dual enrollment students describe the ways their dual enrollment experiences prepared them for college. The second research question focused on similarities and differences in how first-generation and continuing-generation students describe their transition to college after CCAP participation. These research questions were answered through an analysis of participant interview data. Interview transcripts were coded and analyzed to identify themes and patterns related to each research question. The findings are presented

below. The interview questions focused on family background, students' dual enrollment courses, the perceived rigor and authenticity of those courses, relationships with faculty, academic skill development, familiarity with college systems, college choice, and challenges during the transition to college. The interview questions were designed to address the research questions while also exploring participants' experiences in relation to Conley's (2010) Four Keys to College Readiness: key cognitive strategies, key content knowledge, key academic behaviors, and key transition knowledge and skills.

This chapter begins with participant characteristics, presented in Table 4.1. It then presents the findings organized around the research questions. Findings of both research questions are presented together, with sub findings.

Characteristics of the Study Participants

Nineteen former dual enrollment students participated in the study by sharing their experience and reflections on their academic and transitional experiences. Pseudonyms were assigned to all participants to protect confidentiality. Among that group, there was a range of backgrounds and postsecondary pathways. Eight participants were enrolled at community colleges and eleven attended four-year universities. Of the eight participants attending community colleges, none had transferred to a four-year institution yet; therefore, all participants were still enrolled at the first postsecondary institution they entered after high school. Overall, the group showed a strong concentration in health sciences and STEM disciplines, with fewer students pursuing humanities or education-related majors, as shown in Table 4.1. The students had all attended partner high schools located within Orange County, California that had active CCAP partnerships with the community college district.

All participants completed dual enrollment coursework between 2022 and 2025 and had completed at least one dual enrollment course offered on their high school campus. These courses were primarily taught by college instructors on high school campuses or delivered asynchronously. Some dual enrollment courses offered at the high school sites were taught by credentialed high school teachers rather than college faculty. Several participants also independently enrolled in additional dual enrollment courses outside of their high school-based CCAP program. Four students had participated in an early college program, and the rest of the participants began taking dual enrollment courses during their junior or senior year of high school. Therefore, some students completed only one college course before graduation, while others, especially the four who participated in early college programs on their high school site, accumulated substantial transferable college credit prior to graduation as they began taking college courses during their freshman year. Four students had participated in a cohort-based program at their high school that intentionally recruited students that were “middle band” and maybe not thinking about college.

The group was diverse with thirteen of the participants identifying as female and six as male, with participants identifying as Asian, Hispanic/Latino, and White. Thirteen participants identified as first-generation college students, while six identified as continuing-generation students. Students were pursuing a range of majors including STEM, nursing, public health, political science, humanities, English education, and interior design.

Table 4.1 provides information on study participants. Pseudonyms are used to protect students' privacy.

Table 4.1*Participant Demographic and Academic Characteristics (n=19)*

Name	Gender	Race/ Ethnicity	First-Gen Status	Current Major	Current Inst	CCA P DE	Indep DE
Allison	Female	White	No	Political Science	UC	1	0
Ari	Male	Asian	Yes	Chemistry	CCC	3	1
Bianca	Female	Hispanic	Yes	Interior Design	CSU	1	3
Brian	Male	White	No	Comp Tech and Engineering	CCC	1	0
Brielle	Female	Asian	Yes	English Education	CSU	1	15
Brisa	Female	Hispanic	Yes	Public Health	CSU	2	0
Camila	Female	Hispanic	Yes	Nursing	CCC	1	0
Emily	Female	Asian	No	Undeclared	CCC	2	0
Emmett	Male	White	No	Science	CCC	1	0
Gina	Female	Asian	Yes	Humanities	CCC	2	0
Hannah	Female	Asian	Yes	Computer Science	CCC	2	2
Hieu	Male	Asian	Yes	Math and Physics	CSU	1	4
Javier	Male	Hispanic	Yes	Pre-med/Physiology	UC	≥16	1
Jocelyn	Female	Asian	No	Aerospace Engineering	CSU	1	0
Kaitlyn	Female	Asian	Yes	Chemistry	CCC	1	0
Kimberly	Female	Asian	No	Quantitative Biology	PVT	1	0
Lily	Female	Asian	Yes	Public Health Science	UC	≥16	1
Shayla	Female	Hispanic	Yes	Nursing	CCC	1	0
Vincent	Male	Hispanic	Yes	Engineering	UC	≥16	1

Note. CCC=college within California Community Colleges system, CSU=college within California State University system, UC=college within University of California system, PVT=private university

This section presents the findings related to how former CCAP dual enrollment students perceived the role of dual enrollment in preparing them for college. The results highlight the role that CCAP dual enrollment had in preparing students for postsecondary work through early exposure to college structures, expectations, and academic responsibilities, more than their traditional high school courses had. Students also discussed how dual enrollment supported the

development of academic independence, learning strategies, and self-management skills, although some continued to experience challenges after transitioning to college. At the same time, participants described uneven levels of rigor across CCAP courses, with some experiences closely resembling college coursework while others felt more like high school classes. The findings address some of the limitations of CCAP dual enrollment as well as the short-term and long-term benefits. Within these findings, similarities and differences between first-generation and continuing-generation students are examined where they emerged, addressing Research Question 2 alongside the broader patterns related to college preparation.

Findings

Finding 1: Early Exposure to College Structures and Expectations Helped Dual Enrollment Students Feel More Prepared for Postsecondary Education

Collectively, participants consistently described dual enrollment as an early introduction to college structures and expectations that differed from their traditional high school experiences, helping them become familiar with how college courses operate. Although many of the dual enrollment classes took place on high school campuses, students generally viewed them as authentic college courses that exposed them to college grading structures, syllabi, course policies, the Canvas learning management system, assignment deadlines, professor expectations, and lecture-based instructional formats. In reflecting on how dual enrollment had prepared her for college, Gina, a first-generation student who participated in a high school CCAP dual enrollment program designed to recruit “middle band” students who may not have initially planned to attend college, described the experience using a movie metaphor: “it's even sadder seeing it like in the movie theater and then the sad part is gonna make you cry.” She explained that just like a sad movie “hits harder” when you watch it yourself, college feels more real when

you're actually doing the work, not just hearing about it. She explained that high school classes like Avid did talk about how to take notes in college, think critically, and stay organized. But it was mostly teachers telling her what college would be like. With dual enrollment classes, she actually got to experience college,

Exposure to High-Stakes Assessment and Academic Accountability

Across interviews, both first-generation and continuing-generation participants described their dual enrollment as their first exposure to college assessment practices. Unlike many of their high school classes, dual enrollment courses often relied on assessment practices in college. Several participants explained that, unlike many of their high school classes, dual enrollment courses often relied on fewer assignments that carried substantially more weight, requiring students to adapt to higher-stakes evaluation and professor-specific grading expectations. As Vincent put it, CCAP dual enrollment taught him “what to expect when I take a college class and how I’m evaluated for my grade.”

Many contrasted these experiences with grading structures in high school. For example, Hannah, a first-generation student attending a two-year college, commented on “how the grading [in dual enrollment] was a lot more heavy on exams,” while Allison, a political science major at a UC campus, reflected that her “grade was pretty much determined by only three essays. She explained “I think getting used to the grading definitely helped me feel more prepared and kinder of just learning to balance and prioritize when big things that are worth more percent of my grade were coming up.” Similarly, Kimberly, a Quantitative Biology student at a four-year university, described how her dual enrollment English course taught her to adapt to professor expectations and grading preferences. She shared that the dual enrollment English class

experience taught her to recognize that each professor had distinct grading expectations, requiring her to adapt her writing to "how he wanted it."

Other students contrasted dual enrollment grading practices with the more forgiving grading structures they experienced in high school. Jocelyn, a STEM student attending a CSU campus explained that grading in dual enrollment "was definitely more specific and targeted," adding that the level of detail and accountability "pushed me more forward." Brisa, a first-generation public health major also attending a CSU campus, also reflected on how dual enrollment shaped her understanding of college expectations. She echoed other students' perspectives when she explained that what distinguished the dual enrollment course from her traditional high school classes was "the way the grades were presented and the workload within a span of time." Generally, students described grading in dual enrollment as different from high school and more aligned with the college grading, they saw after transitioning to college.

Despite these positive experiences, not all students experienced this alignment in the same way. For example, Javier, a pre-med student attending a UC campus, noted that he was surprised his university professor did not publish a gradebook, unlike his dual enrollment instructor. He expressed frustration with the lack of grading transparency at the four-year institution, identifying it as one of the challenges he faced after transitioning to college.

Additional transitional challenges are discussed in subsequent sections.

In general, student responses showed that the early exposure to assessment/grading culture in college courses where performance is evaluated on less higher stakes assignments and professors are viewed as having specific grading patterns helped both first-generation and continuing-generation students develop strategies for prioritizing major assignments and managing deadlines and motivated them to work harder, skills that several participants described

they continued to use when they transferred to full-time college coursework. It also reduced some of the anxiety that students had about grading after they transferred.

Learning Accountability Through Syllabus and Course Policies

Students also frequently referenced the syllabus from their dual enrollment class as an important document that shaped awareness of policies they had not seen before. That is, several participants described realizing the syllabus as an essential component of college instruction. Bianca, who completed multiple dual enrollment courses through CCAP and independently through CGC, immediately pointed to the syllabus and attendance policies when describing what made her dual enrollment classes feel like a college course. Of these experiences, she preferred and mostly referenced the in person setting because it allowed her to collaborate with her classmates. She immediately pointed to the syllabus and the policies that surprised her initially:

Like if you want to miss a day or something, they are more strict in a sense. It needs to be an emergency; you need to show proof. But I like that. We are adults and you need to provide that. I feel like taking those dual enrollment classes gave me more of a sense of responsibility.

This comment illustrated that Bianca was not previously familiar with formal policies of college and was willing to take on the responsibility needed for success in college. Similarly, Brisa commented that she felt her dual enrollment class prepared her “a lot” as she learned “what to expect from professors, looking at the syllabus and understanding what is required of me as a student in class and outside of class.” Both Jocelyn and Brisa brought up the policy of withdrawing from or dropping classes was not something they had encountered in high school. Their comments showed that exposure to college policies led to them taking accountability.

In fact, several participants described how dual enrollment introduced them to college course policies, particularly assignment pacing and late work. Unlike their high school classes, which they said often offered flexibility with due dates, dual enrollment courses exposed students to stricter deadlines and the need to manage longer assignment deadlines. In describing her experience with high school and college, Kaitlyn, a first-generation Chemistry student at a two-year college explained that “It’s not like they [high school teachers] were unorganized, but it was just going in to class and the teacher comes in and teaches you, okay. But the college class had a syllabus, and it was heavier on turning in late work or like the time frames to do work and such.” Ari reinforced this distinction, identifying assignment pacing and late-work policies as the features that made dual enrollment feel most like a college course:

Probably like pacing for me... the high school assignments usually... it'll be due within like three days, but I feel like the college window is a little different... you had like a month...Also late assignments are kind of different... if you are late and you don't use a late pass... you can't turn it in anymore. The window is completely closed.

The fact that students were able to recall specific class policies that stood out to them during dual enrollment classes such as grading structures, attendance expectations, late work and withdrawal procedures suggests that students were gaining a preview to and early awareness of college structures and expectations—the “hidden curriculum” of college (Kanny, 2015). When contrasting with their high school experiences, participants often contrasted these experiences with their regular high school classes, describing dual enrollment as offering a more authentic preparation for higher education.

Exposure to Professor and Course Expectations

Across interviews, participants now attending community colleges and four-year universities emphasized that their dual enrollment class taught them what to expect in college and even on potential tests and quizzes. Unlike traditional high school environments with structured rules and constant monitoring, dual enrollment courses have students manage their own behavior and responsibilities. For instance, Ari noted that in high school students had to ask permission to even go to the bathroom (“bathroom pass”) and Gina talked about how students had to put phones away during high school, whereas with dual enrollment “we just kind of got open freedom,” reflecting a shift toward greater autonomy.

In describing her experience, which further illustrated this shift in expectations, Hannah commented that her dual enrollment English class expectations and assignments were really different from the writing that she had been doing in her AP high school English classes. She explained that her dual enrollment English course “taught me more about the expectations, and it's a lot more asynchronous and hands-off than teachers are in high school, and you're expected to do a lot more on your own time.” She continued by saying that “in high school, there was always free time, or just time dedicated to working on assignments in class... that was not the case with my dual enrollment class where class time is maximized for lectures, exams and discussions, and all the work is done pretty much outside of class.” Across interviews, participants emphasized how the dual enrollment classes helped them understand that college classes require substantial work outside of class, which was a big change from their high school classes where most work was completed during class time. Hannah explained that dual enrollment “allows you to get used to the format of a college classroom” and what professors generally expect, particularly the structure of lectures combined with independent work outside

of class. She noted that this format—learning content independently and using class time for discussion—was consistent across many of her college courses, making her transition smoother. Similarly, Brisa also described how she came to realize that “we had to do the readings and come already prepared for class,” a habit that has continued into her college experience. She explained that “now that I’m in college, I do all the learning before,” while class time is used for “discussions and breaking it down with peers,” rather than completing assignments.

Lily, a Public Health Science student who participated in an Early College (EC) program, now at a four-year college, reflected that she entered college already understanding expectations after taking numerous dual enrollment courses. As an EC student, she had taken the majority of her classes at her high school site yet felt very familiar with the college academic structures prior to matriculating to a four-year university. Her dual enrollment classes foreshadowed her UC experience: “that’s exactly what they do here; most of the studying and the lecture and the textbooks is everything you do before class, and when you go into class it’s just doing the work” As a result, Lily reflected that she entered college already understanding these expectations, stating that she “already knew what they were going to expect of me, and that’s what I need to do.” Similarly, Emmett, a continuing-generation STEM major attending a community college, described how both his CCAP dual enrollment instructor and the independently enrolled dual enrollment course he completed exposed him to expectations that differed from his traditional high school classes.

They both set me up with, like, you're expected to do two hours of homework, four hours of homework for the week or something, and it's like, wow, which seems ridiculous to me, you know?! I think they both said an hour a day, which seems like a lot, but then you go into college, and you're like, oh yeah, they were right, you're expected to do that much

studying, and you're not just expected to do the homework; just doing the homework itself won't prepare you for everything. You're expected to do things outside of class as well.

Like Emmett, Camila reaffirmed this understanding, also noting that her dual enrollment college courses required students to manage deadlines independently, emphasizing that assignments were expected to be submitted by specific times, such as “11:59pm,” which was “not really a big thing in high school where you just gave it in during class.” All these student responses suggest that dual enrollment courses play a key role in helping students understand and even internalize the expectation of independent learning and preparation, which led to a smoother transition to college-level.

Nonetheless, not all participants experienced dual enrollment as preparation for them in this way. Several students (Emmett, Javier, Gina, Ari, Brielle, and Hieu) also admitted that their experience did not fully prepare them for the range of expectations they encountered after entering college. While students gained exposure to college-level coursework, they emphasized the variability in instructional approaches across professors. As one student explained, “the college class itself really depends on the professors, so it’s hard to account for how each professor teaches the class.” Others echoed this sentiment, noting that “every professor has their own personality,” highlighting differences in teaching style, grading practices, and expectations. Some commented on how certain professors came off as “strict,” while some are more flexible. For example, Kaitlyn noted that “for some, if you email them, they would have let us have another day or so to work on an assignment.” Emmett discussed his struggles with a professor in an online class he took after he transferred, where 60% of the class was failing, commenting that “it’s not going to be very often that you have a teacher in high school that’s really bad like that.”

Hieu, a first-generation male student pursuing math and physics at a four-year university, completed over 55 dual enrollment credits while in high school, including his CCAP dual enrollment ones. He reflected that although his dual enrollment classes “felt generally easy,” this perception varied “from professor to professor.” For example, he explained that in some courses, particularly an online Calculus II class, he struggled because the professor “didn’t provide a lot of resources” or hold office hours, which made him feel as though he was “teaching myself the entire course” rather than being actively instructed. Brielle offered a more balanced perspective, characterizing dual enrollment as a “double-edged sword.” While the experience prepared her to recognize that college professors are less lenient and require students to stay consistently on top of their work, she also noted that she struggled to keep pace in some of the more rigorous courses she later encountered after she got to college. Therefore, dual enrollment may introduce students to college-level expectations, but it does not consistently or always prepare them for the variability in rigor and faculty expectations they encounter in postsecondary settings.

Familiarity with College Technological Systems and Structure

When reflecting on how dual enrollment courses prepared them for college, students frequently emphasized their familiarity with the structural and technological aspects of college spaces. For example, across interviews, 18 participants described feeling comfortable navigating Canvas learning management system after taking their dual enrollment class; many also discussed how their courses led to understanding course organization, and knowing what to expect in terms of quizzes, assignments, and syllabi. The only participant who did not mention Canvas had taken a Dance course through CCAP dual enrollment.

Many participants described Canvas as one of the clearest markers distinguishing dual enrollment from their traditional high school experiences. Vincent, first-generation student who

completed an associate degree through an early college program, described his dual enrollment experience as an “introduction to college life,” noting that, through it, he became familiar with the “technological aspect” of coursework, including how to access materials and track assignments. Other students echoed this sense of familiarity and even noted that continuity of the use of Canvas in college contributed to their confidence in their transfer institution, as they already knew how to “check assignments,” monitor due dates, and navigate course announcements. Vincent shared how “going into a four-year university, I had already had that expectation, so the transition was easier,” demonstrating how prior exposure to independent learning structures facilitated adjustment. Camila's experience further reinforced this theme. A Nursing major at a 2-year college, she explained that her dual enrollment nursing course felt “college like” largely because it used Canvas and was taught by an actual college professor. She described how logging into Canvas made the course feel different from high school and noted that once she entered college, she already felt comfortable navigating course shells and accessing materials independently.

Perceived Academic Advantage Over Peers

Across the interviews, participants frequently noted that they felt that they were more prepared than their peers upon entering college, which they credited to their dual enrollment experiences. They expressed that their exposure to college work and college resources provided them with an advantage. Vincent shared, “I definitely feel like other students around me in college struggled more than me to adapt to the new college life.” This perception was also echoed by Ari, a Chemistry major and first-generation student, who commented on how he had a better time navigating library databases than other students in their class, and Hannah who stated that although she did find college to be an adjustment, because she took dual enrollment classes

in high school, she was “more used to the format than some of my other friends who maybe didn't take those classes in high school.” Allison also expressed it well when she said that her English dual enrollment class “helped set [her] up” in ways that she did not see among her peers, whom she observed having a harder time adjusting.

These findings overall suggest that dual enrollment courses play a significant role in socializing students with college, and this familiarity reduces uncertainty and increases their confidence. While these perceptions are, of course, based on students’ own observations rather than actual comparison studies, they suggest that the early exposure seems to support students’ ability to navigate postsecondary education.

Generational Similarities and Differences

Both first-generation and continuing generation students in my study described how CCAP dual enrollment exposed them to college grading practices, academic expectations, and the independence associated with postsecondary coursework. Regardless of background, students shared how dual enrollment helped their transition and college readiness by exposure to a college classroom, syllabi, course policies, grading structures, and academic independence—as well as familiarity with academic systems like Canvas, which all helped build their confidence and reduce anxiety when transitioning to college. Thus, the academic preparation that students get from early exposure to college structures was not unique to first-generation status and both groups benefited.

However, the difference was more on how participants described the significance of the exposure. First-generation students’ responses highlighted how dual enrollment helped demystify college expectations for them. Since they were the first in their families to attend college, many did not know what to expect. Students like Brisa and Vincent said that having

already experienced college classes in high school made them feel more confident and less anxious about starting college. Brisa, for example, talked about how “she didn't feel much prepared from my family...just because none of my family went to college. But they gave me motivation to keep going in college” and how she struggled a lot in high school academically but how dual enrollment gave her a realistic preview of college. She talks about how she “felt prepared for what to expect from professors, looking at the syllabus, understanding what is required of me as a student in class and outside of class.” This increased feeling of academic readiness was a common theme with first-generation students. She also shared how dual enrollment exposed her to the real demands of college classes, especially in terms of grading, deadlines, and even finding her way of learning. This example is one of many that shows how dual enrollment made the structure and rigor of college less mysterious and gave students like Brisa the tools and mindset to be ready when she transferred. Similarly, Vincent explicitly stated that his family did not prepare him academically for college because “Both my parents didn't complete high school... Or even took, I think, middle school classes, or even most elementary courses.” However, he described dual enrollment as a “cushion” that helped him understand what it meant to “be more on your own” before transferring. Reflecting on his transition to college, he explained

It felt like a quicker pace, with more information, and with more condensed...

information. Whenever we had the dual enrollment professor, it was always, okay, expect to be more on your own. And so, going into a UC, I had already had that expectation in mind and already kind of knew how it felt, so the transition to being by myself in the courses and needing to reach out on my own was easier to do.

Vincent also discussed how practical experiences using Canvas and accessing tutoring resources during dual enrollment helped him feel more comfortable seeking support from teaching assistants and professors after entering college. Other first-generation students like Ari explained how they were the first in their family to attend college and even speak English. This led to him often struggling with selecting classes and navigating academic decisions, noting that he “didn’t have an older figure that went through it before. However, the four dual enrollment classes he took provided exposure to college structures and expectations that were otherwise unavailable through family experience. Collectively, these findings suggest that for many first-generation students, dual enrollment functioned not only as an acceleration opportunity, but also as a form of college socialization that reduces uncertainty and demystifies what college will be like. Continuing-generation students also benefited from early exposure to college structures and experienced challenges during the transition. However, they expressed having familiarity with the way college worked already through their family. However, dual enrollment served as access to knowledge about college structures and expectations that they didn’t get from their family experiences.

Finding 2: Dual Enrollment Fostered Academic Independence, Though Some Students Experienced Challenges After Matriculation

Prior research shows that dual enrollment participation is linked to gains in both cognitive and noncognitive dimensions of college readiness, particularly in areas such as learning skills, academic engagement, and motivation (An & Taylor, 2015). Participants in my study discussed how dual enrollment supported their development of college readiness through the development of study strategies that transferred with them, time management skills and development of ownership of learning. At the same time, these experiences and outcomes were

not always consistent across participants. Yet, generally, participants favorably described the academic growth they experienced while in their dual enrollment program and how key skills and learned behaviors often contributed to their familiarity and success once they graduated on to 2-year or 4-year institutions.

Development of Study Habits and Learning Strategies

Prior research shows that dual enrollment introduces students to learning strategies, but does not ensure their full development into independent, self-regulated learners (Day et al., 2020). Learning strategies are not innate; rather, students learn how to plan, monitor, and adapt their learning behaviors over time. Findings in my study support this claim, as participants consistently described how dual enrollment contributed to the development of study habits and learning strategies, which they often used once they transferred. At the same time, participants' experiences also suggested that the development of these behaviors was uneven and shaped by their individual experiences. Across interviews, students described becoming more intentional in how they approached reading, studying, and writing. When I asked Jocelyn about the most meaningful impact of dual enrollment, she emphasized that it changed how seriously she approached her academics. She described taking her dual enrollment class more seriously than her high school courses, which led her to actively seek understanding of the material and build stronger study habits that carried into college. One key example she provided was how she approached reading. She shared how in her high school, reading was not strongly enforced, and engagement was minimal. However, in her dual enrollment English class, she began reading more actively and independently and found herself enjoying the material as she understood it more. Similarly, Hieu vocalized the importance of engaging with material before or outside lecture after taking dual enrollment classes:

I think the thing I started doing a lot more when I started taking dual enrollment classes was to do as many practice problems as I could. Not only for math classes, but also for philosophy, that was one way I would sort of practice and study for philosophy exams. I'm currently taking ethics, and the way I'm preparing for ethics right now is the same: I maybe prepare some questions. I do the same things with Math.

Other students like Gina and Emily described carrying over writing strategies they developed in their dual enrollment English courses into their college coursework. For example, Gina emphasized applying instructor feedback to improve her writing in subsequent courses at her 2-year college. She talked about the “strategies and criticisms I got from my English class. I kind of just applied it and it worked.” Emily talked about the “brain dumping” strategy her dual enrollment English professor taught her when beginning an essay: “When I need to write, I just dump what ideas I have on and then rewrite from there.”

Other students like Bianca talked about how through dual enrollment they learned the importance of identifying effective study environments, such as studying in a quiet space like the library, and spacing out assignments to manage her workload more effectively. Student responses revealed that dual enrollment can serve as a tool to develop what Conley (2010) frames as new academic behaviors.

However, participants did not consistently describe dual enrollment as improving their study habits. Some students admitted they picked up some behaviors during their dual enrollment courses that persisted into their postsecondary education, particularly procrastination. These patterns were often attributed to a perceived lack of rigor in their dual enrollment classes compared to the demands they encountered enrolling in college full time. Emmett admitted that he “kind of coasted through precalculus dual enrollment.” and that his procrastination habit

stayed with him once he got to college. Ari shared that during his dual enrollment English class, he focused more on enjoying the social environment than developing stronger academic discipline admitting that the dual enrollment class was “just too fun.” Ari was part of a cohort-based learning community at his high school and English was the second class with the same cohort; as a senior, he was surrounded by classmates he was very familiar with. He described the class as relaxed and enjoyable. However, after entering college as a Chemistry major, he reflected, “I focused more on having fun than actually working hard in college, and I feel like in college you need to learn how to balance both, but I was really bad at it, so I failed my first semester.” Similarly, Brian also commented that because his dual enrollment courses were significantly easier than his college classes, he did not view them as spaces where he developed strong academic habits. He indicated that his high school teachers prepared him just as effectively as his dual enrollment instructor, which could be attributed to his dual enrollment class being taught by a high school teacher. Their responses reveal that dual enrollment is not guaranteed to have positive outcomes, and there can still be a “learning curve” when students transfer.

Development of Time Management Skills

Typical study-skill behaviors include time management which is seen as key to success in college (An & Taylor, 2015; Lile et al., 2017). When asked to describe the impact of dual enrollment, several students discussed how they developed time management skills as they managed a high school workload in college classes. Their awareness of its significance in higher education increased tremendously and they shared how they gained experience with time management and prioritizing assignments. For example, some participants expressed that their dual enrollment class made them more aware of the time needed to complete assignments and

review materials before class. Brielle shared that her dual enrollment class developed her time management skills:

It helped me prepare for the loads and how to schedule myself.... In high school, I mainly carried the load of my college classes more than my high school classes, because I also worked at that time. Usually, I would complete my high school assignments in class, and all my college work was done after class, or when I didn't have work those nights. And that's what I do now. So, I have work in the morning, school, I do homework, and then I go to my night job, and then it's, like, all over again.

Some students talked more about how they developed strategies related to time management, and academic self-management. Brielle, a first-generation English major shared how as a high school student, she always waited until the last minute to complete assignments, but after taking college classes, she realized she needed to do them at least “1 to 2 days in advance because I still like the pressure to get focused, but I realize I always need to get my papers in a week early so I can go to office hours.” While Brielle emphasized completing assignments ahead of time,

As I probed students about the study habits they retained, several echoed this habit of learning to manage their time and schedules. Camila recounted that she developed the ability to do assignments on time or early and Allison also explained how the dual enrollment experience helped with “learning how to balance and prioritize when big things that are worth more percent of my grade were coming up.” She said her dual enrollment class felt similar to college, especially small college classes, because there was a lot of discussion and there were fewer assignments “that took more time.” Similarly, Kaitlyn mentioned that, for her, she learned how to set aside specific time for tasks such as note-taking and homework, rather than spreading them

out over the week. She explained how for the first time in her high school experience, she had to make a schedule. Although she was aware of these skills in high school, she noted that she did not have as many opportunities to practice them because high school was “a lot more lenient.” Brielle, who had taken 51 units during high school, discussed how she managed the course load while balancing school and two jobs. She shared that in high school, she prioritized her college coursework outside of class time, completing assignments when she wasn’t working. She continues to use this same routine today in college, structuring her day around work, school, and homework, demonstrating sustained independent learning habits.

The feedback from the interviews clearly illustrated that through dual enrollment, students had to figure out how to balance their high school work, college work, and work obligations as they relied on time management skills to help them succeed.

At the same time, familiarity with deadlines did not necessarily mean that students were prepared to manage the increased autonomy, as several students did admit that even after taking dual enrollment, they were not fully prepared for the time management needed once they actually got to college and this was a challenge that many of them faced. For instance, Hieu explained that the structured schedule of high school, where classes ran consistently from morning to afternoon (“8 to 3”) differed significantly from the more fragmented and self-directed schedule in college. He noted that, unlike high school, college required him to manage gaps between classes and complete work independently throughout the day. While dual enrollment increased his workload, it did not fully prepare him for navigating the less structured and more variable college schedule, requiring him to adjust after transitioning. Several students felt the same way and at least 11 of them discussed the challenge of adjusting to the increased autonomy of college scheduling. For instance, while high school provided a fixed and predictable structure,

Brisa described how college required her to make decisions on her own about when to take classes, how to space them out, and how to build in time for rest and studying. Ari reinforced this challenge when discussing how dual enrollment classes did provide some exposure to college level responsibility, but it did not prepare him for the self-discipline needed with all the free time. He noted that having unstructured time between classes became a challenge once he transferred, as “there are days where you don’t really even go to class... I had the whole day off and I spent **none** of that time on my assignments,” attributing this to the absence of external structure or accountability, such as a teacher directing him to stay on task. As a result, Ari struggled academically, even failing several classes during the first year of college, illustrating that exposure to college coursework in high school alone does not ensure the development of the time management skills necessary for success. The fact that this challenge came up repeatedly suggests that while dual enrollment may introduce elements of academic responsibility, it does not consistently develop the self-regulation and independent time management required to be successful in college, especially when it is offered during the high school bell schedule with a high school teacher who manages the students.

Adapting to Independent Learning & Ownership of Learning for Many Students

Prior research demonstrates that ownership of learning can help students overcome specific shortcomings and acquire the necessary knowledge to succeed (Chan et al., 2014; Conley & French, 2014; Sakai & Bakke, 2022). Across interviews, and as discussed earlier, students explained that dual enrollment courses often required them to learn material outside of class, adapt to reduced instructor guidance, and take increased responsibility for managing their own academic success. The need for independent learning and ownership of learning was a pattern, especially when the topic of autonomy they had in college came up which Hieu referred

to as “having a lot more control over things I want to spend my time on,” and Gina referred to as “being her own boss.” Hieu talked about the expectation to “spend my time independently,” which prepared him for the self-directed nature of college coursework. Similarly, Hannah explained that college courses were “a lot more asynchronous and hands off than teachers in high school,” requiring students to complete “a lot more on your own time.”

Many students attributed this structure of the classes as the catalyst for them ultimately taking ownership and internalizing the importance of responsibility for their own learning. For example, Hannah, Lily, Vincent all described how they began to prepare in advance and come to class ready to engage, rather than relying on in-class instruction. Hannah explained it like she had “stepped up” as “professors in college aren't necessarily holding my hand as much as my high school teachers did, and I'm not seeing them as often.” Lily admitted that some of her dual enrollment classes were not as challenging, but for some of the more challenging ones, “you need to read or know the material beforehand, so that when you go into lecture, you know what to expect, because in lecture, they don't exactly teach you those things, they kind of just go through it as, like, a review, more so.” She learned that lectures often assume prior knowledge and function more as review rather than direct instruction. Because her dual enrollment professors emphasized this expectation, she entered college already knowing how to study and prepare on her own before class, which helped her adjust and maintain her academic performance at a UC. Her comment “most of the studying for me now is everything you do before class,” really captured how she internalized this expectation of working on your own, allowing her to adapt quickly to the preparation-focused structure in post-secondary institutions. Similarly, Vincent discussed that his dual enrollment courses through his early college program felt more demanding than his AP classes in terms of pace and structure, not necessarily difficulty

of content. He perceived that instructors moved through material more quickly, presented information in a more condensed format, and expected students to rely more on independent learning, including completing readings and “practicing on your own.” This suggests that students are realizing that in college, learning is no longer teacher-driven and that students must take responsibility for practice and understanding. Students like Lily and Vincent who participated in early college programs or completed a greater number of dual enrollment courses appeared to have a clear advantage in developing independent learning skills and adapting to college expectations. However, even students with less exposure to dual enrollment like Kaitlyn and Hannah described familiarity with independent learning strategies.

Students in the study described not only learning on their own but also finding ways to adapt to a professor's style, which was demonstrated through their responses to my question of what habits they took with them when they transferred to college. Vincent talked about no longer being able to “rely on what a regular teacher or a regular AP teacher would do.” He put the onus on the student to adapt to the teacher's style. Hieu, who took a variety of dual enrollment classes, explained how in some courses, like his dual enrollment online independent Calculus class (not a CCAP dual enrollment class) he felt like he was pretty much “teaching [himself] the entire course” due to limited instructor support. He explained that his online professor did not provide many learning resources and did not hold office hours, which made the online format especially difficult to navigate. As a result, he found himself teaching the material on his own, relying on independent study rather than guided instruction. His experience highlights how the level of instructor support can significantly shape the structure of learning in dual enrollment courses, at times shifting responsibility almost entirely onto the student. Kaitlyn similarly described her

asynchronous course as requiring her to “do a lot of the things on your own” with minimal student–teacher interaction.

Students like Bianca and Brisa developed responsibility for their learning by identifying and refining strategies that supported their understanding, demonstrating a shift toward more independent learning. Brisa explained that she realized that, unlike her high school, “we had to read outside of class on our own.” She talked about how in high school, note taking and other learning strategies were assigned by the teacher, but in her college classes, she had to experiment with different approaches to figure out what worked best for her. She explained, “in college, it's up to you which way you want to take notes, or if you even want to take notes, so I needed to figure out and kind of experiment how I learned the best of which note-taking is best for me, when to answer and questions, or how much time I need to study for the information to stay with me. So that was a lot of, like, self-learning and self-discovery.” She basically had to take responsibility for her learning by identifying and refining strategies that supported her understanding, demonstrating a shift toward being responsible for her learning. Bianca described realizing that if she missed a class in college, there were repercussions:

I had no idea that with a college syllabus, like, if you were to miss a day or something, oh, it needs to actually be an emergency, you need to show proof. But I like that, because it's like, okay, now you're actually adults, and you need to provide, like. a sense of responsibility, so I feel like taking those dual enrollment classes were giving me more sense of responsibility.

Bianca realized that college has stricter rules, especially about missing class, and that students were expected to be more responsible. Taking dual enrollment generally helped the students I spoke with understand that they needed to act more like adults and take school seriously. Brielle,

who had taken 51 units during high school, a mix of CCAP dual enrollment on her high school site and some independent courses, discussed how she managed the course load while balancing school and two jobs. She created a calendar, she prioritized her college coursework outside of class time, completing assignments when she wasn't working. She continues to use this same routine in college, structuring her day around work, school, and homework, demonstrating sustained independent learning habits.

However, not all students developed strong ownership of learning through dual enrollment, particularly when courses mirrored the structure and support of high school classes. Emmett's experience showed that the dual enrollment exposure was not sufficient to really develop ownership of learning. Emmett admitted doing only what was required when he transferred to a 2-year college. His dual enrollment class was not that challenging and it was taught by a high school teacher, so he felt like it very much became an extension of his high school classes. When he got to college, he maintained some of the same procrastination habits and "I did everything required. Everything required of me was... nothing. And that's why I failed that class." Other students, like Ari, described how this independence initially led to poor outcomes, and failing multiple classes, but ultimately helped them eventually. "You have to start self-disciplining yourself," he admitted, recognizing the impact of their choices (after transitioning), "And I say like now I'm doing pretty well, and I feel like I've learned a lot of discipline from that. You just have to figure it out yourself that you're doing it wrong because, well, I mean, I looked at my grades, and I realized I was doing something wrong. An important pattern across some student interviews was that ownership of learning was not immediate, but developed through experience, often shaped by both struggle and adaptation to the expectations of college. Conley and French (2014) suggest that students with the ability to reflect on their

learning strategies and persist in the face of obstacles can overcome specific shortcomings in English and mathematics content knowledge. They suggest the impact is greatest on students for whom college is challenging in the first place.

Development of Help-Seeking Behaviors and Limited Use of Campus Resources

As participants became more reflective and independent learners during dual enrollment, many also developed greater confidence in seeking academic support when needed. This often included asking the professor questions. For example, Lily described engaging in help-seeking behaviors throughout her dual enrollment experience, demonstrating a willingness to use available resources to support her learning. She explained that she was “never... shy about just asking the professor questions” and frequently stayed after class to seek clarification. Talking to professors was a practice she wanted to maintain after she transferred but told me she found it hard to develop these relationships due to her commute and the large class sizes. In addition to faculty support, Lily also utilized other resources such as the CGC library chat and course-related materials, including calculators provided for her statistics class.

Vincent corroborated this perspective when he shared that he became comfortable reaching out to professors during office hours in his dual enrollment CCAP college classes, recognizing that they were there to support his understanding as experts in the subject. This behavior carried over with him: “I was confident and comfortable enough to know that I can go to my professors to ask them here at a UC, because the help that they're gonna provide me will ultimately be beneficial in the long run.” He recalled an incident where he reached out to a professor at his current institution who didn’t respond, and then he felt comfortable enough to approach him after class. Vincent and Kaitlyn talked about how they would get help from the high school co-teacher who was there when the college teacher was not. Analysis of the

interviews showed that students who took early college or had a college teacher come to their high school site, had stronger relationships with faculty, and expressed feeling comfortable seeking help. Students who mostly took independent dual enrollment classes, online classes or had an asynchronous class offered at their high school site did not really interact much with college professors, and that behavior carried over once they transferred. Regardless, help-seeking behaviors represent ownership of learning, as students actively monitor their understanding and take initiative to get support.

A notable pattern in my study was students had limited to no engagement with CGC support services, such as tutoring centers and academic resource programs. Across all participants, only one student used tutoring services offered through CGC, and that was online tutoring when a teacher required it. Some students said they were not aware of the resources or just didn't feel that they needed them. Lily commented that she felt there were limitations in accessing CGC resources, particularly tutoring services, explaining that although high school students were aware of them, they did not always know how to use them effectively or found them difficult to access when not physically on campus. She never used tutoring and suggested that the college make "the resources more known to students...I mean I think we were made aware of them, but we weren't really, like shown to really utilize them, or if anything, they were at Coastal Gateway College, and so they were only really accessible to us during the summer when we took a class there." When asked if students use the tutoring center now, there was a mix of responses where some students did use them at their transfer institution, and some did not. These findings suggest that dual enrollment did develop ownership of learning by encouraging students to seek help directly from professors and take greater responsibility for their academic success.

However, participants demonstrated far less familiarity with institutional support services such as tutoring and academic counseling. For instance, when asked about using resources such as college counseling, not a single student in my study reported meeting with a college counselor to discuss their dual enrollment coursework or transfer plans. This was the case for both CCAP students and students who independently enrolled in dual enrollment courses. Even students who had accumulated 50 to 60 college units during high school described having to figure out course selection on their own, with the exception being early college students who had predetermined courses to take. Although participants described developing greater comfort seeking help from their professors, their limited use of tutoring, counseling, and other institutional resources suggests that this help-seeking did not consistently extend beyond the classroom. Providing students with these skills could benefit them once they transfer. However, generally, dual enrollment students who developed stronger academic habits were better positioned to navigate the transition successfully.

Generational Similarities and Differences

Students in both continuing generation and first-generation groups seemed to develop time management skills, independent learning, and help-seeking behaviors. In both groups, students described dual enrollment as requiring greater responsibility for their academic work and therefore leading to new behaviors they carried into college. Both generational groups also experienced challenges after transitioning to college, indicating that prior exposure to coursework did not ensure full development or academic independence. There was variation among the group itself, but there was no consistent differences between the two groups. For example, participants from both groups who had opportunities and multiple opportunities to interact directly with college professors described greater familiarity, whereas students in online,

asynchronous, or more high-school-like dual enrollment settings often reported less interaction with college faculty.

Finding 3: The Authenticity of the Dual Enrollment Experience Shaped Students’

Preparation for College

Although dual enrollment courses are college-level instruction and gave students authentic exposure to college structures, participants in this study sometimes perceived these experiences as lacking full authenticity, which they can reflect on now since they transferred. This often depended on how the course was delivered, the instructor, and the amount of high school support. Students described their CCAP dual enrollment courses as something being lenient, over-supported, and, at times, “filtered” in ways that differed from the actual expectations and realities of college coursework once they transferred. For example, Ari commented,

I felt like things were more lenient. I had way more fun [in dual enrollment] since my high school classmates were there. So, for some reason in my head when I transferred to community college, I was like, yeah, all my classes are going to be like this. And I was severely disappointed. Not all the classes were like that. They were much harder.

Brian mentioned how in one of his classes at the postsecondary institution, on the first day, the teacher didn't even go over the syllabus and told students, “yes you do that on your own, we are going to start learning right now,” which was surprising to Brian after the CCAP dual enrollment classes which eased him into the expectations of the class; he felt unprepared for how quickly his college classes began. Several other students, including Lily, Vincent, and Javier, who took multiple CCAP dual enrollment courses through their early college program, described experiencing difficulty adjusting to the large lecture format of university courses, which

contrasted sharply with their dual enrollment experiences. Lily explained that dual enrollment classes were characterized by small class sizes where "we all knew each other," making it natural to form connections with instructors and seek help. In contrast, she described her university classes as large lecture halls with "something like 300 students," where access to professors was limited and often required waiting in long lines that didn't end. Since she commuted to school, she felt that she didn't have access to her university professors outside of class. Similarly, Javier and Vincent noted that while dual enrollment courses were "technically college classes," they did not match the pace and structure of university instruction. Javier talked about "our relationships with our professors in dual enrollment were way more personal than the relationships here. I've only had a personal connection with one professor, and it's in a GE that's not even related at all to my major. And so that kind of does feel a little alienating, like, you feel like you're just a number, which is not what dual enrollment felt like."

Students I talked to frequently described dual enrollment as a hybrid between high school and college. Vincent, for example, explained that dual enrollment courses were "fitted for students of that age" and felt like "an introduction, but not really... a full push to the real world." He commented on how at his current UC, he found it difficult to schedule meetings outside of class because professors seemed less available and sometimes came across as "harsh." Ari corroborated this when he said DE was a "a preview, but it was still high school." Similarly, Allison noted that her dual enrollment classes were embedded within the structure of the high school day, explaining that "it's still part of my high school routine," in contrast to the independence of university settings where "there's really not much stopping people from not going to class."

Familiarity with High School Instructors Shaped Perceptions of College Authenticity

The perceived lack of authenticity appeared to be more pronounced in dual enrollment courses taught by high school teachers. In one CCAP dual enrollment model, the courses are taught by high school instructors who are credentialed. Five participants in this study had completed at least one dual enrollment course taught through this instructional model. One student, Brian, described this as an advantage, noting that his high school teacher also worked as a college instructor and therefore was familiar with the college system. However, the other four students suggested that these courses did not feel like real college classes when taught by a high school teacher. Emmett, for example, explained that because the same teacher had taught his AP course the previous semester, the transition into dual enrollment did not feel significantly different. He described the experience as having the “same teacher, same classroom,” and said that it “was still definitely a high school class.” When I asked him to elaborate, he attributed this perception to the strong emphasis on homework, which contrasted with his current college calculus course, where tests were more high stakes. Other participants similarly associated dual enrollment courses taught by high school instructors with experiences that felt less authentic than college. Stacy, for example, reported that her dual enrollment dance class did not feel like a “college class” because it was taught by her high school teacher and she even forgot sometimes that it was a college class. Similarly, Lily, who participated in the early college program, as made this distinction, stating that while most of her dual enrollment courses felt like college classes, the one taught by a high school teacher did not. She explained, “I think because that teacher was mostly a high school teacher, and taught mostly AVID, it did not feel like a college class. It just felt like a high school one.” What these findings suggest is that when a high school teacher who students are already familiar with teaches the class, even with the credentials, the

dual enrollment feels more like a high school–like experience rather than a transition into college norms. The experience may limit students’ exposure to key aspects of authentic college learning, including increased independence, higher-stakes assessment structures, adapting to an unfamiliar professor as well as seeking out help when needed. These differences may become more apparent when students transfer.

Co-Teaching Structures Contribute to Perceptions of Reduced Academic Authenticity

In many CCAP dual enrollment classes, a high school co-teacher supports the course while the college instructor serves as the official instructor of record and visits the high school on scheduled days (such as Mondays and Wednesdays) to teach the class. The high school co-teacher is present in the classroom on a daily basis, providing ongoing support, reinforcing course content, and helping students stay on track with assignments. Many students commented on how this high school co-teacher was part of the reason the dual enrollment experience felt like a “protected transition space.” Gina shared that yes, “it did feel like a college class,” but it also “felt like a high school class,” particularly due to the presence of the high school teacher in her class who monitored students’ behavior. She recalled how, on days when her college English teacher was not there, the high school teacher would lecture students:

He would get really stern... and he would lecture us, being like, ‘guys, she’s really nice. You really need to turn in your work. You guys can’t be on your phones. Don’t act like I don’t see it. I’m standing in the back. You guys aren’t being sneaky.’ He would be on us about it when the teacher wasn’t there, which is not like college, actually.

Because the dual enrollment Bridge to College program she participated in intentionally serves students who may not have traditionally participated in dual enrollment, the co-teacher likely had

a more involved role to provide structure and oversight. However, the monitoring and behavioral enforcement required to manage the group is not typical of college environments.

Kaitlyn also recalled the math class she took asynchronously at her high school, where the college math teacher never came to her campus, but if students ever needed help, “there was also the high school teacher there, and he also taught statistics, and so whenever we needed help, we could either go up to him, which is really convenient. If not, there were Zoom meeting times if we wanted to meet with the professor, which I never did.” In Kaitlyn’s case, the accessibility of the high school teacher appeared to reduce the need for direct interaction with the college professor. Like Kaitlyn, Brielle talked about how the high school co-teacher would “support the class,” recalling an awkward incident where the college dual enrollment teacher actually got angry at the high school teacher for “teaching his material.” The conflict between the two instructors made her extremely uncomfortable and she felt that the college professor wasn’t respectful of their high school teacher. Most students did not report tension between the teachers but emphasized how the high school co teacher limited students' exposure to college independence at times. Lily, for instance, explained how with her early college dual enrollment classes, students were doing the college work but with support:

Yes, it still felt like a college course to me. I guess the difference, though, is that, like, the high school teacher does hold your hand a little bit, and kind of helps guide you, makes sure you're on track of your assignments. The high school teacher would remind you what assignments are due, versus now, it's like, it's all you.

Together, these accounts suggest that while the co-teacher model of dual enrollment provided exposure to college coursework, it was experienced as more of a structured and supported environment that did not fully replicate the independence of authentic university settings.

Students were being introduced to college expectations but continued to rely on the structure and guidance of a high school classroom and teacher.

In Person Summer Chemistry as an Authentic College Experience

Notably, several students identified an in-person summer chemistry course offered on the college campus through their early college program as an exception, as it best prepared them for college level work and challenged them to the same degree that their university classes did.

Students who completed the course all mentioned it and perceived the class work as more closely reflecting the realities of postsecondary academic work; in fact, Javier explained that the “rigor of the class” most closely matched his current college courses and noted that it required him to “put time and effort” into his work, an expectation that had not been present in his high school experience. He shared that his “university-like classes that were akin were his chemistry class, of course, and my AP Calculus class,” emphasizing that these were the only prior academic experiences he felt matched the rigor of her university coursework. Similarly, Lily mentioned how “the labs and... the work in that [chemistry] class and the rigor did help prepare me or transition me to how hard it is now at a UC campus.”

Generational Similarities and Differences

Both first- and continuing-generation students experienced dual enrollment as a supported or partially “filtered” introduction to college. No clear generational images emerged in their perceptions of authentic experiences; differences appeared more closely connected to the instructor type and the level of high school support provided.

Finding 4: Participants Described Rigor Gaps Between Dual Enrollment and STEM University Coursework

A notable finding across interviews was a gap between students' dual enrollment experiences and the level of rigor they later encountered in college-level STEM coursework. Both first-generation and continuing-generation students described experiencing significant transition shock, particularly in mathematics and science courses they took in their post-secondary institution, which they attributed to differences in pacing, grading structures, and overall academic expectations. Across interviews, students repeatedly characterized their dual enrollment (general and STEM) courses as “easier” or “more lenient” than the college classes they took after college transition, suggesting a perceived gap in rigor. STEM majors frequently provided examples of differences in their interviews. For example, Jocelyn, an Aerospace engineering major, described college as more academically demanding, particularly in terms of grading and assessment structure. She explained that exams are weighted much more heavily than in her previous classes and tend to cover a larger amount of material at once, making each assessment higher stakes, which she was not prepared for. She struggled once she transferred. Similarly, Brian explained that although his dual enrollment classes were “technically college classes” that “kind of prepared” him, they did not provide a “full picture” of university expectations. This mismatch became evident in his mathematics courses, where the pace was a lot faster and required sustained engagement with complex material which he struggled with.

Other students highlighted how differences in grading structures contributed to this misalignment. Emmett described his dual enrollment math course as heavily weighted toward homework, allowing students to pass even if they performed poorly on exams. His math dual enrollment class was taught by a credentialed high school and the emphasis on homework

allowed students to pass even if they performed poorly on a couple of assignments or tests, in contrast to college courses where assessments were more high-stakes and difficult to recover from. The Calculus course he took after he transferred to a 2-year college was structurally different from both his high school and college experiences, especially in terms of grading practices. He struggled with and failed his Calculus class in college, which was extremely demoralizing for him. He admits that “It was kind of a shock to me, like, you failed two tests and you can't recover. You know, some college classes are very, very long and kind of draining.” STEM classes in college can be especially difficult because they move fast and rely heavily on tests, making it harder for students to recover from early mistakes, an expectation that many students did not fully realize, even after participating in dual enrollment.

Comparably, Javier also discussed his struggles with his math classes. He recounts how he took his first midterm at UCLA and he walked out feeling that he had just bombed: I felt really helpless... my first ever exam here, I thought I did great, and I read it as a 19 out of 20. But it was 19 out of 40, so that really knocked me down a peg. It made me realize I have a lot more to learn.” He contrasts this with his one dual enrollment college math class during his early college experience which was statistics and was easy for him compared to the challenging math classes he had taken in high school. His AP Calculus class was more rigorous but his experience reflects that both classes were more helpful only as references. Similarly, Ari and Kimberly, both STEM majors, also reported struggling with the pace and volume of material in their STEM courses, particularly with the expectations, the need to study ahead of time, and the rigor of the work.

Vincent also attributed some of these challenges to the courses he was taking at a UC being “definitely way more challenging than the ones I took in high school.” He talked about the

protected transition space in early college: “Between the professors and the high school teachers, there was kind of more of a filter than what it is now in college. It wasn't exactly, like, holding your hand, um, but it was still more filtered than what it is right now.” He talked about how the dual enrollment workload overall was “definitely way more manageable” than his university coursework, suggesting a broader gap in rigor, especially when the CGC professors were more lenient than what they are at the college level. Vincent pointed out that non-STEM majors had an advantage. He explained that liberal arts and humanities students may benefit more from dual enrollment in this regard. For example, he described a friend who was a history major and was able to graduate from a UC in two years after completing dual enrollment courses. She found her transfer coursework manageable. Vincent ended his interview with a strong recommendation for CGC to really change the focus of their ECA program to better meet the needs of STEM students. He questioned why the degree had to be liberal arts degree that favors Humanities majors. He feels that dual enrollment can help some students (especially non-STEM majors) graduate faster because their credits transfer and count toward their degree. However, for STEM students, many dual enrollment courses are general education or elective classes that do not apply to their major requirements. As a result, these students do not experience the same time-saving benefits and may still take the full four years to graduate. He explains that “So it's almost as if we took the dual enrollment courses just for the purpose of early registration, without being able to complete the promise about being able to graduate in 2 years.” He suggested that instead of offering mostly general education (GE) classes like film, health, or policy, high schools should offer more STEM-focused courses, such as physics, math, or introductory engineering.

Generational Similarities and Differences

Participants across both groups described similar challenges in their STEM classes after once they got to their postsecondary institution, related to faster pacing, heavier reliance on high-stakes assessments, increased volume of material, and greater academic expectations after transitioning to their postsecondary institutions. That is, STEM students across both groups reported that their dual enrollment coursework did not always reflect the level of rigor they later encountered in mathematics, science, and engineering courses and they did not feel adequately prepared for those classes.

Finding 5: Dual Enrollment Was Viewed as More Representative of Actual College Coursework Than Students Advanced Placement (AP) Classes

Across interviews, participants frequently contrasted dual enrollment courses with AP classes, often describing their AP classes as more demanding and rigorous. However, when comparing their AP experiences with their dual enrollment ones, they did not consistently say that AP better prepared for college. Hieu said “the AP class would actually be more difficult than the college class. And in that sense, I would actually... and sometimes I would think that was, like, a good thing, because it becomes more difficult and more rigorous.” Similarly, Kaitlyn agreed that “AP classes were a lot more rigorous” and Lily Hoang shared that some AP or high school courses “were much harder than some of the dual enrollment classes.” A couple of students gave examples of specific AP classes like “AP Programming” and “AP Calculus” which they felt was very difficult and the content prepared them for college level work. As referenced earlier, Javier only felt that AP Calculus and his dual enrollment Chemistry class “were the only classes that I could even somewhat compare them to the classes here.”

While AP courses were described as challenging, however, they were not always seen as aligning with the structure or demands of actual college coursework. When asked about the differences, most students felt that the dual enrollment classes were closer to their university classes. Jocelyn explained that dual enrollment felt different from AP because it focused more on real-world applications and gave more helpful feedback. Even though she first thought the grading was “harsher,” she realized it was actually more detailed and helped her improve. For example, she said the feedback on her essays was “more specific” and that it “helped me in a better way... and then it pushed me more forward.” She also felt like the teacher really understood her ideas, unlike in high school where she didn’t think teachers “read through as much and thought the same as me.” Kimberly also talked about how her dual enrollment classes aligned with her college classes: “the English class was definitely more similar to my college class...they wanted us to reference more...research papers and published journals. In my AP class, it was more about the final AP exam.” The emphasis on academic sources and research-based writing reflected expectations she later encountered in college. Similarly, Hannah contrasted her computer science classes in college to her AP Computer Science classes she took during junior and senior year, explaining that the transition into college-level STEM coursework still felt “very different” after. She acknowledged the academic value of AP courses, but she described dual enrollment as more helpful in “getting used to the format of the classroom” and understanding “what professors generally expect from you.” Like Kimberly, she also felt that the writing she learned in her dual enrollment English course was “really different from the writing that I had been doing for my AP English classes,” suggesting that dual enrollment introduced her to a different set of academic expectations than AP coursework.

Students raised concerns about the structure and perceived value of AP credit, particularly on the reliance on the high-stakes, costly exam. Brielle mentioned, “I don't like the idea of testing to get that credit, because students will work so hard just to get a 2 or 3 on an AP test, especially if they want to go to a UC where some of them only accept 4s and 5s, so that 3 doesn't matter.” For this reason, Brielle intentionally avoided AP courses, but took 51 dual enrollment credits, stating that she preferred dual enrollment because it was “grade-based” rather than dependent on a single exam: “I didn’t have to worry about failing this exam and not getting any college credit as long as I pass with a C.” Hieu also gave an example of taking AP Chemistry, but not receiving credit for it because he got a 3 on the test. He expressed some frustration about how AP credit is not accepted at every school, whereas he knew his dual enrollment classes were going to be accepted after transitioning to postsecondary education. These perspectives highlight how students perceived AP as riskier and less predictable, whereas dual enrollment offered more stable and transparent outcomes. This is consistent with literature that shows dual enrollment improves college outcomes compared to no advanced coursework and that students who take both AP + dual enrollment have the highest college completion rates (Velasco et al., 2025).

Finding 6: Dual Enrollment Positively Shaped Students’ Academic Journeys but Had Less Influence on College Aspirations and Choice

When asked directly how dual enrollment influenced their academic trajectories, all participants described the experience as beneficial, although it played a more limited role in shaping their college aspirations and ultimate college choice. Many students emphasized how dual enrollment supported the development of stronger learning habits and academic behaviors. For Jocelyn, the biggest impact was that she “focused the most in that class” and, unlike in her

high school courses, “really learned to understand,” which “led me [her] to develop really good study habits for college.” Brisa also noted that the biggest impact was that the classes helped her find “my way of learning,” while Emmett highlighted the importance of “getting used to the pacing of college classes.” Brielle also attributed the dual enrollment class to becoming a stronger writer. Together, these responses suggest that students recognized the role that dual enrollment had in developing effective learning strategies and adapting to college expectations.

Several students also emphasized the importance of community and relationships as central to their dual enrollment experience. Bianca said the “sense of community,” was actually the most meaningful impact of dual enrollment for her and Lily also spoke extensively about the lasting impact of being part of a cohort of students with shared academic goals. She explained that this environment led to strong peer connections and ongoing networks that extended beyond high school, and how her cohort still stays in touch: “we still have that connection today and that really strong bond.” Lily shared how these relationships continued to provide support even after students have moved on to different colleges, explaining that students “still have that connection... and that networking... [with] people who have the same motivations and academic goals.” She also talked about the importance of relationships with faculty, describing how building connections with professors continued to impact her beyond high school. She noted that developing a close relationship with her dual enrollment professor “definitely helped [her] a lot” and that she continues to stay in touch with him. Several students emphasized that smaller class sizes and closer relationships with instructors contributed to feelings of support, such as Allison who found value in the small class size, which allowed her to talk with peers about college decisions and hear different perspectives, suggesting perception of a supportive, discussion-based environment. Similarly, Emily described how dual enrollment helped her become more

comfortable reaching out to instructors, explaining that the expectation to communicate with professors “didn’t really settle in” until she experienced dual enrollment courses where faculty were approachable and supportive and how you can even “talk to them about random things” and everyday topics, which made them feel more accessible. Emily ultimately identified the relationships she developed with her English dual enrollment professor as the most important impact of her dual enrollment experience and how she developed comfort with asking for letters of recommendations.

These findings suggest that dual enrollment experiences, especially those involving smaller class sizes had an impact on students' academic journeys and later contributed to how students navigated the interpersonal part of college such as interacting with professors and connecting with peers. At the same time, several participants did share challenges with social transition shock. Gina explained that “every single person I ever talked to in their first year after college struggled to make friends,” describing how difficult it felt to build connections even after attending campus clubs and activities. She reflected that “it’s so hard to make friends,” eventually questioning “what’s the point if I don’t have any friends... it’s awkward.” Ari built on Gina's point, contrasting the familiarity of high school environments with the anonymity of college campuses, when he talked about in high school: “the campus is so small... you run into people... you’ve seen at least five times” it kind of opens that window... I’m not going to see that person.”

In addition to these social and interpersonal benefits, participants also talked about the practical academic advantages they got from dual enrollment. Students appreciated the practical advantages of dual enrollment, particularly in allowing them to get ahead academically. Several participants noted that earning college credits reduced their future course loads and provided

academic momentum. For example, both Kaitlyn and Emily explained that completing a course early “took a lot of weight off” their schedules. Brielle similarly described how dual enrollment helped her “get ahead” and begin preparing for her future career earlier, which she cited as critical with a tough job market for graduates. Meanwhile, Javier and Vincent both emphasized that dual enrollment strengthened their college applications and allowed them to enter prestigious colleges with ample credits already completed. Javier admitted on college applications, “it looks really good to have an associate's degree as a freshman” and the benefits of having to take many GE classes.

College Aspirations and Career Choice

Across interviews, many participants explained that they entered dual enrollment already college-bound, suggesting that participation often reflected pre-existing aspirations rather than generating new ones. Brian explained that he “already knew from the start” that he would attend CGC because his friends went there and chose dual enrollment courses simply because they “sounded interesting.” Participants like Vincent explained that his goal of attending a four-year university had been established well before participating in dual enrollment, stating that he “always wanted to go to... a four-year UC... even before the dual enrollment aspect of it,” and that the experience did not “dictate” his decision-making. Similarly, Hieu also admitted that dual enrollment did not shape his aspirations because he had “already decided on those things a long time before” enrolling in such courses, suggesting that participation was a result of personal goals rather than a catalyst for them. Some of these students wanted to leverage dual enrollment to help them with their goal of going to a 4-year college.

However, for many students, it did play a critical role in reinforcing motivation and sustaining commitment to those goals. Camila described how, although she had already planned

to pursue nursing, the dual enrollment experience and professor who she really liked “motivated me to keep going... like, I knew this is what I want to do,” demonstrating how the experience validated her existing ambitions. Jocelyn also described how dual enrollment encouraged her to “push through and take more classes, like AP and dual enrollment,” after viewing these experiences as a way to ease her transition into college and better understand the expected workload.

For a smaller group of participants, dual enrollment had a more direct influence on college-going decisions and aspirations. Brisa, who was initially uncertain about attending college, explained that taking dual enrollment courses “helped influence me to actually apply for college,” particularly because she realized the autonomy associated with choosing courses that aligned with her interests and future goals. In her case, dual enrollment served as an entry point into college-going identity, transforming her uncertainty into a college application, which is what programs like CCAP are supposed to be doing. Additionally, Emily described how her experience with CGC influenced her institutional choice, noting that familiarity with the system and liking her CGC instructors made her more inclined to enroll there rather than at other community colleges. Emmett also explained that he had already planned to attend a local community college due to its transfer pathway and geographic convenience, noting that dual enrollment did not meaningfully alter that decision. Several students described their choices as being influenced more by other factors like location than by their dual enrollment experiences.

A few students shared that their dual enrollment experience did play an important role in career exploration and decision-making. For instance, Ari explained that after taking a medical terminology course, they realized they “did not enjoy it” and ultimately decided not to pursue nursing, which led to career change before he even started college. In contrast, Camila described

how her dual enrollment nursing course reinforced her interest in the field, explaining that it “really opened my eyes” to the variety of careers within nursing and affirmed her desire to continue in that path. Brielle similarly attributed her shift from art to English education to a dual enrollment composition course, where she “found love for creative writing” and began envisioning herself as a teacher. In another case, Brian reflected that dual enrollment courses helped him reconnect with an interest in working with computers after a negative high school experience, illustrating how instructional context and course design can reshape students’ academic identities. Gina’s response was especially interesting as she admitted that dual enrollment made her realize that she didn’t have to attend a UC or another “high achieving school.” She felt that the message in school programs like Avid was to go to a UC only, and the dual enrollment experience made her realize there were other options. She recalled how Damien, her CGC professor for Career Success, told her ‘you don’t have to do something that means you’re working all the time’ which made her rethink her college and career choices.

Generational Similarities and Differences

First-generation participants often entered dual enrollment with less access to family-based college knowledge, but they did not necessarily enter with lower college aspirations. For both first-generation and continuing-generation students, dual enrollment more often supported or reinforced an existing academic trajectory than created the initial aspiration to attend college. However, for a smaller subset of first-generation students who were less certain about college, dual enrollment appears to have had a more consequential role in making college feel attainable and influencing the decision to enroll. Several first-generation participants, like their continuing-generation peers, reported having established college or career goals before participating in dual enrollment. However, for some first-generation participants who entered dual enrollment with

greater uncertainty about college Brisa, a first-generation student said that taking dual enrollment classes made her “step out of my comfort zone. “And she explicitly connected DE to the decision to attend college: After taking them, it helped influence me to... to actually apply for college.” But this was not the general first-generation pattern. Other first-generation students like Hieu and Brielle both admitted that they were already college-bound and the experience did not impact their decisions.

Conclusion

This study’s focus was on how former high school students described the role of dual enrollment in preparing them for higher education and how they experienced the transition from high school to college after taking dual enrollment. My findings showed that both first generation and continuing generation participants generally viewed dual enrollment as a valuable bridge to higher education, as it provided early exposure to college expectations, coursework, and academic responsibilities. Students described developing important skills related to time management, ownership of learning, communication with instructors, and independent learning. The interviews also revealed that although students generally felt well prepared, some experienced challenges related to university rigor, particularly in STEM courses. Students also highlighted differences between more authentic college experiences and those that included significant high school support structures. Overall, first-generation and continuing-generation participants described more similarities than differences in their transition to college; however, first-generation participants more often described dual enrollment as providing college knowledge and familiarity that was not available to them through family experience. Chapter five will analyze these findings and discuss them in relationship to the literature and conceptual framework along with implications and recommendations related to these findings.

CHAPTER FIVE: DISCUSSION

Chapter 5 consists of a summary of the study, discussions and implications of the study which stem from my major findings, study limitations, and recommendations for practitioners. The recommendations are intended for state policymakers and dual enrollment decision makers to improve CCAP programming and strengthen students' college readiness, transition experiences, and overall success in higher education. Lastly, this chapter ends with suggestions for future research related to dual enrollment programs.

California has increasingly expanded College and Career Access Pathways (CCAP) dual enrollment as a strategy to improve college readiness and expand access to college coursework for historically underserved students. Although prior research has shown positive outcomes associated with dual enrollment participation, less is known about the specific mechanisms through which CCAP programs influence students' college readiness and transition to higher education. The purpose of this study was to address that gap by examining how former CCAP participants perceived the role of dual enrollment in preparing them for college. To investigate the role of CCAP dual enrollment in college readiness, I analyzed data from nineteen qualitative interviews with former dual enrollment students who were now enrolled in a postsecondary institution. The findings provided an understanding of the academic experiences of students who participated in CCAP dual enrollment on their high school campus. Now that students had transitioned from high school to college, they had valuable insights to share about their dual enrollment experiences in high school, their transition to college as well as their perceptions of their first year in college.

Discussion of the Study Findings and Implications

This chapter includes major findings of the study and their implications for understanding the role of CCAP dual enrollment in college readiness and students' transition to higher education. The findings discussion is organized around the major themes that emerged from participants' experiences and are interpreted through Conley's (2010) college readiness framework. Together, these themes address the study's research questions by examining how participation in CCAP dual enrollment shaped students' college readiness and transition experiences, as well as how these experiences compared for first-generation and continuing-generation students.

CCAP Dual Enrollment Promotes College Readiness Through Early Exposure to College Expectations for both Continuing and First-Generation Students

In this study, first-generation and continuing-generation participants consistently described dual enrollment as providing early exposure to college expectations while helping them develop a better understanding of how college operates. Because dual enrollment courses are college courses, participants described them as more lecture-based and “hands-off,” requiring students to complete readings and assignments independently. Also, rather than hearing about college expectations through high school counselors or college readiness programs such as AVID, students described dual enrollment as allowing them to actively experience college-level expectations while still enrolled in high school. This familiarity with college expectations appeared to reduce uncertainty and increase students' confidence once they began college. They had done “college” before, so they could do it again.

Students in the study consistently described dual enrollment as different than their traditional high school classes and as a chance to experience college firsthand through exposure

to college syllabi and policies, the Canvas learning management system, tighter deadlines, independent learning expectations, professor-specific grading practices, and higher-stakes assignments that require more time. For example, early exposure to grading culture and professor expectations helped both first-generation and continuing-generation students develop strategies for prioritizing their major assignments and managing deadlines when they transferred to higher education. Almost every student in the study discussed their familiarity with Canvas and how they generally felt more prepared and comfortable than peers who had not taken dual enrollment. They contrasted this with their high school classes, which were described as more teacher-directed, more flexible with deadlines and expectations, and centered on lower-stakes in-class assignments. Most of the students agreed that high school classes were not preparing them in the same way, which also supports Conley's (2010) argument that many high schools fail to systematically expose students to the contextual knowledge required for success.

Conley (2010) suggests the transition to college often involves a form of "culture shock" for many students (p. 5), particularly those from certain communities; the findings from this study suggest that dual enrollment appeared to reduce this shock. This finding also connects to other existing research on college readiness, which emphasizes the role of early exposure in developing students' contextual knowledge of how college operates (Conley, 2010; Karp, 2007). Previous research shows dual enrollment can provide students with an "authentic" college experience and exposure to the hidden curriculum of higher education (Kanny, 2015; Takano, 2021), a type of "anticipatory socialization" and role practice (Karp, 2012, p.23). Through taking dual enrollment at their high school, students were made aware of "how college works" and were able to have a "role rehearsal" (Kanny, 2014, p. 23).

Dual enrollment exposed students to the realities of college expectations in ways that high school classes alone could not fully replicate, which helped when they matriculated to college. For example, participants contrasted the behavioral expectations between the two environments. They pointed to rules governing movement, bathroom use, technology use, and classroom behavior as examples of the greater autonomy they experienced in dual enrollment courses. In contrast, dual enrollment courses provided students with more autonomy and treated them more like adults, which established expectations for postsecondary independence. These findings could help explain why prior research has found that dual enrollment participants often experience smoother transitions to college and demonstrate stronger persistence and completion outcomes than similar peers who did not participate in dual enrollment (An, 2013; Fink et al., 2017; Giani et al., 2014; Struhl & Vargas, 2012).

These benefits were described by both first-generation and continuing generation students. Therefore, family educational background did not appear to substantially change whether students benefited from early exposure through CCAP dual enrollment. However, for first-generation students, CCAP provided direct exposure to college expectations, faculty, and structures that may have been less readily available through their families. Most first-generation students in my study discussed how they really had no help from their parents when it came to college. Students admitted not feeling prepared or being able to get information from family. So, in that way, dual enrollment may be particularly important for first-generation students as it forms access to forms of college knowledge that Conley (2010) describes as important to students entering college and encountering faster instructional pacing, less individualized support, greater responsibility for completing work independently, and expectations that they participate and defend their ideas. Conley (2010) suggests that access to information about

college preparation is unevenly distributed and that this lack of understanding “causes many students to become alienated, frustrated, and even humiliated during freshman year and decide that college is not the place for them” (41).

Students Perceived Dual Enrollment as Preparing Them Better for Higher Education Than AP Courses

An important finding emerging from this study was that students did not necessarily equate academic rigor with college readiness. While AP courses were frequently perceived as more academically demanding, particularly in STEM subjects, students felt that they got authentic exposure to the structures, expectations, and norms of college coursework in their dual enrollment experience. Students also expressed frustration about the preparation for the AP examination becoming the primary focus of many AP classes rather than providing an authentic college experience. This supports other research that students perceive dual-enrollment as more beneficial than AP in the area of independent learning (Norris-Shu, 2018) but complicates research by Wyatt et al. (2015), who found students scoring a 3 or higher on AP exams generally demonstrated stronger college outcomes, including persistence, graduation rates, and first-year GPA, compared to many dual enrollment students. Velasco et al. (2025) found that students who combined dual enrollment and AP/IB coursework demonstrated some of the strongest postsecondary and earnings outcomes, suggesting that students can and maybe should take both.

CCAP Dual Enrollment Develops College Knowledge, which is Especially Valuable for First Generation Students

Participants also described developing what Conley (2010) refers to as "college knowledge," which are the information and competencies students need to successfully navigate the move from high school to postsecondary education and the workforce, through their dual

enrollment experience. College knowledge includes—but is not limited to—understanding the expectations and norms of college and learning how to advocate for oneself within postsecondary institutions. Throughout interviews, students discussed learning to speak with professors, seeking help when needed, and understanding the expectations associated with college-level coursework. They got an opportunity to begin learning how college works before they graduated from high school.

Several students described feeling more prepared than their classmates because they already knew how to use library databases and conduct college-level research. This finding connects to other existing research on college readiness, which emphasizes the role of early exposure in developing students' contextual knowledge of how college operates (Conley, 2010; Karp, 2012). Students also developed greater comfort communicating with professors and advocating for themselves when they needed assistance. This is particularly important given research showing that the perceived quality of student–faculty interactions is associated with persistence into the second year of college (Loes et al., 2024). Conley suggests that these skills are necessary for students to successfully navigate the transition to life beyond high school but also argues that this knowledge is privileged and not equally accessible to all students, especially those students. This finding also aligns with research by Berger et al. (2010) who found that dual enrollment through early college programs can improve not only first-generation students' academic abilities but also help them learn how to navigate the college environment.

Although both first-generation and continuing-generation students described gaining college knowledge through dual enrollment, this finding appeared particularly important for first-generation participants. Conley (2010) argues that college knowledge is not equally accessible to all students, particularly those from families and communities historically underrepresented in

higher education. Several first-generation participants in this study described not having access to family members, especially parents, who could provide practical guidance about navigating college. Although their families provided encouragement and emotional support, participants described having less familial guidance with processes such as selecting courses, completing forms, and understanding how college systems operated because their family members had not previously navigated higher education themselves. In this way, dual enrollment provided some first-generation students with access to knowledge that continuing-generation students may have been more likely to encounter through their families. This finding aligns with Berger et al. (2010), who found that dual enrollment can strengthen not only first-generation students' academic preparation but also their ability to navigate the college environment.

Faculty Relationships Provided Social Capital for First-Generation Students

An important benefit of CCAP dual enrollment for first-generation students was the opportunity to develop meaningful relationships with college faculty while still in high school. These relationships represented a form of social capital by providing students with access to guidance, information, encouragement, and greater familiarity with higher education. Engle and Tinto (2008) reported that first-generation students and low-income students were four times more likely to leave higher education institutions without a degree when compared to continuing-generation students. They attributed disparities in college persistence not only to students' precollege preparation. They observed that low-income and first-generation students are less likely to be engaged in the academic and social experiences that develop success in college, such as studying in groups, interacting with faculty and other students, participating in extracurricular activities, and using support services and that the "problem is as much the result of the experiences these students have during college as it is attributable to the experiences they

have before they enroll.” (p. 3). They recommend exposing students to the college environment as early as possible. This aligns with Conley (2010) who also suggests that first-generation students lack cultural capital and access to the “privileged knowledge that supports so much of the transition from high school to college” (p.247). High school students I spoke with got the chance to develop relationships with college instructors while still in high school. They talked about how professors engaged with students, answered questions, encouraged students, and exposed them to majors and careers. These relationships tended to be strongest when students took a dual enrollment course taught by a college professor because these professors came to their campus and were accessible and helpful. Students who took the class with a high school teacher did not discuss these faculty relationships, nor did students who took the class independently/asynchronously. This reinforces Kanny’s (2015) widely cited study which suggests that through dual enrollment, students learned about interacting with faculty on a regular basis. Kanny (2015) also noticed that high school students benefited from dual enrollment course taking by becoming used to differences in student–instructor interactions at the college level that can develop academic success, which she calls a “hidden curriculum” competency.

Peer Support Provides an Additional Source of Support for First-Generation Students

Peer support is another benefit of taking dual enrollment courses at a high school campus. In my interviews, students described peer cohorts and supportive classmates as an impactful part of their dual enrollment experience. For many students, taking classes alongside the same group of peers created a built-in support system that helped them manage challenging coursework and feel connected to others. As one student described it, they felt like they were “in it” together. One student described her experience taking a dual enrollment course asynchronously on her high

school campus. Although the college professor never came to the high school site, the students worked together to solve difficult problems and support one another through work. Another student, Lily, reflected on her Early College cohort and explained that they “still have that connection today and that really strong bond” even two years after graduation. These findings align with previous research showing that peer networks are an important part of the dual enrollment experience. Contreras (2020) and Althaus-Cressman (2023) found that peers often serve as important sources of academic support, while Cabell (2024) reported that peer networks provide students with a sense of belonging and motivation. In this study, participants described relying on their peers for both academic and emotional support. These findings may be especially important for first-generation students, who often have less exposure to college expectations before they arrive on a college campus. Mohler and Jacobson (2021) found that disadvantaged students frequently rely on their high schools for support, but schools do not always have the resources or capacity to provide the guidance students need. In contrast, for students who may not have family members to guide them through the college experience, these opportunities help demystify college expectations and provide an important bridge between high school and college.

Dual Enrollment Develops Academic Behaviors Associated with College Success for both Continuing and First-Generation Students

Conley (2010) argues that college-ready students are able to “identify and systematically select among and employ a range of learning strategies” and transfer those strategies “from familiar settings and situations to new ones.” In this study increased ownership of learning emerged through changes in students’ study habits, time management, self-discipline, and recognition of their responsibility for their own academic success.

Study Habits

CCAP dual enrollment appeared to function as a mechanism through which many students began developing the academic behaviors that Conley (2010) identifies as critical for college readiness. Students' responses to interview questions revealed that since their dual enrollment college coursework came with increased expectations and autonomy, it led them to adapt with study habits and learning strategies. Students also talked about realizing they had to adjust their approaches to learning. They specifically discussed completing work in advance, engaging more actively with course material, and using strategies such as practice problems, quiet study environments, writing techniques, note-taking, and schedules to manage their workload. Specifically, one student explained that she learned she needed to start assignments "1 to 2 days in advance," while another emphasized the importance of studying in a quiet space like the library. Several participants specifically discussed becoming more aware of how they learned best and adjusting their behaviors accordingly. Collectively, these responses suggest that students became more intentional in how they approached their learning and developed strategies to help them succeed academically. These learning strategies reflect what Conley (2010) describes as metacognitive self-monitoring, or the ability to evaluate and regulate one's own learning processes. Conley (2007) suggests that these skills are different from cognitive strategies as they are independent of a particular content area and are behaviors that are more general and transferable across contexts and are also key to college success. Students confirmed this when they spoke about carrying strategies learned during dual enrollment into their postsecondary coursework such as completing assignments in advance, doing practice problems, finding good places to study and prioritizing large assignments.

Time Management

The feedback from the interviews also clearly illustrated that through dual enrollment, students had to figure out how to balance their high school work, college work, and work obligations as they relied on time management skills to help them succeed. This is consistent with the literature showing that dual enrollment develops soft skills such as time management (Cortez et al., 2024) and the importance of time management for student success (Royster et al., 2015; Schrynemakers et al., 2019). Furthermore, it supports existing research literature that demonstrates that students who view time management as important tend to achieve more academically and this plays a role in how they understand their own college readiness (An & Taylor, 2015; Hardy et al., 2020). The need to balance competing academic and personal responsibilities required students to take greater responsibility for planning when and how they would complete their work, providing another way in which dual enrollment fostered greater ownership of learning.

Increased Ownership of Learning

These findings strongly support Conley and French's (2014) concept of ownership of learning, which emphasizes students taking responsibility for their own learning. Rather than depend on teachers, participants described gradually recognizing that college required them to actively monitor their progress and adjust their behaviors to achieve academic success, taking greater responsibility for planning when and how they would complete their work.

Program Structure Shapes Impact of Dual Enrollment

Utilization of Institutional Resources Remains Limited for CCAP Students

Despite having the opportunity to seek help from professors, students' use of institutional support services was limited. It appears that students knew tutoring and other resources existed,

but they were not taught how to access them, or why they might benefit from them. Not a single participant reported meeting with a college counselor to discuss dual enrollment coursework, transfer planning, or educational goals; similarly, very few students reported utilizing tutoring centers or other academic support services. Even students who took multiple classes on their high school campuses (e.g., early college students) and seemed to develop relationships with faculty and sought help directly from instructors did not report speaking with a counselor or using a tutoring center/ academic support programs. The single student who used college tutoring said it was required as part of a course assignment. Many students instead relied on waiting for the college professor to return to class, a high school co-teacher or classmates to get help. For instance, Lily admitted, “I think we were made aware of them [resources], but we weren't really, like shown to really utilize them.” She also noted that many of the resources were located on the college campus and therefore were not easy to access for dual enrollment students taking classes at their high school. Only students who took an in-person Chemistry class on a college campus as part of their early college pathway talked about using the college campus food pantry.

The high school-based structure of CCAP dual enrollment can partly explain this gap. Because courses are offered primarily on high school campuses, students do not regularly interact with the broader college environment. While participants do become familiar with learning management systems, syllabi, and college-level assignments, there are not opportunities to engage with college counseling offices, tutoring centers, and other institutional supports typically available on college campuses. As a result, participants appeared to develop academic forms of college knowledge more readily than knowledge related to navigating college systems and support services.

These findings are significant because counseling and academic advising are important components of college knowledge. Conley (2010) argues that college-ready students need to know how to access resources and when to seek help as part of their key transition skills. This finding is also supported by the PPIC report, which specifically recommends that CCAP programs need to do a better job connecting students with college services and supports (Rodriguez et al., 2023).

CCAP Dual Enrollment Increases Access to College Readiness But the High School Setting Comes with Limitations

The opportunity to engage in dual enrollment on their high school campus gave students a protected space to experience college while still receiving the support available to them in high school. In many ways, CCAP served as a form of “training wheels” for students, allowing them to practice navigating college expectations before making the full transition to higher education. This was especially valuable for students from first-generation backgrounds who have had less prior exposure to college expectations and systems. CCAP programs specifically target students who may be first-generation, low-income, or not traditionally on a college track, meaning they may have less access to prior “college knowledge” (Rodriguez et al., 2023). At the same time, students are being asked to manage their high school schedules while also adapting to different college expectations, larger and sometimes higher-stakes assignments, and grading systems that may differ from their high school teachers’. The high school setting therefore provides a supportive environment in which students can begin navigating these expectations before fully matriculating to college which supports and provides a scaffolded transition and early exposure to lower division courses which also supports Cassidy et al. 's (2011) findings that dual

enrollment serves as a bridge by introducing students to college expectations, behaviors, and environments while increasing confidence and college knowledge.

At the same time, the very features that made this environment supportive also created some limitations, particularly in how students perceived the authenticity of the college experience. The high school environment, instructor type, course location, and the amount of support provided affected how authentic the college experience felt and, consequently, how prepared students felt after matriculation. Specifically, certain factors like having the same peers, same teacher, same classroom, same bell schedule, and the use of behavioral monitoring made the experience come off as less authentic for students. This suggests that the college-level curriculum may not be enough to build socialization - the college feel is equally important for preparing students for college. In the interviews, students often described the CCAP courses as more “lenient,” highly supported, and embedded within the routines and social structures of high school. Participants expressed how they felt the courses were adjusted or softened for high school students rather than operating fully like an authentic college environment. As one participant explained, the courses were “fitted for students of that age.” Students discussed how the CCAP dual enrollment classes had fewer students, familiar classmates they had known for several years and available instructors, which helped students feel comfortable and supported, but these same features also contributed to unrealistic expectations about postsecondary education. Students perceived the university professors and expectations after they transferred as significantly harsher and more demanding and dual enrollment more of a transitional or protected college experience rather than a full replication of college academic culture. In some ways, this was the point the “training wheels” had been taken off. While the supportive structure of CCAP increased access and helped students build confidence, the findings also suggest that it

gives students limited exposure to the independence, impersonality, pacing, and rigor found in university environments — particularly in STEM pathways. These findings suggest a potential tension as dual enrollment courses should maintain college-level rigor and demand the same academic skills as any college-level course in order to positively influence college readiness for students. Arnold et al. (2017) found differences in student outcomes based on the setting in which dual enrollment courses were offered. In English and mathematics, students enrolled in courses on a college campus earned significantly lower grades than those taking the same courses at their high school or online, with the authors suggesting that greater academic rigor in the college setting may be one possible explanation. They also raise concerns from prior research that the norms and expectations of the high school environment may limit students' exposure to the transitional aspects of the college experience. This finding also parallels observations by Jenkins (2013) that the high school setting of AP classes limits students' exposure to an authentic college experience. In addition, other research by Lile et al. (2017) found that students perceived college-campus dual enrollment experiences as more representative of “real college” because students were immersed in a college environment and exposed to diverse peers and institutional norms.

Familiar High School Instructors Shaped Students' Perceptions of the College Experience

In some CCAP classes, qualified high school instructors (who meet college teaching eligibility) teach dual enrollment courses at their high school site as college faculty. However, for many students, taking dual enrollment courses with a high school teacher lacked the authenticity they associated with “real” college classes. Many perceived that the courses still felt very similar to their regular high school classes because they were taught by familiar teachers, took place in the same high school classrooms, and were sometimes offered as a second-semester

continuation of an AP course taught by the same teacher. One student who had taken a dual enrollment dance course while in high school said she didn't even think that she was taking a college class because it was taught by a high school teacher, which shows that a dual enrollment experience could feel more closely connected to the high school environment than with college instruction. As one student explained, the class taught by a high school teacher “was still definitely a high school class.” Students talked about how the high school teacher would often use the same homework completion policies and had a more flexible grading structure. Not only did it not feel like a college class at the time, but it also contrasted with the independence and higher-stakes expectations they later encountered in college which impacted their feelings of readiness.

These findings complicate some of the research on the benefits of dual enrollment as an “authentic” form of anticipatory socialization (Karp, 2012). Dual enrollment is supposed to expose students to the expectations and culture of college before they enroll full time, but in this case many participants reported that courses taught by high school instructors retained so many features of the high school environment that they did not perceive them as authentic college experiences, despite the college curriculum.

Other researchers have also noted the challenges that high school instructors teaching dual enrollment have to navigate such as the expectations of both the high school and college systems, which may at times create conflict and impact course rigor (Duncheon & Relles, 2020). For this reason, as dual enrollment expands, some postsecondary faculty continue to raise concerns about maintaining consistent rigor across dual enrollment courses taught by high school instructors (Troutman et al., 2018). Notably, literature indicates that dual enrollment instructor characteristics can predict course outcomes. For example, taking a DE course with an instructor

from the college—compared with a high school teacher—is generally associated with a lower probability of passing the course and a lower course grade; however, students taking a DE course taught by college faculty, compared with high school teachers, generally experience increased probabilities of college enrollment outcomes (Ryu et al., 2024). Therefore, high school teacher-led DE may feel more supportive and produce higher grades, but college faculty-led DE may provide more authentic preparation for later college enrollment and transition. In other studies, students reported receiving additional time, opportunities to revise assignments, and extra credit from high school instructors, while college instructors were viewed as treating students more independently with fewer accommodations (Duncheon & Relles, 2020); Edwards et al., 2011) which is consistent with participants' experiences in the current study.

Co-Teacher Support Enhanced Comfort but Blurred the College Experience

A high school co-teacher is often in the classroom due to institutional and legal requirements governing high school student supervision and instruction. Participants of this study reflected on the role of the high school teacher in their responses. The presence of the high school co-teacher appeared to provide academic and emotional support and reduce the likelihood of students falling behind, which again was valuable for this student population. From an equity perspective, this finding highlights an important paradox within dual enrollment programs: the co-teacher provides support that makes college coursework more accessible and manageable for underserved students but may reduce opportunities for students to develop some of the self-direction skills expected in university settings. Students talked fondly of their high school co-teachers, and one student even expressed concern about a college faculty member disrespecting the high school teacher in front of students. These findings align with literature emphasizing the importance of structured support systems with dual enrollment (Edmunds et al., 2020; Fink et al.,

2023). However, participants also suggested that this additional layer of support created a more “protected” transition space that did not fully mirror the independence of authentic college environments. Students described being reminded about assignments, monitored more closely by teachers, and guided through coursework in ways that differed substantially from their later university experiences. These supports are not necessarily ineffective but just show the complex balance dual enrollment programs like CCAP must navigate between increasing access and gradually socializing students into authentic college expectations.

Dual Enrollment Improves Readiness but Does Not Eliminate Transition Challenges

Although dual enrollment experiences reduced uncertainty and increased confidence, participants still experienced challenge after entering college. In particular, many STEM participants experienced significant transition shock after joining four-year universities.

STEM Students Experience Greater Transition Shock

Many STEM students described experiencing a significant form of “transition shock” after matriculating to both two-year colleges and four-year universities, particularly in mathematics, engineering, chemistry, and computer science courses. Although many participants still felt that they had an advantage over their peers who did not take dual enrollment, many still struggled to adjust to the intensity, pace, and rigor of their college STEM classes. Those at 4-year institutions described being surprised and overwhelmed by the large class sizes, lack of accessibility of the professor and with the rigor of the classwork itself. Several students talked about failing exams and even classes. When they reflected back on the classes they took at their high school, they commented on how those classes felt much easier and “more supportive.” One student explained feeling “severely disappointed” because “not all the classes were like that.

They were much harder,” while others described realizing that dual enrollment had been “more filtered” than actual college coursework.

These findings also converge with literature suggesting that college-campus dual enrollment settings may provide more authentic exposure to college expectations than high school-based models (Lile et al., 2017) and Leary et al. 's (2023) observation that students often underestimate the non-academic demands of college. There is also a body of literature that suggests that there is increased “transfer shock” and challenges when community college transfer students face in STEM majors after matriculating to four-year universities due to the faster pacing, increased academic rigor, larger lecture classes, and the struggle to meet expectations for independence and self-directed learning (Elliott & Lakin, 2020; Gray et al., 2022; Zuckerman et al., 2021) compared to community college. Students in these studies faced academic, social, and identity struggles when transitioning to four-year universities realizing that the expectations, and culture of university STEM programs are dramatically different from those of high school and community college environments. The Community College Research Center (2022) similarly found that community college students pursuing STEM pathways face substantial academic and structural barriers that can make persistence and transfer difficult, citing negative and discouraging experiences in large introductory STEM courses for women and students of color, from continuing in STEM fields. Therefore, the challenges that STEM students in this study faced does not necessarily indicate that dual enrollment failed to support college readiness as the transition to upper-division university coursework may involve rigor that exceeds what students typically encounter during the first two years of college. Many participants were academically successful students who completed dual enrollment coursework and matriculated to highly selective universities such as University of California, Los Angeles; University of California,

Irvine; and University of California, San Diego; yet they still experienced significant transition shock in STEM coursework. CCAP dual enrollment still helped mitigate certain aspects of transition shock without fully eliminating the challenges associated with rigorous university STEM pathways.

CCAP Dual Enrollment Prepared Students Academically but Less Fully for the Social Transition to College

Another limitation of taking dual enrollment courses on a high school campus was that students had limited exposure to the social environment they later encountered after transitioning to a four-year university. During interviews, students described feeling isolated and struggling to build friendships upon entering college, some stating that it was the biggest challenge that they faced. In their CCAP classes, they knew all their classmates so there wasn't the need to develop relationships. Students found it hard to recreate those social connections once they entered college. In large lecture classes, students struggled to have conversations with professors or even attend office hours. Teachers were no longer accessible. In terms of friendships, students also struggled. Gina explained that “it's so hard to make friends now,” highlighting a challenge that was not present during her dual enrollment experience. Several other students mentioned feeling lonely after the transition from high school to college. Therefore, although high school-based CCAP dual enrollment may provide a supportive environment created by peer cohorts and faculty relationships, which is key for a first-generation student population who may have limited access to support networks, it does not necessarily replicate the experience students encounter after transitioning to college, and students may struggle with the new environment. In this way, CCAP may help students develop academic readiness but only partially prepare them for the social transition to college.

Additional Postsecondary Outcomes

Although the primary findings of this study focused on how CCAP dual enrollment influenced students' readiness for and transition to college, participants also described broader postsecondary outcomes associated with their experiences, which are worthwhile to share. These findings were not directly related to college readiness but provide additional insight into how CCAP dual enrollment shaped students' educational pathways.

College Aspirations

CCAP was designed in part to expand college access for students who may not have initially viewed themselves as college-bound (California Community College Chancellor's Office, 2024). At the same time, Barnett and Stamm (2010) argued that dual enrollment can increase educational aspirations and help students see themselves as capable of succeeding in college. However, most participants in this study already saw themselves as college-bound before taking dual enrollment courses. Very few participants described dual enrollment as influencing their decision to apply to college. My findings complicate existing literature that frequently positions dual enrollment as a direct catalyst for college-going aspirations. Students such as Vincent and Hieu explained that their plans to attend a four-year university existed "long before" dual enrollment. For these students, dual enrollment served more as a tool to help them achieve goals they already had. Lily explained that her classmates had already entered with strong college aspirations and that dual enrollment simply "helped grow" the motivation she already had. Many students described dual enrollment as an acceleration strategy that allowed them to earn college credit, save money, and enter college with advanced standing so they could finish earlier. Early College students in the study frequently talked about their desire to transfer as juniors and potentially save two years of time.

While dual enrollment had a limited influence on whether students planned to attend college, it did shape how some students thought about their postsecondary options. For a few participants, like Emily, familiarity with Coastal Gateway College and positive experiences with instructors reinforced that they wanted to go there. For others, dual enrollment broadened their understanding of available pathways, helping them view community college as a viable option they hadn't previously considered. These findings suggest that dual enrollment may play a greater role in shaping perceptions of college pathways and institutional fit than in generating college aspirations themselves.

Major and Career Exploration

Another finding that emerged from the interviews was the role dual enrollment played in helping students confirm and sometimes change their intended majors and career pathways. Several students talked about how positive experiences with a particular instructor or course reinforced their educational and career choices. For instance, students talked about how the course and appreciation of the instructor strengthened their commitment to the field. For some, the courses sparked new interests and influenced their intended major, while for others they helped rule out career paths that were not a good fit. As a result, students were able to make more informed decisions about their future majors before graduating from high school. So what this shows is that, for some students, dual enrollment can provide an opportunity for students to make an informed career decision before investing considerable time and money into a college major. Although this pattern was not clearly more prevalent among STEM or non-STEM students, some of the most explicit examples of dual enrollment confirming or redirecting career interests came from students pursuing STEM and health-related fields. This finding adds to previous research suggesting that dual enrollment may influence students' postsecondary school

choices (Lee et al., 2022; Liu et al., 2022). However, it also adds nuance to findings by Allen et al. (2020), who found that dual credit was not a substantial influence on Latinx students' college-going decisions and the study by Hu and Chan (2024) examined the relationship between dual enrollment and students' choice of STEM majors and found that taking dual enrollment courses specifically in math or science was not significantly associated with choosing a STEM major.

Recommendations for Practitioners

The following recommendations are based on the findings of this study and are intended for educators and administrators at secondary and postsecondary institutions that offer dual enrollment programs. These recommendations are designed to improve the college readiness of students participating in high school-based dual enrollment.

Recommendation #1: Integrate College Knowledge and Navigational Skills into CCAP Programs

CCAP dual enrollment students have access to both high school and college supports and services, including college academic and career counseling, tutoring, library services, basic needs supports, disability services, and other campus resources (Rodriguez & Gao, 2023). However, through my study, I saw that participants rarely utilized these supports during dual enrollment and often continued this pattern upon entering a four-year institution. Therefore, CCAP practitioners need to make sure students are connected to wrap-around support services and be more intentional about incorporating college knowledge into CCAP programs.

For example, community colleges and K-12 partners should consider a college success module for every dual enrollment class with assignments where students have to engage with campus resources. A possible assignment can be to visit an online tutor, the library, or counseling office. Dual enrollment students should all meet with a college counselor at least

once who can answer questions about college and teach students the importance of student-counselor relationships. Having students develop transfer plans early is also a good idea as so many students are taking dual enrollment independently and may not understand which courses are required for their future majors. The benefit for students would be also to normalize help-seeking behaviors early so when they transfer, they have developed the habit.

These changes would of course require collaboration between community colleges and K-12 partners. Although schools may have concerns about time, staffing, or limited resources, this study suggests that simply offering support services is not enough. Teaching students how to use these resources can better prepare them for success in college.

Recommendation #2: Better Prepare Dual Enrollment Students for University STEM Coursework

Findings from this study show that CCAP programs could do more to prepare students who plan to pursue STEM majors for the academic expectations of university STEM courses. Several participants described feeling academically prepared overall but were surprised by the pace and rigor of STEM courses in college. They also reported less access to professors, greater reliance on teaching assistants, and failing exams, which led to significant transition shock.

To better prepare students, community colleges and K-12 partners should partner with 4-year colleges and provide STEM-specific transfer preparation for dual enrollment students interested in STEM fields. For example, workshops that explain how university STEM courses differ from high school-based dual enrollment courses, including the pace of instruction, expectations for independent learning, exam formats, and available academic support, would be valuable. Students who earn substantial college credit prior to high school graduation and transfer as sophomore or juniors would definitely benefit from these workshops.

Some educators may argue that completing rigorous dual enrollment coursework is sufficient preparation for university STEM courses. However, participants in this study consistently described a gap between earning high grades in dual enrollment and succeeding in upper-division university STEM coursework.

Recommendation #3: Strengthen Faculty Preparation and College Authenticity Across CCAP Courses

Students repeatedly described the positive influence of supportive college professors, as well as the lasting impact of negative interactions with instructors. Participants also reported that courses taught by college faculty provided a more authentic introduction to college expectations. These findings suggest that instructor type and instructional approach can shape how students experience CCAP courses.

Community colleges should ensure that CCAP courses provide students with meaningful exposure to college-level expectations and faculty interactions regardless of whether the course is taught by college faculty or qualified high school instructors. For courses taught by high school instructors, colleges could provide opportunities for greater connection with the college, such as collaboration and professional development opportunities with college faculty, exposure to college resources, and activities that familiarize students with the expectations and norms they will encounter after high school.

Community colleges should also provide regular professional development for both college faculty and high school instructors teaching CCAP courses with a focus on best practices in teaching college classes within a high school bell schedule.

Recommendation #4: Expand Dual Enrollment Recruitment to Include Students Not Traditionally College-Bound

High schools and community college partners can be more intentional about recruiting students who may not already consider themselves college bound. Many participants in this study said that they had already planned to attend college before enrolling in dual enrollment, suggesting that students who were already academically motivated and college-oriented may have been more likely to participate. While these students clearly benefit from dual enrollment, CCAP was also designed to expand access to college coursework for students who have historically had fewer opportunities to participate in advanced coursework or who may not otherwise see themselves as college going. High schools should consider whether their current recruitment practices primarily reach students who are already on a college pathway. More intentional outreach to students who may not traditionally enroll in advanced academic opportunities could help the state more fully achieve its goal of expanding access to higher education through dual enrollment.

Study Limitations

As with any research, the study has its limitations. First, the study was conducted within a limited timeframe and included a relatively small sample of 19 participants, so the findings may not be fully representative of all CCAP dual enrollment students. Additionally, because the study was conducted at a single institution, the results may not be generalizable to other dual enrollment programs or student populations. Another important limitation was that I spoke to students before they completed their postsecondary education, so they were not really able to reflect on how dual enrollment may have helped shape their longer-term educational journey. In an ideal world, I would be able to follow these students for many years, but I only captured one

snapshot in time. At the same time, for some participants, several years had passed between their dual enrollment experiences and the interviews. As a result, their recollections may have been limited by the passage of time, as they could have forgotten something or imperfectly remembered some details related to the research question.

In addition, although I had a good sample size for the purposes of my study, once I began interviewing, I realized that participants had experienced dual enrollment in different formats, including early college programs, traditional CCAP courses taught on high school campuses, courses taught by college faculty, courses taught by high school faculty and online courses they had taken independently. While this variation gives some rich data, it was not always possible to determine whether participants' reported outcomes were attributable specifically to the CCAP high school-based experience or to their broader dual enrollment experiences. The study also relied on participants' recollections and reflections of their dual enrollment experiences after they had already transitioned to college. Therefore, participants' reflections may have been influenced by other college experiences or difficulty recalling specific details from high school.

Additionally, by interviewing only students who were currently enrolled at a post-secondary institution, my data did not include voices of those students who may have never made it to college. I didn't have any voices of students who enrolled but dropped out, which would have given a much better understanding of where dual enrollment may need to improve. This is also an important limitation, particularly because one of the goals of CCAP is to expand access to college for students who may not traditionally be college-bound. For this reason, the study may present a more positive view of dual enrollment's impact on college readiness and transition experiences than the larger CCAP population. Most students were also already college bound so the study didn't really capture the voice or experiences of students who were not

originally college-bound, a population that CCAP was specifically designed to serve. My role as a dual enrollment instructor as well as my personal experiences navigating higher education as a first-generation student may have influenced my interpretation of the findings. Although I took steps to minimize bias through open-ended interviews and by centering participants' voices during analysis, these experiences likely shaped the lens through which I interpreted the data. Additionally, because four participants were former students, they may have been more inclined to provide favorable responses despite efforts to create a comfortable and nonjudgmental interview environment. Using Conley's (2010) framework may have predisposed me to categorize student experiences through an existing model rather than letting new categories emerge. Despite these limitations, the findings of this study provide valuable insight into how students experience CCAP dual enrollment and how those experiences may shape their transition to college.

Suggestions for Future Research

Examining Dual Enrollment Models

This study examined the role high school-based dual enrollment played in shaping students' experiences upon entering college to gather a greater understanding of the impact dual enrollment has on college preparedness. Findings suggest that students' experiences with dual enrollment may vary depending on how and where courses are delivered. While there have been a growing number of studies that assess the benefits of dual enrollment, there is still research that needs to be done to provide greater insight on dual enrollment effectiveness and short-term outcomes. For example, engaging in more research on different delivery models could provide important knowledge on how each one influences student outcomes. Participants in this study experienced dual enrollment through a variety of formats, including early college programs,

CCAP courses taught on high school campuses, courses taught by high school or college faculty, and online courses. It could be helpful for future research to examine students who took dual enrollment classes on their high school campus separately from students who independently enrolled in college courses while still in high school. Looking at these groups separately may provide a better understanding of how different dual enrollment models influence students' perceptions of college readiness and their experiences after transitioning to college.

Examining Differences Across Fields of Study

Findings from this study suggest that students' perceptions of college readiness may differ depending on their fields of study. Future research could also examine whether the impact of dual enrollment differs for students pursuing STEM and non-STEM fields. For example, some students pursuing STEM and health-related fields described dual enrollment as not preparing them adequately; future studies are needed to examine the experiences of larger samples of STEM students to better understand the specific academic challenges they encounter after dual enrollment.

Examining Different Student Populations and College Aspirations

Future research should examine the experiences of students who did not initially view themselves as college-bound prior to participating in CCAP dual enrollment. Because participants in this study had all continued into postsecondary education, the findings may not fully capture the potential influence of dual enrollment on students' aspirations to attend college. In particular, future studies could explore whether participation in CCAP influences college-going aspirations differently for students who had not previously planned to pursue higher education. Such research could provide greater insight into whether CCAP is reaching and influencing the students it was designed, in part, to serve.

Examining Different Dual Enrollment Contexts

Students who completed courses taught by high school instructors often reported different perceptions of readiness than students who took courses with college faculty. Findings suggest a need for further research in this area. Future studies should explore how courses taught by high school instructors compare to those taught by college faculty in shaping students' college readiness, transition experiences, academic confidence, and/or perceptions of academic rigor. Because this study relied exclusively on student perspectives, future research should also include the perspectives of dual enrollment instructors and administrators to add to the understanding of how dual enrollment programs are implemented and how faculty and administrators perceive students' preparation and transition to college.

Longitudinal Research on Dual Enrollment Outcomes

This study provided a snapshot of students' perceptions at a single point in time (1-2 years post high school graduation). Future research could benefit from a qualitative longitudinal design that begins with students in high school and follows them throughout their postsecondary journey. Such a study could provide deeper insight into how perceptions of college readiness evolve over time and how students make meaning of their dual enrollment experiences during and after.

Reflections

Conducting this study challenged some of my assumptions about dual enrollment. I initially assumed that students who completed dual enrollment courses would feel fully prepared for college-level work. While participants in my study described many benefits, they also shared experiences that showed gaps in their preparation, particularly if transferring to four-year universities as a STEM major.

The study also made me realize how the course was taught matters. Participants described how supportive professors increased their confidence, influenced their academic and career goals, and shaped their perceptions of college. Their stories reminded me that instructors can have a lasting impact that extends far beyond the classroom and that institutions need to prioritize staffing classes with the best faculty.

I was also surprised that many participants described dual enrollment as a way to "build" or strengthen their college applications. I had expected to hear more examples of dual enrollment changing students' educational plans or expanding their college aspirations. While dual enrollment clearly benefited participants in many ways, I came to realize that for many students, it continues to serve as an acceleration tool rather than a catalyst for change.

Conclusion

Postsecondary education has become increasingly important for economic stability, as individuals with higher levels of educational attainment generally experience higher earnings and lower rates of unemployment (Torpey, 2021). However, many high school students enrolling into higher education may be underprepared for the transition into college (Kurlaender et al., 2019). Community colleges seek to remedy the issue of underprepared college students with the implementation of student success measures such as dual enrollment. However, it is important that dual enrollment programs focus not only on increasing access but also on ensuring that students are prepared for long-term success after graduating. This study contributes to the growing body of dual enrollment research by centering the voices of former CCAP students and examining how they experienced the transition to higher education. Their perspectives demonstrate that college readiness goes beyond earning college credit and includes developing the confidence, independence, and college knowledge needed to navigate new academic

environments. The findings and recommendations presented in this dissertation provide educators, administrators, and policymakers with practical considerations for strengthening CCAP programs and supporting students beyond high school.

APPENDIX A
RECRUITMENT EMAIL

Subject: Invitation to Share Your Dual Enrollment Experience

Hi,

Coastal Gateway College's (CGC) Office of Research, Planning, and Institutional Effectiveness is reaching out to you on behalf of CGC professor and UCLA doctoral student Ayesha Zia to invite you to participate in a research study about your experience with dual enrollment through CGC.

To participate in the study, you are invited to complete a short questionnaire, which should take approximately 5 minutes. At the end of the questionnaire, you will be asked whether you are interested in participating in a follow-up interview. The follow-up interview will take place during [insert month(s)], last approximately 45–60 minutes, and be conducted either in person or via Zoom, based on your preference. Participants who complete the interview will receive a \$30 gift card as a thank-you for their time.

Participation in this study is voluntary and will have no impact on your academic standing or impact access to college services. Compensation for participation will be provided by UCLA, not Coastal Gateway College.

If you would like more information about the study, please review the Study Information Sheet here: <<embed link>>, or contact the principal investigator (Ayesha Zia, get2ayesha@g.ucla.edu) with any questions.

If you are a former CCAP dual enrollment student who is currently enrolled in a postsecondary institution, please use the following link to complete the questionnaire:

<<link to questionnaire>>

Your experiences and perspectives can inform future dual enrollment programs and improve how colleges and high schools support students as they prepare for college. Thank you for considering participation.

Sincerely,

Office of Research, Planning, and Institutional Effectiveness
Coastal Gateway College

APPENDIX B

SCREENING QUESTIONNAIRE

Thank you for your interest in this study. This short questionnaire will confirm whether you meet the eligibility criteria and will collect basic information needed to follow up with eligible participants. This questionnaire is not a consent form. If you are selected for an interview, you will be provided with a separate consent form before participating. Filling out the form does not obligate you to be interviewed. All responses will be kept confidential.

Time to complete: Approximately 5 minutes

Section 1: Eligibility Screening

1. Are you currently 18 years old or older?
☐ Yes
☐ No → (If “No,” form ends; not eligible)
2. Did you take at least one College and Career Access Pathways (CCAP) dual enrollment course through Coastal Gateway College while you were in high school?
☐ Yes
☐ No → (If “No,” form ends; not eligible)
☐ I’m not sure
3. Which of the following types of dual enrollment courses did you take through Coastal Gateway College? (Select all that apply)
☐ English (e.g., composition, writing)
☐ Math (e.g., statistics, algebra)
☐ Social sciences (e.g., sociology, psychology, history)
☐ Natural sciences (e.g., biology, environmental science)
☐ Counseling or college success courses
☐ Career or technical courses (e.g., drafting, automotive, health pathways)
☐ I’m not sure
4. In which academic year(s) did you take your CCAP dual enrollment course(s)?
☐ 2022–2023
☐ 2023–2024
☐ 2024–2025
☐ Not sure
5. Was your CCAP course offered at your high school site?
☐ Yes
☐ No → (If “No,” form ends; not eligible)

6. Are you currently enrolled in a college or postsecondary institution (not through dual enrollment)?
- ☐ Yes
 - ☐ No → (If “No,” form ends; not eligible)
7. What type of institution are you currently attending?
- ☐ Community college
 - ☐ Four-year college/university
 - ☐ Other (please specify): _____

Section 2: Background Information

8. How many dual enrollment courses did you take in high school?
- ☐ 1 course
 - ☐ 2 courses
 - ☐ 3 or more courses
 - ☐ I’m not sure
9. Are you a first-generation college student?
(A first-generation student is someone whose parents/guardians have not obtained a bachelor’s degree)
- ☐ Yes
 - ☐ No
 - ☐ Not sure

Section 3: Contact Information

If you qualify and are selected, the researcher will contact you to schedule a 45–60-minute interview.

10. I am interested in participating in a 45–60-minute interview for this study and receiving the \$30 gift card after the interview.
- ☐ Yes
 - ☐ Maybe, I’d like more information
 - ☐ No
11. Name: _____
12. Preferred method of contact:

- ☐ Email
- ☐ Text message
- ☐ Phone call

13. Email or phone number: _____

14. Preferred interview format (if selected):

- ☐ Zoom
- ☐ In person (at a public location in Los Angeles or Orange County)
- ☐ No preference

Section 4: Consent to Be Contacted

15. By checking below, I confirm that I consent to being contacted by the researcher, Ayesha Zia, regarding participation in this study.

- ☐ Yes, I give permission to be contacted
- ☐ No, I do not give permission

APPENDIX C

INTERVIEW PROTOCOL

Thank you for agreeing to participate in this interview.

The questions I'll be asking focus on your educational experiences, including your participation in a College and Career Access Pathways (CCAP) dual enrollment course through Coastal Gateway College and your transition to college after high school. If there are any questions you prefer not to answer, you are welcome to skip them.

During our conversation, I may use the term "postsecondary education" to refer to any education or training that takes place after high school. This can include community colleges, four-year colleges or universities, and technical, vocational, or trade programs.

With your permission, I would like to audio-record this interview to ensure that I accurately capture your responses. The recording will be used only for research purposes, will be kept confidential, and will not be shared outside the research team. Is it okay with you if I record this interview?

The following questions are part of a semi-structured interview. Follow-up probes will be used selectively to encourage elaboration and will not be asked of all participants.

1. Can you tell me a little about yourself? (e.g., where you go to college now, your major, and when you graduated from high school)
2. How would you describe your experience in college so far?
3. How do you think your background or family experience with college influenced how prepared you felt when you started college? If so, how?
4. What dual enrollment courses did you take while in high school?
 - Probe: Did you take more than one course, or just a single class?
5. How, if at all, did your dual enrollment experience shape the way you think about your future after high school, including choosing a college, a major, or a career?
6. Discuss your current view of what "college readiness" means and how your experiences in the CCAP dual enrollment program shaped that.
7. Thinking specifically about the structure of the dual enrollment class, what felt most "college-like" about it, if anything?
 - Probe: Did the class require different kinds of thinking or problem-solving?
 - Probe: Were you asked to read, write, or think in more complex ways?
 - Probe: How would you describe the pace or workload of the class?
 - Probe: Did the grading or feedback feel different from your high school classes?
 - Probe: Did you use a syllabus, and if so, how did you interact with it?
 - How much independence or responsibility did you have for managing deadlines and assignments?
 - How were you expected to seek help in the dual enrollment class, and how did you respond to that expectation?

8. Can you walk me through a specific example from your first semester of college where you handled an assignment, deadline, or workload experience in a way that felt connected to your dual enrollment experience?
 - Probe: What habits or strategies, if any, carried over from your dual enrollment class into your college coursework?
 - Which expectations in college felt familiar because of dual enrollment, and which still felt new or challenging?
9. Describe how your CCAP dual enrollment class helped you gain a better understanding of how to use the resources available to you as a college student, such as using library resources, a college counselor, meeting with a tutor, applying for financial aid, etc.
 - Probe: Which of these resources did you actually use after your dual enrollment course?
 - Probe: What steps did you take from realizing you needed help to actually use the resource?
 - Probe: How similar or different was using these resources in college compared to how they were introduced during your dual enrollment class?
10. What did your dual enrollment class teach you about how to interact with college professors when you needed support?
 - Probe: What did you learn about how to talk to instructors, email them, or ask questions when you needed support?
 - Probe: Can you tell me about a time since starting college when you actually reached out to a professor for help? What did you do, and what happened?
11. Were there moments in your first semester of college when you felt unprepared or unsure of how things worked? Can you tell me about one or two examples? What do you think would have helped?
12. What do you see as the biggest benefits of dual enrollment? What are the biggest drawbacks? Would you recommend it to other high school students? Why or why not?

Interview Conclusion

Thank you so much for taking the time to participate in this interview. If you have any further questions for me, please contact me by email or phone. As a reminder this information will be transcribed and will remain confidential; data will be kept confidential and stored securely on password-protected devices. Then, I will delete electronic data and destroy paper data.

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