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Examining Equity in Dual Enrollment Participation and Outcomes Post AB 288 Implementation:
A Quantitative Study

By

ALINA VARONA
DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

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in

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in the

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Examining Equity in Dual Enrollment Participation and Outcomes Post AB 288 Implementation: A Quantitative Study

Abstract

In California, dual enrollment refers to any high school student who enrolls in two systems at the same time, most commonly a community college and a high school—this student is thus concurrently enrolled in both high school and college. Students may receive credit from both systems for select courses. California Assembly Bill 288 (AB 288) established the College and Career Access Pathways (CCAP) Act, which enabled high school and community college partnerships for the purpose of dual enrollment. AB 288 attempts to provide early college access and credit, particularly for students least likely to attend college and those most under-resourced for college success. AB 288 sought to shift dual enrollment away from its historical focus on early college access for students deemed “highly gifted” and instead use the practice as a high school completion and college success strategy.

California, through policies like AB 288, has demonstrated significant interest in increasing and scaling effective practices that address disproportionate access and outcomes for historically minoritized communities. However, an examination of the literature reveals both a gap in research and service for programs and interventions meant to support community college participation for underrepresented student populations; those enrolled at continuation high schools among them. In light of the revised mandate to leverage dual enrollment practices as a high school completion, college preparation, and college connection strategy for underrepresented students, these gaps are particularly salient.

Using an equity centered framework, this study explores these disparities and provides a deeper understanding of dual enrollment in a large, urban, single-district high school-community

college partnership in San Francisco. I investigate rates of access to dual enrollment, college transitions among those who participate in dual enrollment, types of dual enrollment course offerings and success outcomes, and enrollment intensity for students taking dual enrollment courses within this San Francisco partnership. I explore all of these for students from different demographic backgrounds and by high school types (including continuation and alternative schools). Together this provides a useful snapshot of a large local dual enrollment system, deepens the understanding of AB 288's implementation, and reveals implications for dual enrollment practitioners across California community college and high school district partnerships.

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Dedication

To the generation before me—Mom and Dad—who came here so that we might have a better life. To the generation after—the Girls—for whom I strive to build a more just world so that they might fully inhabit all of their dreams. Somos de aquí, y somos de allá.

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“It seems imperative to explore ways of understanding learning that do not naturalize and underwrite divisions of social inequality in our society.” –Jean Lave (1996, p.149)

Chapter One: Overview of the Study

Background

Education at large remains concerned with too few students completing any form of postsecondary education. Ever-increasing focus is now on the California community colleges to improve outcomes and shorten the six-year completion rate for what was intended to be a two-year system (Shapiro et al., 2016). Nationwide, nearly 70% of students who *do* graduate from high school subsequently enroll in postsecondary education (Edmunds, Unlu, Glennie, Bernstein, Fesler, Furey, & Arshavsky, 2017). Less than half of those transitioning students obtain any postsecondary credential within six years (Edmunds et al., 2017). In response to these outcomes, California has seen a surge of legislation and statewide initiatives focusing on high school completion, college preparation, transition to college, and college completion. Early College High School (ECHS), Middle College High School (MCHS), and Dual Enrollment programs are among these efforts.

The California education codes that govern dual enrollment (Sections 1451 and 48800) provide the parameters for the aforementioned models. They define “certain high school pupils ... [who take] classes at community colleges ... as special-admits, and the programs in which they participate ... as concurrent or dual enrollment programs” (California Department of Education [CA Dept. of Ed.], 2019). The California Education Code does not define “concurrent enrollment” and does not distinguish between the terms “concurrent enrollment” and “dual enrollment.” Some studies note that dual enrollment infers students receive both college *and* high school credit, while concurrently enrolled students may not necessarily receive credits from both

institutions. Both can and “are used interchangeably in California,” though “dual enrollment” is the preferred nomenclature (CA Dept. of Ed., 2019). For the purpose of this study, I will use the terms interchangeably.

In California dual enrollment refers to any high school student who enrolls in two systems concurrently, most commonly a community college and a high school. This student is “concurrently” enrolled in both high school and college at the same time. A dually enrolled student takes a college level course (either at their high school or the postsecondary institution) and can receive academic credit upon successful completion of the course. Students may receive credit from both systems for select courses. California Assembly Bill 288 (AB 288) established the College and Career Access Pathways (CCAP) Act. These CCAP agreements enable high schools and community college partnerships for the purpose of dual enrollment. AB 288 sought a legislative solution to provide early college access and credit, particularly for students least likely to attend college, those most underrepresented in college, and those most under-resourced for college success. AB 288 sought to shift dual enrollment away from its historical focus on early college access for students deemed “highly gifted” and instead use the practice as a high school completion and college success strategy. Approved late fall 2015, it has been implemented with great variation since spring 2016 and beyond.

California’s approximately 500 public alternative high schools serve more than 15 percent of high school students, but account for more than 50 percent of high school dropouts (CA Dept. of Ed., 2016). In California, “alternative school” refers to seven types of schools and programs that provide different educational settings for students who are behind in school; among these seven are continuation high schools. During the 2015-2016 academic year, California had 906 alternative schools, enrolling 121, 573 students (CA Dept. of Ed., 2016). This

represents 10 percent of all schools in California, with about 12 percent of all seniors finishing 12th grade at an alternative school (CA Dept. of Ed., 2016). In the 2016-2017 academic year, over 53,000 students attended the state's 441 continuation high schools (CA Dept. of Ed., 2018). Evaluation of the most successful continuation high schools has found that programs that have strong partnerships with local community colleges (and those that offer sector-based education and training programs) are more successful in ensuring students complete high school and start postsecondary education (Ruiz De Velasco & McLaughlin, 2012).

Purpose and Significance of Study

While several existing studies demonstrate the positive impact of dual enrollment on college readiness and transition, significantly fewer studies explicitly examine dual enrollment participation and outcomes for underrepresented high school students (Edmunds, 2012; Allen & Dadgar, 2012; An, 2013). An even smaller portion of studies examine dual enrollment participation across school type or use any equity-centered framework to examine outcomes for minoritized youth. In light of the revised mandate to leverage dual enrollment practices as a high school completion, college preparation, and college connection strategy for underrepresented students, this element is particularly salient.

California, through policies like AB 288, has demonstrated significant interest in increasing and scaling effective practices that address disproportionate access and outcomes for historically underserved communities. However, an examination of the literature reveals both a gap of study and a gap of service for programs and interventions meant to support community college participation for underrepresented student populations, continuation high school students among them. The current California educational landscape is well positioned for exploring the impact of dual enrollment partnerships as a tool for addressing academic equity gaps and

examining if this mechanism for college access and transition is serving some students better than others.

Tremendous opportunity exists to bridge existing gaps of service for unrepresented students, many of whom attend continuation high schools, and to provide college preparation and transition support through dual enrollment. A considerable portion of existing dual enrollment and high school community college partnerships focuses on traditional high schools and their students. This approach may replicate, and even exacerbate, the existing inequities rather than mitigate them. Many high school students who do access dual enrollment opportunities and middle colleges from traditional high schools are *already* college bound, often *four-year* college bound. Therefore, access to early college credit under AB 288 may function less as a connection and transition piece for under-resourced, first-generation students and rather as an avenue for already-college-bound-students to become more competitive for college application season, more prepared for rigorous, advance placement coursework, and more engaged in their high school learning experiences. This opportunity gap becomes wider in higher resourced counties and districts where existing economic and academic disparities between student groups are already greater.

In this quantitative study, I examine dual enrollment in a large, urban, single-district high school-community college partnership in San Francisco. Through this research, I determine rates of access, participation by course and high school type, outcomes, and enrollment intensity. I focus too on areas of disproportionate impact for students taking dual enrollment courses within this San Francisco partnership. In addition to providing a snapshot of a large local dual enrollment system and deepening our understanding of AB 288's implementation, this study conceptualizes dual enrollment efforts as an educational equity tool. Moreover, I interrogate

differential participation and outcomes mindful of a legacy of structural contexts which shape them and the often dehistoricized language within educational literature that describes minoritized students and their communities. Using a quantitative approach, this inquiry will:

- Analyze dual enrollment participation within a single high school-community college district partnership to determine if differential access and outcomes exist
- Compare dual enrollment participation rates and outcomes across comprehensive versus noncomprehensive high schools and course type
- Determine the intensity of enrollment for students across demographic variables.

Research Questions

1. What is the breakdown of participation across race/ethnicity, gender, parent level of education (a proxy for socioeconomic status), high school type (comprehensive versus continuation high school setting) and course type (career education and non-career education course)? Are there inequities in these rates of participation?
2. What are the dual enrollment student success outcomes (enrollment and matriculation)? Do these vary by race/ethnicity, gender, and SES? Between comprehensive versus alternative high school settings? By course type? Do these outcomes reveal areas of disproportion?
3. How many dual enrollment courses do high school students enroll in (i.e., enrollment intensity)? How does enrollment intensity vary by both student demographic variables and high school type?

Policy Overview—Assembly Bill 288: College and Career Access Pathways (CCAP)

California Assembly Bill 288 (AB 288) enables high school and community colleges to partner for the purpose of dual enrollment and authorizes community college boards to enter into

partnership agreements called College and Career Access Pathways (CCAP) to “establish protocols for information sharing, joint facilities use, and parental consent processes for high school students to enroll in community college courses” (AB 288). Through CCAPs, the State attempts to ensure high schools and community colleges work in partnership to create comprehensive pathways and seamless transitions for students pursuing career technical education and preparing for transfer. Table 1 lists the differences between CCAP and Non-CCAP partnerships.

Table 1: CCAP versus Non CCAP Partnerships¹

Non CCAP	CCAP
No apportionment can be claimed if courses are closed to the public or offered on a high school campus	Colleges can claim apportionment
11 units cap per semester	15-unit cap per semester
	Materials, textbooks free and enrollment fees waived
	Partnership roles and responsibilities must be clarified and codified in agreement
	Must not have impact to students and instructors of both systems
	Board approval of agreement must be obtained from both systems
	Student participation and success documented in annual report

¹ From College and Career Access Pathways California Community Colleges Report, 2021

More broadly, through AB 288 legislators hope to improve high school graduation rates, ensure high school students equitably participate in college and career readiness, and prepare more students for community college transition. Under AB 288, students may enroll in up to 15 units per semester as outlined by a CCAP agreement. Students taking less than 15 units are exempt from paying fees. The bill requires an annual report to the Office of the Chancellor of the California Community Colleges and a summary report no later than January 2021. In my discussion chapter, I will discuss this summary report, recently released (April 2021) to the Governor of California

Dual enrollment has received additional legislative attention as a tool to both improve educational outcomes “for a broad range of students [and] as a strategy to help students who struggle academically or who are at risk of dropping out” (California Assembly Bill No. 30 [AB 30], Chapter 510, 2019). This continues a marked shift from the original legislative imperative of dual enrollment, which “historically targeted high-achieving students” under special, part-time admittance educational policy (California Assembly Bill No. 30 [AB 30], Chapter 510, 2019). Likewise, legislators and policy experts see dual enrollment as a critical component to K-14 reform, embedding this strategy across multiple community college initiatives (California Assembly Bill No. 705, Guided Pathways, Student Equity and Achievement Plans, Strong Workforce Program, Adult Education) in an effort to save “both students and the state valuable time money and scarce educational resources” (AB 30, Chapter 510, 2019).

The Impact of California Community College Reforms on Dual Enrollment

The California Community Colleges are an open access, two-year educational system focused on workforce training and shorter-term certificates, general education that leads to associate degrees, Cal State University (CSU) and University of California (UC) transfer, and

lifelong learning courses that serve the needs of the local community (California Community College Chancellors Office Website, 2018). The California Community College Chancellor's Office (CCCCO) provides leadership, visioning, support, and policy for the 114 community colleges it oversees and the 2.1 million students they serve (CCCCO Website, 2018). Under the directive of the Chancellor's Office, most community colleges have undertaken several areas of college-wide reform that span curriculum, workforce training, systems building, and connections with local high schools to increase dual enrollment opportunities.

Most recently, the California Community Colleges Chancellor's Office developed a Vision for Success (2017) that includes both concrete and measurable student success metrics across all community colleges. These progress indicators include enrollment, learning progress, momentum, success, employment, and earnings (CCCCO Vision for Success, 2017). This Vision for Success plan contains six key goals to achieve by 2022 with seven commitments "the CCC system as a whole can make to...realize its full potential to meet the future workforce needs of California" (CCCCO Vision for Success, 2017, p. 19). In 2018, Governor Brown officially proposed a Student-Centered Funding Formula (SCFF). The SCFF moved colleges away from a historically enrollment driven apportionment funding model toward a new performance-based funding model. A Chief Executive Officer (CEO) Funding Formula Workgroup, comprised of community college executive leaders, cautioned against implementing a funding formula that focused solely on performance-based metrics, one that neglected the community colleges' mission of access, equity, and success for all (CEO Funding Formula Workgroup, 2018). Accordingly, the Chancellor centered the SCFF purpose on "Access, Equity, and Success for All" and added metrics that would provide additional funding for the proportion of low income and underrepresented students served and their rates of success as defined by the student success

metrics. The new SCFF was implemented across all colleges in 2018, but all colleges will be held harmless for the first three years of implementation. To date, little is known about the success or limitations of the model and its ability to balance performance-based metrics and funding with equity-centered student approaches. Under both an apportionment model and an SCFF model, enrollment apportionment comprises a significant segment of colleges' funding. During times of system-wide under-enrollment and financial constraints, community colleges must grapple with difficult enrollment management decisions (number of courses offered, number of sections, and types of courses).

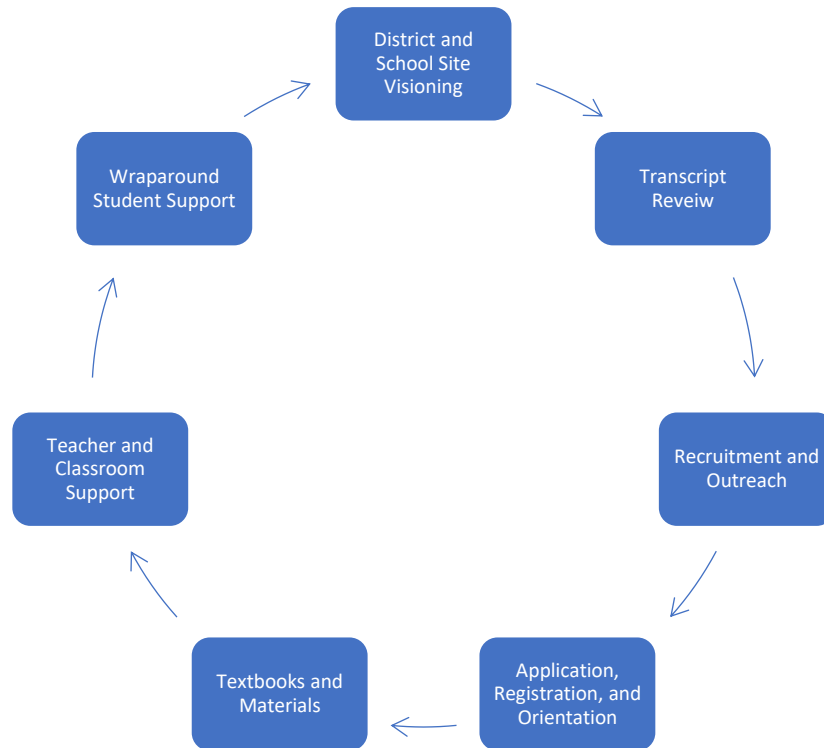
Orienting this study's dual enrollment data within the policy context as well as the historical role, current functions, and tensions within California's community colleges provides critical layers to our understanding. Per the legislation, "the chancellor [must] prepare a summary report, no later than January 1, 2021, that includes an evaluation of the partnerships, as specified." (California Legislative Information Website, 2019). As such, this inquiry is both timely and in accordance with AB 288's evaluation goals. Moreover, this study will be situated within an existing gap in dual enrollment literature, one which focuses on examining dual enrollment access and outcomes using an equity framework to ground the research and examine disaggregated data, and one which examines participation and outcomes rates across school type.

Study Setting

The study focused on a single high school district, San Francisco Unified School District (SFUSD), comprised of more than ten high schools, and a single college district, City College of San Francisco (CCSF), comprised of one community college. CCSF offers a breadth of credit and noncredit courses available at one main campus, eight centers, and neighborhood sites throughout San Francisco. During the 2018-2019 school year, the College served more than

65,000 students annually in both credit-bearing and noncredit-bearing courses (CCSF website, 2019). The High School District serves over 57,000 students annually (SFUSD website, 2019). Since the late '90s, these districts have partnered to provide dual enrollment programs to students spanning 54 course offerings that include career education, 2-year degree and certificate applicable, and CSU/UC transferrable courses. Teachers and administrators from both districts team to coordinate, identify, and design appropriate dual enrollment courses prior to the start of each semester. High school counselors coordinate with college Admissions & Records staff to facilitate high school student enrollment, matriculation, and data tracking. The Open CCC system is utilized for online application. Each student participating in a dual enrollment program attends an information session on enrollment and course selection, and all students participating in a dual enrollment program receive additional guidance from a high school specialist who provides wraparound support and interventions for dually enrolled students. The high school district forms an early college team to lead this cross-system coordination and direct student support. Figure 1 illustrates the dual enrollment process.

Figure 1: College Dual Enrollment Process



SFUSD is the seventh-largest school district in California and educates over 57,000 students who live in the City and County of San Francisco. SFUSD runs 12 preschools, 72 elementary and K-8 schools, 13 middle schools, 15 senior high schools (including two continuation schools and an independent study school), and 14 active charter schools authorized by the District. A key element of the SFUSD vision is that every student who attends SFUSD schools will graduate from high school ready for college and careers and equipped with the skills, capacities, and dispositions necessary for 21st century success (SFUSD website, 2019).

SFUSD and CCSF have a long history of collaboration to facilitate student transition to college, including a variety of dual enrollment opportunities for high school students. Students

participating in SFUSD’s Career Technical Education (CTE) Academies enroll in introductory college-level coursework at CCSF during their junior and senior years. SFUSD also partners with the County of San Francisco to serve students enrolled in several schools with high-need populations: the Hilltop School Pregnant Minors program, in partnership with the Family Service Agency of San Francisco, which allows pregnant and parenting teens to progress toward completion of secondary education; Civic Center Secondary School, which provides students in grades 7-12 with instruction and County support services; the Early Morning Study Academy, where students referred by Juvenile Probation receive HiSET (high school equivalency exam) preparation assistance for up to four months; and several Court Schools operated by the Juvenile Probation Department both in and outside of San Francisco.

Local Priorities and Definitions

Underrepresented and Disproportionately Impacted Minoritized Students

Within their local context, both CCSF and SFUSD term groups and subgroups of students who face disproportionate access and outcomes as their “equity populations.” In accordance with each system’s commitment to an equity agenda focused on underserved student groups, both CCSF and SFUSD have identified Native American, African American, Latinx, and Pacific Islander students as those most underserved and disproportionately impacted within their educational context. In San Francisco, considerable effort has been taken to demonstrate measurable progress for African American, Latinx, and Pacific Islander students, who are often overrepresented within California’s Community Colleges and, more specifically, within pre-collegiate basic skills courses and the first-generation student category. CCSF’s Equity Office examines disproportionate access and outcomes college-wide and works with a broad coalition of college stakeholders to craft the College’s concrete approach to increasing student success

through equity-centered policies and practice. Among the metrics examined are: completion of both transfer-level Math and English within a student's first year, attained completion (certificate, degree, or other milestone as defined by the SCFF), and transfer to a four-year institution (CCSF Equity Office Executive Summary, 2019-2020). Within CCSF's 2019-2020 Equity Office Executive Summary draft, disproportionate impact was identified for seven groups: American Indian or Alaska Native (one metric), Black or African American (three of the above listed metrics), Disabled (one metric), Filipino (one metric), Hispanic or Latinx (two metrics), Native Hawaiian or other Pacific Islander (three metrics), and LGBT students (three metrics). City College of San Francisco's Board has codified a focus on equity efforts citing "Student Equity: Completion" as its fifth priority during the 2018-2019 academic year (CCSF, Board Goals, 2018-2019)

Types of Dual Enrollment in San Francisco

SFUSD describes all dual enrollment as "Early College." The CCSF and SFUSD dual enrollment partnership encompasses three types of dual enrollment: College and Career Access Pathways (AB 288) or CCAP Agreement/On-Site Courses, Early Dismissal, and General Dual Enrollment. CCAP courses are taught specifically for SFUSD students with dedicated sections at both high school and college campuses. Courses offered include: Psychology, Fire Science, Construction, Ethnic Studies, Health Education, and Women's Studies as part of the District's CCAP agreement. Early Dismissal (also called Early Release) is a type of dual enrollment wherein the high school students attend CCSF class(es) as a cohort during their regular school day. SFUSD provides transportation for the Early Dismissal program for students from one or more high school sites to a CCSF college course held on a college center. These courses are open for general enrollment and may combine a large segment of high school students with other non-

high-school students. Two SFUSD schools primarily participate in this model that includes courses in Healthcare Technology, English as a Second Language, Construction, Broadcast Media, Sociology, and Child Development. Finally, some SFUSD students participate in traditional dual enrollment, in which a high school student enrolls in a college level course (or courses) and attends that course with the general public at CCSF. Table 2 displays the local models of dual enrollment by type, schedule, general description and function for the SFUSD-CCSF dual enrollment partnership.

Table 2: Types of Dual Enrollment, SFUSD-CCSF Partnership

Type	Schedule	Description	Logistics	Considerations
CCAP On-Site Courses (AB 288)	Embedded into school day	(California Career Access Partnership) CCSF course is held at school site during school day. Course is closed to non-high school students.	School must schedule CCSF course hours into regular school day. School must have 30 students minimum to schedule the course. School is responsible for outreach, enrollment & registration, & books. CCSF courses cannot supplant regular high school courses.	Convenient access to college courses. Students can be cohorted to provide academic support. Highest equity/access approach. Recommended for 10th-12th grade students.
Early Dismissal	After lunch end of school day	Student cohorts travel to CCSF at lunchtime to take afternoon CCSF courses held at a CCSF site. Students are in class with regular college students.	Course can be open to any student. Students take college class with adult students on a college campus.	Students must be recruited for course. Point person needed to support class. Students may not be available to come early/stay late. Transportation may be needed. High equity/access approach.
General Dual Enrollment	Stand-alone	Students go on their own to CCSF and take courses outside of their high school day .	Students have more flexibility to take courses according to interests, schedules. Students travel on their own to courses with adult students on a college campus.	Students receive less support. Lowest equity/access approach Includes summer class/internships

Organization of the Study

My first chapter introduced this study's primary research questions, described the setting, and provided an overview of the policies and local context most salient to the questions I pose. In the next chapter, I ground this study's analysis in equity-centered theories useful for framing, interrogating, and discussing data. Chapter Three provides an overview of the prevailing literature for transitions to college—addressing the complexity of moving through community colleges—a survey of early college and dual enrollment research, and studies that explore transition support for underserved students, namely, students within an alternative educational setting. In Chapter Four, I use three years of special admittance (dual enrollment) data to examine rates of participation and analyze differential outcomes across several demographic variables, school types, and course types. I discuss my findings in this study's fifth chapter, provide recommendations for practice and policy, and propose future areas of research. The sixth chapter concludes this study.

Chapter Two: Theoretical Frameworks

I use three primary theoretical lenses to frame this study. First, I present a selection of theories that examine how educational policy and institutional practices inherit inequality. Consequently, these systems maintain the inequity they intend to disrupt. I use Dowd's (2003) discussions to interrogate the role and function of community colleges as open access institutions in tension between their roles as educational democratizer and businesses operating with limited resources to achieve the greatest efficiency. Secondly, I provide an overview of Harris and Bensimon's (2007) Equity Scorecard and Five Principles of Equity, which guide my approach for this quantitative inquiry. Finally, because equity by design requires an intentional interrogation of historical legacies, I conclude with an extensive discussion of deficit-based framing of minoritized students and surface its history within a racialized, eugenicist legacy.

Economic and Social Reproduction Theory

Inequity by Design

AB 288, and dual enrollment broadly, has a stated goal of shifting away from a practice of serving high-achieving students and toward a strategy for high school completion, academic engagement, and college preparation. Despite this, dual enrollment practices can actually replicate the systemic inequities engrained in the fabric of our educational systems, undermining our best efforts at equity focused initiatives. Effective, intentional programming for underserved student populations remains the exception across dual enrollment partnerships. Because even well-intentioned policies can further "educational and economic deprivation" (Center for Urban Education, University of Southern California, 2016), it remains imperative to "assess policy by considering who benefits, who loses, and how low-income and minoritized students fare as a result of the policy" (Center for Urban Education, University of Southern California, 2016).

Economic and Social Reproduction theory suggests that educational systems reproduce the economic and social stratifications found in broader society (Bowles & Gintis, 2012; Nieto & Bode, 2012). Economic and Social Reproduction Theory would posit that community colleges may unintentionally sift and sort students while replicating economic and academic disparities by design. Though Economic and Social Reproduction Theory oversimplifies the “dynamic processes” (Nieto & Bode, 2012, p. 261) that account for student success and failure, it serves as a useful lens through which to ask: what is the purpose of education—more specifically, community college dual enrollment—and what forms of education are reserved for which students? On the one hand, community colleges offer an open access, affordable path toward economic and educational mobility for all; on the other, this path meanders and curves—more for some students than others. Economic and Social Reproduction Theory provides a foundational framework to explore how policies like AB 288 can perpetuate the systemic inequities they intend to diminish.

Dowd’s (2003) study explores the tensions between the community college’s historical role as educational democratizing agent and present-day policy and legislative calls for outcomes-based accountability not unlike the newly implemented SCFF. Dowd argues that these “calls for efficiency, productivity, and accountability” (Dowd, 2003, p. 2) have shifted community colleges away from their original mission of access and made them increasingly more attentive and responsive to industry demands for business-like efficiency models. This privatization has served to reinforce and replicate existing educational and economic stratifications, which the community college was intended to mitigate. Dowd (2003) argues that an equity agenda and a focus on efficiency, performance, and accountability metrics can coexist. However, Dowd (2005) suggests that examining data alone provides information, not change.

Institutions and their actors must intentionally leverage data to enact policies and practices that best support equitable outcomes for all students.

The Equity Scorecard and Five Principles of Equity

Equity by Design

Harris and Bensimon's (2007) Equity Score Card operationalizes Dowd's (2003, 2005) principles and provides a means by which organizational learning may incorporate an accountability system wherein equity is an actual indicator of success. The Equity Scorecard (Harris & Bensimon, 2007) was created to help institutions move beyond an equity value statement and toward an approach of measuring "educational outcomes for traditionally marginalized students" (p.79). Similar to Dowd's (2005) assertion that data alone is not enough, Bensimon (2004, 2007) frames an educational institution's goals as twofold. First, educators must have an awareness of disparate outcomes for minoritized students. Second, an institution and its actors must have the onus for "eradicating the inequitable outcomes" (Harris & Bensimon, 2007, p.79).

The Equity Scorecard (Harris & Bensimon, 2007) functions as an intervention "designed to create learning and change among practitioners" (p79). Grounded in equity centered theories and literature (Bensimon, 2004, Bensimon, Polkinghorne, Bauman, and Vallejo, 2004; Bensimon, 2007), Harris & Bensimon (2007), like Dowd (2005), recognize that organizations and systems are comprised of individuals who can and must advance change through their professional practice. The Scorecard offers mechanisms for data driven inquiry grounded in an equity focus; a practice both evidence-based and aware of race-based inequities. It operates as a tool for both individual and organizational learning and change that focuses on interrogating and disrupting racial and ethnic disparities in student participation and outcomes. As such, it serves

as a useful framework for this study. It provides both theories and processes for identifying, analyzing, and discussing racial and ethnic gaps in educational access and outcomes; a primary aim of my dual enrollment inquiry.

To fully achieve individual and institutional responsibility, however, Bensimon (2012) argues that educational disparities cannot be grounded in the deficits of the student, their community, or their circumstance. Instead, they must be placed properly within their sociohistorical context. Real educational reform must be equity-minded, meaning it must integrate “an awareness of the ways in which many groups within U.S. society have been historically excluded from educational opportunities, or marginalized within the structures and institutions that house those opportunities” (Bensimon et al., 2016).

Student success has historically been seen as the primary responsibility of the student (Bensimon & Harris, 2007). To enact educational equity, an institution and its leaders must recognize that they hold the “power to create the conditions that make student success possible or perpetuate race-based inequities” (p.79) through both their practice and the ways in which they make meaning of student level data. According to the Center for Urban Education (2016), “reducing inequities in educational attainment by race and ethnicity will require deliberate and explicit effort.” Bensimon et al. (2016) recommend that educational agents use five principles to ensure equity by design. These five principles of equity (Bensimon et al., 2016) hold that:

1. Clarity in language, goals, and measures is vital to effective equitable practices.
2. “Equity-mindedness” should be the guiding paradigm for language and action.
3. Equitable practice and policies are designed to accommodate differences in the contexts of students’ learning—not to treat all students the same.

4. Enacting equity requires a continual process of learning, disaggregating data, and questioning assumptions about relevance and effectiveness.
5. Equity must be enacted as a pervasive institution and system-wide principle.

Because even open access institutions can create “intra-institutional stratification[s] [that] remain largely invisible to the campus community” (Bensimon, 2004, p.46), policy makers and institutions alike must explicitly and intentionally measure equity outcomes alongside academic and economic metrics to ensure community colleges maintain their role as “democracy’s college” (p.25), particularly for our least-resourced students who rely on community colleges as bridges to academic and economic mobility.

The California College system is not alone in its function of economic and social reproduction. Disparities across curricular offerings, staffing and resources, and facilities seem particularly stark when comparing high schools across economic lines and across traditional and nontraditional school types. Institutional racism may not always present itself in overt ways (Bensimon, 2012; Bensimon et al, 2016; Association of American Colleges & Universities (ACUE), 2016). Its subtlety, in fact, is what makes it most insidious and detrimental to substantive reform. These “racialized patterns...permeate policies and practices in higher education” (Bensimon et al., 2016) in ways imperceptible to educational actors. Chief among these racialized patterns are the shorthand terms used to describe minoritized students.

Beyond the ways in which this language is in misalignment with an institutional desire to enact equitable practices and achieve equitable outcomes, linguistic racialized patterns create additional racial disadvantage by situating “unequal outcomes [within] students’ cultural predispositions” (Bensimon, 2012). This practice—intended or not—interprets the data “based on stereotypical assumptions about the capacity, aspirations, or motives of minoritized

populations” (Bensimon, 2012; Bensimon, et al., 2016). Because “language reflects culturally acquired knowledge that forms the schemas of practitioners, leaders, policymakers, and others whose actions can make—or unmake—the antiracism project in higher education (Bensimon, Dowd, Stanton-Salazar, & Dávila, 2016), we must first undertake a historical examination of its pervasive and entrenched use. It serves as a useful grounding for this research. The following section provides a historical overview that illuminates how minoritized students are framed in much of the current student participation and success educational literature.

Historical Context: Cultural, Behavioral Models for Minoritized Communities

The Legacy of Deficit-based Frameworks in Education

Although inquiry related to under-studied youth populations has gained momentum, much of it centers on exploring “at-risk” behaviors (e.g., drug use, truancy, negative classroom behavior). In *The Evolution of Deficit Thinking: Educational Thought and Practice*, Richard Valencia (1997) provides an overview of historical, political, and educational policy contexts that formed the use of deficit thinking as a dominant explanation for failing schools. The author incorporates an extensive, cross-disciplinary literature review which includes sociological, psychological, educational, and “scientific” theoretical models to contextualize the modern state of educational policy and critique the use of deficit models within education and educational policy formation. Valencia uses six contexts to deconstruct and critique educational deficit thinking: blaming the victim, oppression, pseudoscience, temporal changes, educability, and heterodoxy. Most notable is Valencia’s inclusion of William Ryan (1971, as cited in Valencia, 1997) and his book *Blaming the Victim*, which he heralds as the cornerstone of deficit critique. Ryan (1971, as cited in Valencia, 1997) argues that deficiency-focused interventions ignore needed, necessary structural and systemic changes in favor of “correcting” behaviors and

deficiencies of “victims.” He asserts that “the logical outcome of analyzing social problems in terms of deficiencies of the victims is the development of programs aimed at correcting those deficiencies (Valencia, 1999, p.3). Deficit thinking centers school failure within a person-focused context and excludes institutions; decontextualizing individual performance from history, policy, and structural context. Moreover, this deficit lens rests grounded in a long history of pseudo-scientific research—methodologically flawed and biased—situated within a larger dominant orthodoxy resistant to challenge.

To illuminate the longevity and persistence of deficit-based models, Foley (1997, as cited in Valencia, 1997) locates the educational deficit-based model’s origination in the genetics-based movements of the 1920s (eugenics), explores their evolution to cultural/behavioral models, examines the apex of their prominence in the 60s and 70s, and discusses the resurgence of modern-day deficit-based cultural/behavior models within education and educational policy. Foley argues that four dominant factors moved deficit theories from genetics/eugenics models to cultural/behavioral arguments. First, the Great Depression, which saw an expansion of the poor and low-income class, undermined the argument of “limited intelligence as the cause of poverty” (p.113). The increased widespread poverty and economic crisis throughout the United States problematized the eugenicist view and made its use taboo. Second, the use of eugenics in Nazi Germany as the foundation for sterilization and mass genocide (based on the United States’ success with eugenics in sterilization policies) forever tarnished its reputation and stigmatized its use. Third, individuals’ World War II military enlistment created a decline in both intelligence testing and related research in the 1940s since this workforce was engaged in combat. Lastly, key research (Hunt, 1961, as cited in Valencia, 1997; Lewis, 1965, as cited in Valencia, 1997; Piaget, 1962, as cited in Valencia, 1997) challenged the “immutability of intelligence” (Foley, 1997, as

cited in Valencia, 1997, p.114) models and expanded theories of learning to an individual's environment (i.e., culture and class). This final factor served as the foundation for subsequent models and the surge of research focused on poverty and culture as the explanation for "school and life" failures (p.115).

Building on the previous discussion of deficit thinking variants, "genetic pathology; culture of poverty; cultural and accumulated environmental," Solórzano and Valencia (1999, p.160) examine how these historical foundations manifest in contemporary modes of deficit thinking and argue that these ancestors of deficit theory remain active in modern day educational policy and practice. Solórzano and Valencia use a focused explication of seminal hereditarianism texts throughout the decades to ground their discussion of non-deficit-based approaches to public policy and their subsequent critique of modern day, Neohereditarianism deficit theory and practice. The authors survey key hereditarianism research, the epicenter often located with Arthur Jensen's 1969 publication (as cited in Valencia, 1997), *How Much Can We Boost IQ and Scholastic Achievement?* a research study grounded in theories of educability that compared the differences on intelligence tests of Black and White children and attributed these differences to genetics. However, Solórzano and Valencia (1999) suggest the true locus of hereditarianism educational research is Audrey Shuey's (1958, as cited in Valencia, 1997) *The Testing of Negro Intelligence* that "proffered a genetic interpretation of the black-white gap" (p.164). Henry Garret's (1966, as cited in Valencia, 1997) *Breeding Down* and Lloyd M. Dunn's (1987, as cited in Valencia, 1997) research on the scholastic, cognitive, and linguistic limitations of Mexican American and Puerto Rican children serve as additional examples of the persistence and proliferation of hereditarianism research, while Herrnstein and Murray's (1994, as cited in

Valencia, 1997) *The Bell Curve* is cited as perhaps “one of the most sustained treatises on genetic pathology ever published” (p.174).

Solórzano and Valencia’s (1999) historical framing and literature review serves to reveal the modern-day focus on the deficits of individuals, communities, and student failure. Their literature review helps to underscore the insidiousness of present-day constructs like “at-risk students,” which attempts to identify, quantify, and unify the predictive characteristics of students predisposed to academic failure and exit. An additional literature review conducted by Solórzano and Valencia (1999) in this area alone—spanning only one decade (1989-1999)—revealed 2,500 papers and conference presentations that included an “at-risk” construct for education/educational policy. Additional books, dedicated journals, institutes, and centers focused on “at-risk” behaviors and individuals were omitted from this count. Ironically, “at-risk” was initially used by critics of the 1990s “excellence movement” (Solórzano and Valencia, 1999, p.196) as an attempt to move academic achievement beyond the individual effort to the systemically based limitations of education. This pervasive label, a concrete manifestation of deficit thinking and its forefathers, now serves as coded language for pejorative labeling that includes

Cultural deprivation and disadvantage...[which] deflects attention away from injustices perpetrated and institutionalized by the dominant society and again frames oppressed communities and homes as lacking in the cultural and moral resources for advancement (Sleeter, 1995 from Solórzano and Valencia, 1999, p. 197).

These invisible, de-historicized frames perpetuate the disproportionate impact and outcomes for low-income populations, Latinx, and African American communities today. Likewise, these frames persist in the literature focused on academic success for historically underrepresented

communities, including dual enrollment focused literature. A significant portion of dual enrollment literature examines the efficacy of dual enrollment as a tool to improve educational outcomes (Fink et al., 2017; Karp et al., 2007; Kleiner & Lewis, 2005; Marken et al., 2013; Rodríguez et al., 2012). However, very little of it focuses on racially, ethnically, and economically minoritized students (An, 2013; Struhl & Vargas, 2012). A smaller sample of the literature pays specific focus on the role of educational equity in dual enrollment as a mechanism for achieving equity or exacerbating inequity (Taylor, 2015; Mehl, Wyner, Barnett, Fink, Davis, & Jenkins (2020). In my next chapter, I will provide a more focused discussion on academic disparities as they pertain to college connection alongside a survey of relevant dual enrollment literature, with particular focus on interventions for continuation high school students.

Chapter Three: Literature Review

I have organized the prevailing literature into three dominant themes. First, I will discuss the barriers to entry and progression inherent in a complex California Community College system. These increasingly complex processes create the greatest negative impact for the very students community colleges intend to serve. Next, I will provide an overview of research focused on dual enrollment's efficacy as a high school completion and college connection mechanism, one associated with a myriad of positive student outcomes. Finally, I will discuss research focused on college transition support for continuation high school students.

Community College's Cumbersome Front Door: The Need for Transition Support

Successful college connection and completion relies on three critical factors: navigational capital (Yosso, 2005); an ability to negotiate a complex bureaucratic system (Attinasi 1989; Dickie & Farrell, 1991; Shields, 2002); and an exceedingly complex postsecondary matriculation process, opportunities for college ideation, and academic preparation. Research indicates that first-generation high school students may face several barriers to successful college transition, enrollment, and postsecondary completion (Ruiz De Velasco & McLaughlin, 2012; Terenzini, Springer, Yaeger, Pascarella, & Amaury, 1996; Tierney, Bailey, Constantine, Finkelstein, & Hurd, 2009). Several studies suggest that first generation students may have limited or no college exposure and may have greater personal and familial responsibility, all of which may impact college transition and academic and social integration once in college (Ruiz De Velasco & McLaughlin, 2012; Terenzini et al., 1996; Tierney et al., 2009). Additional college transition (matriculation) support, bridge programming, and "systematic and comprehensive" assessment and remediation (Terenzini et al., 1996, p.18) during a student's high school years can ensure

first generation students are as well positioned as their non-first-generation peers for success (Castleman et al., 2015).

Often, first generation college students and other minoritized student populations have one primary connection to postsecondary education: the open-access front door of California's community colleges. While significant legislative changes (AB 705, Student Equity and Achievement Plan) have streamlined the community college matriculation process in recent years, particularly in the areas of assessment and placement, these reforms have been implemented to varying degrees and effect throughout the California Community Colleges (CCC). Additionally, the CCC Apply process (the general application for all California community colleges), the Federal Application for Financial Aid (FAFSA), and educational pathways continue to present an array of unnecessary barriers for students. In their exploration of high school to college transitions, Arnold, Fleming, DeAnda, Castleman, & Wartman (2009) argue that a "loose hand-off" between high schools and colleges presents significant consequences for the lowest-resourced students. Ervin (2016) locates the source of much of this "melt"—the phenomena of losing students between orientation and enrollment—within the California community colleges' complicated matriculation process, which presents an array of stop-out or "melting" points, particularly for first generation and low-income students. An examination of two cohorts over the course of a four-step college transition process that includes orientation, assessment/placement, counseling, and enrollment revealed a 16% melt for two cohorts, exposing an unintentional siphoning of students.

Under-resourced youth often share an intersection of identities, identity development, and educational characteristics, first generation and minoritized status among them. Both groups remain under-connected to critical college knowledge, experiences, and resources needed for

successful college transition (Terenzini et al., 1996). Terenzini et al. (1996) examined the precollege characteristics, college experiences, and year-one academic gains for first generation college students relative to their non-first-generation college peers. The authors suggest that intentional and frequent asset-based framing for students prior to college (and during their first year of college) can help position students' "background [as] sources of knowledge and pride [and]...serve[s] as a critical mechanism for ensuring students internalize a belief that they can succeed" and exist as valuable members of the academic community (Terenzini et al., 1996, p.18).

Personal, familial, school, and community context (Perna, 2006) all impact students' postsecondary desire, search, and application process. In "Improving College Access and Choice," Perna and Kurban (2013) examine existing theoretical college choice research and models and determine the greatest predictors of college choice. Using Perna's earlier Conceptual Model of Student College Enrollment with Policy Linkages (Perna et al., 2008), the authors suggest that college choice is influenced by "multiple layers of 'context'" (Perna & Kurban, 2013, p.12) and "requires attention to multiple theoretical perspectives... economic theory of human capital as well as cultural and social capital theories" (Perna & Kurban, 2013, p.12). In essence, a student's college choice and enrollment remain "nested" (Perna & Kurban, 2013, p.12) within their personal and familial context, particularly their economic background and parents' level of educational attainment. For many alternative education students, high school context plays a critical role in ensuring students experience a successful college transition (Perna & Kurban, 2013). It is the structure which most strongly influences academic readiness (Perna & Kurban, 2013) and an observed factor in explaining "differences in college enrollment and

choice across groups, academic preparation, and achievement,” particularly for underrepresented students (Perna & Kurban, 2013, p.18).

Early Access to College Credit: A Survey of Dual Enrollment Strategies

Conferring college credit is critical for students who are credit deficient, students who may not graduate, as well as for first generation college students who may have received limited exposure to college and career ideation (Edmunds et al., 2015; Terenzini et al., 1996; Tierney et al, 2009). In addition to providing access to the core academic skills required for postsecondary success (Conley, 2007), early college exposure also provides an opportunity for all students—regardless of their personal, familial, school, and community context (Perna & Kurban, 2013) to preview and try on a college persona and experience or anticipatory socialization (Karp, 2012). These additional forms of nonacademic preparation—a broader, more holistic view of college readiness—can provide authentic experiences wherein students can practice college expectations (Karp, 2012), build familiarity with college environments and culture, and receive support during a mini-matriculation process. This early college exposure can mitigate “melt” (Ervin, 2016) and instead provide a warming-up effect (Taylor, 2015) for students by introducing them to college, college-level curriculum, and college culture and resources, both human as well as programs and services, all of which increase college as an aspiration (Howerter, 2011; Karp, 2012).

Overall, dual enrollment has demonstrated positive effects on high school academic outcomes and completion as well as college participation and degree attainment (U.S. Department of Education [DOE], 2017). Several studies have determined a potentially positive effect on high school retention and attendance as well as college readiness (Karp, Calcagno, Hughes, Jeong, & Bailey, 2007). Some research explicitly defines “college readiness” as a student’s ability to bypass remediation (Kim & Bragg, 2008). In California, Assembly Bill 705

(AB 705) has catalyzed significant reform for California community colleges' remediation sequences in English and Math. AB 705, in part, requires colleges to ensure that all students spend no longer than one year in remediation. This timeline differs for students starting college in an English language learning sequence. Kim and Bragg's (2008) national survey of dual enrollment participation, which included career technical education and non-career technical education alike, found a significant correlation between dual enrollment participators and college readiness (no remediation taken at a community college) in Florida, Oregon, and Texas.

What Works Clearinghouse's (WWC) investigative report on dual enrollment programs (2017) summarizes the effectiveness of dual enrollment programs using a systematized review of dual enrollment literature. While extensive, WWC only reviews studies it deems as eligible, which means they are quantitative, must attempt to demonstrate causality, and are designed as randomized controlled trial, quasi-experimental design, or regression discontinuity. Overall, the report identified a total of 62 studies on the effects of dual enrollment, although only 35 were deemed eligible. No qualitative inquiry or theoretical articles were included within the summative report. The review (of studies that met the WWC group design standards only) determined a medium to large body of evidence that dual enrollment positively impacts students' transition to college and related domains: "staying in school, college readiness, attendance (high school) and general academic achievement (college)" (WWC, 2017, p.1). The review also found "positive effects on students' degree attainment (college), college access and enrollment, credit accumulation, completing high school, and general academic achievement (high school), with a medium to large extent of evidence" (WWC, p.1). Regarding impacts on staying in high school, college readiness, and attendance (high school) domains, dual enrollment programs had potentially positive effects with a small extent of evidence. Dual enrollment programs were

found to have “no discernible effects on general academic achievement (college) with a small extent of evidence” (WWC, pg. 1). However, several dual enrollment studies not included in the WWC summative report, categorized as ineligible or listed as not meeting WWC design standards, have demonstrated positive impacts on both college success and time to degree completion (Karp et al., 2007; Kleiner & Lewis, 2005; Marken et al., 2013; Shapiro et al., 2016; Texas Higher Education Coordinating Board, 2017).

One of the few studies that explicitly demonstrates an equity-minded approach to dual enrollment research is Taylor’s (2015) quasi-experimental study of 12,800 Illinois youth. Using Perna and Thomas’ (2008) Conceptual Model of Student Success and Rawls (1999) Theory of Justice as conceptual frameworks, Taylor (2015) examined the effects of dual credit for college enrollment and completion. The study focused on Illinois dual credit students only. Taylor (2015) uses Illinois’ definition of dual credit, which distinguished it from dual enrollment, in that it must be an “administratively facilitated program” (p. 360), which is frequently held on the high school campus. Taylor (2015) found that while dual credit students outperformed their non-dual credit peers in college enrollment and completion, these results lacked correlation or causation. The descriptive results demonstrated a benefit for all students, including those underrepresented in higher education, though the gains were smaller than the full sample. Moreover, none of these gains could be directly attributed to participation in a dual credit program.

An’s (2013) study examined the impact of dual enrollment on college degree attainment using the National Education Longitudinal Study of 1988 as a dataset. An paid particular attention to the ways in which students from low socioeconomic backgrounds might benefit from dual enrollment opportunities. Because only “26% of college students from the bottom quartile

of the income distribution attained a degree by age 25 as compared to 59% of college students from the top quartile of the income distribution,” dual enrollment is seen as an avenue to reduce college participation gaps for financially under-resourced students (An 2013, p.3; Haveman & Wilson, 2007). Dual enrollment is a no-cost option for California high school students. Using parent level of education as a proxy for socioeconomic status, An found that degree attainment was greater for dual enrollment participants, though positive effects were found for students who took at least two courses, but not more than six. Ultimately, An suggests a focused approach on differential access rather than a broad approach to increasing dual enrollment. Particular attention to both schools with a high concentration of first-generation students or schools with students classified as socioeconomically disadvantaged could help to mitigate the existing educational gaps.

Strong, long-standing dual enrollment partnerships between community colleges and continuation high schools remain both underdeveloped and under-documented. The largest falloff for students on the educational attainment pathway is the transition from high school to college. This falloff is steeper for students with fewer resources and those traditionally underrepresented in higher education, namely, students of color. Partnerships between secondary and postsecondary institutions have been shown to curtail the falloff and increase postsecondary attainment for alternative education students, in part through aligning academic expectations with curriculum and support services when needed (Edmunds et al., 2015; Terenzini et al., 1996; Tierney et al., 2009).

Approaches to College Transition Support for Continuation High School Students

A series of research reports on California’s continuation high schools found that the students they serve were more likely to be living in formal or informal foster care arrangements,

be involved in substance abuse and violence, and have poorer physical or mental health outcomes than their peers in mainstream comprehensive schools (Ruiz De Velasco & McLaughlin, 2012). Continuation high school students were also highly likely to leave school early without earning a high school diploma. This disconnection severely constrains young adults' employment options and hinders academic and economic mobility long term (Ruiz De Velasco & McLaughlin, 2012). In recent years, this student population has increased in prominence and received greater national and statewide legislative attention with additional funding opportunities focused on opportunity youth steadily emerging. The California Alternative Education Research Project (Ruiz De Velasco and McLaughlin, 2012) provided findings and recommendations from a multi-year study of continuation high schools in California. The study reviewed, summarized, and synthesized policies, outcomes, and practices within California's alternative education system. Researchers observed the practices and policies impacting 23 continuation high schools across nine counties and explored "the emerging 'better practices' that characterize more successful" California continuation high schools (Ruiz De Velasco & McLaughlin, 2012, p.5). When compared to comprehensive schools, Latinx, African American, and English language learners remain consistently over-represented across most districts. In addition to offering several recommendations for improving curriculum, student support, increasing capacity, tracking data, and providing professional development, the study highlighted effective programs and practices within continuation schools. Effective programs should provide "successful on-ramps for re-engaging youth back into school...onto a path to a high school diploma and, often, post-secondary education" (Ruiz De Velasco & McLaughlin, 2012, p.24). The authors also note the dearth of resources, attention, and programming for a large contingent of California continuation high school students.

While some qualitative studies (Shea & Giles, 2016) have explored the perceptions and experiences of continuation high school seniors as they plan to transition to postsecondary education, the sample size inhibits the generalizability of findings. Shea and Giles's (2016) qualitative study, *Goals and Expectations of Continuation High School Students Transitioning to Postsecondary Education*, provided a limited sample size of 13 continuation high schools students. Moreover, the article failed to answer a primary research question: the role and impact of Occupational Therapy Training Programs (OTTP) on postsecondary education attainment for continuation high school students. While all interviewees participated in an OTTP, it was unclear if any correlation existed between OTTP participation and a student's desire to pursue postsecondary education. Though the study's small sample size impacts generalizability, it underscored a common misconception of continuation high school students and offered a powerful counter-narrative. Continuation high school students (as represented in the article's sample) recognize the value of postsecondary education and demonstrate both a desire and need to leverage additional education for economic mobility and continued personal growth.

The *Evaluation of Psychometric Properties of the Revised Inventory of the Dimensions of Emerging Adulthood (IDEA-R) in a Sample of Continuation High School Students* study (Lisha, Grana, Rohrbach, Sprujit-Metz, Reifman, & Sussman, 2014) examines a much larger sample size and includes a breadth of participants absent from Shea and Giles's (2016) study. Lisha et al.'s (2014) focus on under-examined populations—particularly in the field of psychosocial and psychometric evaluation—shone a light on the unique experiences, demands, and perceptions of continuation high school students. The researchers revealed how psychometric instrumentation might provide an effective measure for the experiences of diverse populations and demonstrated the need for more inclusive future study. However, the juxtaposition of populations as normative

and non-normative, e.g., white, female, college bound versus “at risk” men of color, traditional versus “non-traditional,” inhibits more nuanced discussions of each group’s distinctive experiences, needs, and the ways in which educational systems can ensure success across varying student populations.

As education grapples to define and prepare students to be “college ready,” each educational system must “acknowledge [their] shared responsibility to support [students’]” transition to higher education (Nagaoka, 2017, p. 2). While research (Shea & Giles, 2016) demonstrates underrepresented high school students desire and intend to pursue a college education, desire and intention alone cannot sustain a student through a “long...complex process that leads to admission, enrollment, and a successful” college transition (Nagaoka, 2017, p.5). If high school and community college partners seek to leverage dual enrollment as an enrollment growth tool that supports students’ connection to college and success in college, a careful examination of student level data and dual enrollment course-taking patterns is critical to revealing whether dual enrollment is mitigating disproportionate access and outcomes or exacerbating existing ones.

This review of literature summarized educational disparities for minoritized students, the efficacy of intentional early college experiences, and the dearth of research on effective interventions for students in a continuation high school setting. Chapter Four integrates both the theories discussed in Chapter Two and the literature survey provided above to frame the analysis of dual enrollment data. I also describe the dataset and measures, provide an analysis of dual enrollment data, and address the study’s three primary research questions.

Chapter Four: Dual Enrollment Outcomes

As described in Chapter One, this study examines dual enrollment participation rates in a large, urban, single-district high school-community college partnership in San Francisco. This chapter presents findings from the main research questions addressing dual enrollment participation. I analyze three years of participation rates and outcomes for students categorized as “special admit” students using data extracted from the community college’s student management information system (MIS). Special admit students are students designated by the California community colleges as concurrently enrolled high school students. First, I describe the dataset and construction of the main variables in this study, including student demographic characteristics and success outcomes. Next, I present summary statistics to determine student participation levels and outcomes across demographic factors, school type, course type, and enrollment intensity. I quantify disparities in rates of enrollment, course participation, and student outcomes by key student subgroups and examine these patterns through the theoretical lenses described in Chapter Two.

Quantitative Methods

I answer three primary research questions as part of this quantitative inquiry. I utilize descriptive statistics to examine dual enrollment participation rates and outcomes by student demographic groups, school type, and course type. Lastly, I examine enrollment intensity to capture the number of dual enrollment courses taken by each unique student.

Research Questions

1. What is the breakdown in dual enrollment participation across race/ethnicity, gender, parental level of education (a proxy for socioeconomic status), high school type (comprehensive versus continuation high school setting) and course type (career

- education and non-career education course)? Are there inequities in these rates of participation?
2. What are the dual enrollment student success outcomes (enrollment and matriculation)? Do these vary by race/ethnicity, gender, and socioeconomic status? Between comprehensive versus alternative high school settings? By course type? Do these outcomes reveal areas of disproportion?
 3. How many dual enrollment courses do high school students enroll in (i.e., enrollment intensity)? How does enrollment intensity vary by both student demographic variables and high school type?

Dataset

Within AB 288, dual enrollment students are defined and labeled as “special part-time” or “special full-time” admitted students, with colleges counting high school students enrolling in college credit courses as “special admit” students. Within management information systems, queries for dual enrollment students can be conducted by culling all students identified as special admit enrollees (California Community Colleges Chancellor’s Office’s March 11, 2016 Legal Opinion 16-02, p.1). For this study, I rely on a dataset provided by the City College of San Francisco Research Office, which represents enrollment from fall 2016 to spring 2019, a total of three academic years (or six semesters), and 52,391 unique course enrollments. I then select students identified as special admit (or dually enrolled) students. Given the distinct nature of summer dual enrollment (course offerings, students served), I omit summer semesters from the analysis in order to focus on course enrollment during the academic year. A total of 7,315 duplicated enrollments and 4,065 unduplicated students who were identified with a high school

exemption/dual enrollment attribute² comprise the full sample of dual enrolled students. Each unique student identifier attached to a special admit flag was verified by matching gender, first and last name, and date of birth to ensure its accuracy and that it was in fact an unduplicated and unique student. Once matched, student identifiers were then stripped from the dataset. All student level datasets comply with privacy measures in accordance with each district's policies. The analytic sample for this study is 3,996 "Special Admit" identified students.

Measures

Study Database and Variable Construction

Variables created for the study are described in Table 3. College outcome variables include a measure of course success, defined as receiving a grade of C or higher in a course, and matriculation to community college, which is defined as dually enrolled students enrolling in additional CCSF college courses post high school graduation. For the purposes of this study, transition to college focused solely on students' transition from a dual enrollment experience to non-dual enrollment (i.e., regular enrollment) at the same local community college. Although the broader transition to postsecondary opportunities (e.g., four-year and two-year) is of critical importance, such data was not available for this study. I explore variation in participation and outcomes based on student demographics, including gender, race/ethnicity, parent or guardian's highest level of education, and first generation status (a special admit student was defined as first generation when neither parent attended any college).

² Identified in Banner (SGRSATT_ATTSTS_CODE = 'CHSS').

Table 3: Study Variable Description

Variable Name	Description	Coding	Source
College Outcome Variables			
Enrollment (STU_DUAL_ENRL_IN_TERM)	Student enrolled as special admit	1=if yes; 0=if no	Office of Research and Planning (ORP)
Course Enrollment	Duplicated course enrollment count	1=if yes; 0=if no	
Course Success	Course grade of C or higher	1=if yes; 0=if no	
Matriculation (Matric)	Did student matriculate at CCSF post dual enrollment participation?	1=if yes; 0=if no	
Demographic Outcome Variables			
Race/Ethnicity (STU_ETHNICITY)	Student’s race ethnicity		
Black or African American	Student identifies as Black or African American	1=if yes; 0=if no	ORP
American Indian or Alaska Native	Student identifies as American Indian or Alaska Native	1=if yes; 0=if no	ORP
Asian	Student identifies as Asian	1=if yes; 0=if no	ORP
Filipino	Student identifies as Filipino	1=if yes; 0=if no	ORP
Hispanic or Latino	Student identifies as Hispanic or Latino	1=if yes; 0=if no	ORP
Pacific Islander	Student identifies as Pacific Islander	1=if yes; 0=if no	ORP
White	Student identifies as White	1=if yes; 0=if no	ORP
Two or More Races	Student identifies as two or more races	1=if yes; 0=if no	ORP
Not Reported	Student did not report race ethnicity	1=if yes; 0=if no	ORP
Gender (STU_GENDER)	Student’s gender		
Female	Student identifies as female	1=if yes; 0=if no	ORP
Male	Student identifies as male	1=if yes; 0=if no	ORP
Parent or Guardian Highest Level of Education	Highest level of education for student’s parent or guardian	Associate, Bachelor, grade 9 or less, graduate degree, high school graduate, NA not raised by parent, some college	ORP

Variable Name	Description	Coding	Source
First Gen	First generation (neither parent has any college experience. Serves as proxy for SES)	credit, some high school, unknown/ unreported 1=if yes; 0=if no	ORP
<hr/> Key Question Variables <hr/>			
Course Type			
CTE	Did student participate in Career Technical Education (CTE) course (course subject code qualifies as CTE)	1=if yes; 0=if no	ORP
HSType (Comprehensive or Continuation)	Student high school type	Comprehensive, continuation, other, private, charter, unknown	ORP
HSType Success	Student success by high school type	1=if yes; 0=if no	ORP
HSType Matric	Student matriculated by high school type	1=if yes; 0=if no	ORP

I also examine participation and outcome rates by high school and course type. Specifically, I created five distinct school type codes based on each participant's listed high school name: comprehensive, continuation, charter, private, and other. The comprehensive label describes 15 traditional model high schools in SFUSD that provide secondary education for students in grades 9-12. The continuation high school label encompassed the SFUSD schools that provide continuing education in an alternative model to a high school diploma through programs "for students who are sixteen years of age or older, have not graduated from high school, are still required to attend school, and who are at risk of not graduating."³ The private school label was used for schools which, as defined by the CDE, are "owned or operated by a private person, firm, association, organization, or corporation, rather than by a public agency."⁴ The "other" category was used to identify students participating in one of six existing county schools, along with international students and other unique specially admitted students that did not fit the comprehensive, continuation, private, or charter high school categorizations. SFUSD describes county schools as schools that "provide specialized supports for youth who are foster, homeless, expelled, referred by probation or special services, pregnant, or parenting."

I divided course types into two categories: Career Technical Education (CTE) courses and non-CTE courses. I rely on a series of federal and state curricular codes that govern the categorization and labeling of course types to distinguish between course type. First, CIP (Classification of Instructional Programs) codes, which are a system of numerical codes at the federal level to collect and report information on fields of study and program completions activity. In addition, SAM (Student Accountability Model) codes are alphabetical codes used to demonstrate course sequencing and the degree to which a course is occupational. An

³ California Department of Education [CDE], 2020. <https://www.cde.ca.gov/sp/eo/ce/>

⁴ CDE Definition of a School, 2020. <https://www.cde.ca.gov/ds/si/ds/dos.asp>

apprenticeship course and/or program would be labeled SAM A=Very Occupational. The SOC (Standard Occupational Classification) codes are used by federal agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. Finally, the California Community College Chancellor’s Office uses a Taxonomy of Program (TOP), a “system of numerical codes used at the state level to collect and report information on programs and courses, in different colleges throughout the state” to label, group, and identify courses and degrees for the purposed of collecting and analyzing college program data. TOP codes are used at the state level to collect and report information on programs and courses in different colleges throughout the state that have similar outcomes. TOP codes also align to federal CIP and SOC classifications.

CTE courses or programs have an occupational focus intended to “respond to economic development interests” and documented business and employer engagement, supplying current labor market information from its local service area. These courses may also include transfer preparation, but that is not their primary focus. The CDE defines high school career technical education as “a program of study that involves a multi-year sequence of courses that integrates core academic knowledge with technical and occupational knowledge that provides students with a pathway to postsecondary education and careers.”⁵ A total of 96 unique subject prefixes—MATH, PSYC, AUTO, for example—were found to have at least one dually enrolled student. I categorized courses that had any CTE affiliated code (CIP, SAM, SOC, TOP) and those that aligned with the California Chancellor’s Office Program Approval Handbook definitions as CTE. All other courses, including such subjects as English, Math, Psychology, and Spanish, were categorized as non CTE.

⁵ <https://www.cde.ca.gov/ci/gs/hs/>, 2020

Data Analysis

Descriptive statistics illuminate the current and historical rates of dual enrollment participation (pre and post AB 288), as well as the rates of participating dual enrollment students' subsequent enrollment as first-year community college students. As such, this analysis revealed: who is currently being served by dual enrollment. In other words, do these partnerships serve intended participants? In this study, descriptive statistics will “indicate general tendencies in the data (average rates), as well as variation across groups (a comparison of how rates differ)” (Creswell, 2018, p.182). I utilized existing public enrollment, outcomes, and demographic data for each system (high school and community college) and used these figures as benchmarks for comparison when discussing proportionality. Again, key demographic information was disaggregated by a range of categorical variables, including race, ethnicity, gender, and the type of high school attended (comprehensive versus alternative high school setting), class(es) taken, and the rate of college connection. I calculated the aforementioned categorical variables and examined the spread of the data across course and institution type and examined enrollment rates and outcomes by each demographic variable and across and between variables. I summarize and couple these discussions with visual data representations (charts and graphs) for measures of central tendency and measures of dispersion. Below, I discuss the specific tools I use to define, measure, and discuss inequities in the dual enrollment data.

Defining and Measuring Disproportionate Impact

There are three primary ways institutions and organizations determine equity gaps. The standard methodology for California community colleges is the 80% rule⁶. This methodology helps practitioners ask: “Do any subgroup(s) achieve the desired outcome less than 80% of the

⁶ California Community Colleges Chancellor's Office (2017). Percentage point gap method. Retrieved from <http://extranet.cccco.edu/Portals/1/TRIS/Research/Analysis/PercentagePointGapMethod2017.pdf>

time the highest achieving (reference) subgroup successfully achieves that outcome (Sosa, 2018, p. 9)?”

The Proportionality Index (PI) helps users determine if specific student subgroups are present at a comparative rate to the outcome preferred. In other words, “[i]f a subgroup of students represents 45% of the student body, does that same subgroup also represent at least 45% of the students who achieve the desired outcome (Sosa, p. 11)?” If the rate of subgroup representation is lower than the broader group, this may suggest a disproportionate impact (Sosa).

The percentage point gap approach reflects the difference in percentage points between a specific demographic group and the mean across all demographic groups (California Community Chancellor’s Office, 2015; Sosa, 2018). When a large difference is observed, this may reveal disproportionate impact. No uniform approach exists across California community colleges, their instructional units, or programs. Experts (H. Shafer, personal communication, July 2021) recommend a blended methodology that adopts all three approaches.

In this chapter’s data discussion, I use the 80% rule to determine equity gaps and PI to identify disproportionate impact. Likewise, when I speak of variance in participation and outcomes, I adopt the percentage point approach to highlight point differences between and across demographic groups.

Research Question 1

What is the breakdown in dual enrollment participation across race/ethnicity, gender, parental level of education and first generation status (proxies for socioeconomic status), high school type (comprehensive versus continuation high school setting) and course type

(career education and non-career education course)? Are there inequities in these rates of participation?

Study Variable Summary Statistics

Table 4 provides the study's summary statistics. Overall, 4,065 SFUSD students participated in dual enrollment across all high school types, with 3,326 students identifiable as enrolled in either a comprehensive or continuation high school. Among these students, 80% had a comprehensive high school of origin while 1% of students came from a continuation high school setting; remaining students largely came from charter high schools. Demographically, most students participating in dual enrollment were Asian (41%) and Latinx (27%), respectively. Black or African American and Filipino students each comprised 5% of participating students, and 6% of students identified as two or more races. Students who identified as Pacific Islander comprised 1%, while Indigenous or those identifying as American Indian or Alaska Native represented less than half a percentage. Ten percent of dual enrollment students were White identifying students, and 4% of dual enrollment students did not report their race.

SFUSD reports a total of 16,279 students served in grades 9-12 for the 2019-2020 academic year. This excludes charter and county school student headcounts. The average SFUSD annual high school enrollment across all three years that corresponds with this dual enrollment time frame (fall 2016 through spring 2019) was 21,348 students. I used a three-year average of demographic variables across SFUSD as a point of comparison when examining proportionality in dual enrollment participation and outcomes.

Table 4: Study Variable Summary Statistics

Variable Name	All Dual Enrollment	Percentage	SFUSD Enrollment	Percentage
Dual Enrollment Variables				
Unduplicated Enrollment	4,065	100%	21,348	100%
Unduplicated Enrollment Comprehensive and Continuation High School	3,326	100%	X	
Duplicated Enrollment in Courses	7,315	100%	X	X
Success by Duplicated Enrollment Matriculation Two Year	6,294	87%	X	X
Unduplicated	1,262	38%	1,128	37%
High School Type				
High School Type: Comprehensive	3,270	80%	X	X
High School Type: Continuation	56	1%	X	X
High School Type: Other (Charter, Public, County)	670	17%	X	X
High School Type: Unknown	69	2%	X	X
Total	4,065	100%		
Race/Ethnicity				
Black or African American	209	5%	2,268	11%
American Indian or Alaska Native	2	0.05%	102	0%
Asian	1,683	41%	6,656	31%
Filipino	195	5%	1,053	5%
Hispanic or Latino	1,114	27%	7,474	35%
Pacific Islander	40	1%	234	1%
White	417	10%	2,267	11%
Two or More Races	261	6%	559	3%
Not Reported	144	4%	735	3%
Total	4,065	100%	21,348	100%
Gender				
Female	2,281	56%	9,512	45%
Male	1,714	42%	11,836	55%
Unknown/Unreported	70	1.72%	X	
Total	4,065	100%	21,348	100%
Parent or Guardian Highest Level of Education	All Dual Enrollment	Percentage	SFUSD Enrollment	Percentage
Associate	230	6%	X	X
Bachelor	587	14%	X	X
Grade 9 or less	427	11%	X	X
Graduate Degree	440	11%	X	X
N/A Not Raised by Parent	77	2%	X	X
Some College Credit	465	11%	X	X
High School Graduate	736	18%	X	X

Variable Name	All Dual Enrollment	Percentage	SFUSD Enrollment	Percentage
Some High School	381	9%	X	X
Unknown/Unreported	722	18%	X	X
Total	4065	100%		
First Gen	1,621	40%	X	X
Non-First Gen	2,444	60%	X	X
Total	4,065	100%		

Equity Gaps and Disproportionate Impact: Participation

The largest SFUSD demographic groups are Asian (31%) and Latinx (35%) students. Compared to the dual enrollment student rate, Asian students are overrepresented in this sample by 10 percentage points, while Latinx dual enrollment is less than the general subgroup's enrollment average. Specifically, Latinx students represent 35% of SFUSD's total general enrollment; they were underrepresented in dual enrollment participation by 8 percentage points. Black and/or African American students are similarly underrepresented as dual enrollment participants, accounting for approximately 5% of student enrollment, while representing an average of 8.95% of district enrollment (range of 7-13% per grade level) in grades 9-12 in these years. These figures reveal several equity gaps in participation.

Gender

Compared to the broader SFUSD enrollment, female students are overrepresented in dual enrollment opportunities. As part of the general enrollment population, female student enrollment is 10 percentage points lower than their male peers. As part of the dual enrollment sample, however, female students participate at a rate 6 percentage points higher than their male peers. Later, I will compare female and male success rates, which also contain disparities.

Parent Level of Education and First Generation Status

For this study, both parent level of education and first gen status serve as proxies for socioeconomic status. This assumes that higher levels of education relate to higher levels of income. Within the parent level of education subgroup, the lowest participating demographic rate is among students who identify as not raised by a parent. This variable, while not explicitly termed “foster youth” does encapsulate any individual not raised by a parent, including those living both informally and formally within a foster care setting. For the purposes of this study, I term those not raised by parents broadly as foster youth. While foster youth is not a specific subgroup focus for this study, ancillary findings emerged during my analysis of differential rates of participation and outcomes for this parent level of education subgroup. I identify notable disparities for foster youth and determine the inclusion of these findings relevant to the broader discussion on equitable access, outcomes, and disproportionate impact among underserved communities.

As captured in Table 4, students whose parents are high school graduates have the highest dual enrollment participation at 18% while students whose parents have an associate degree have the lowest participation rate of 6%. There is little variance across parent levels of education in the other subgroups. Students not raised by a parent, including foster youth, comprise 2% of participating students. This is a higher level of representation when compared to broader district trends. This should be counted as a success indicator. The greater proportion of students participating from lower SES groups (students whose parents’ highest level of education is a high school diploma) and students not raised by a parent (including informal and formal foster youth) evidences advancement in equitable access for disproportionately impacted student groups.

Since I was unable to determine SFUSD enrollment figures by each parent level of education subcategory as a comparison point, I omitted those fields from the table. However, across the district for grades K-12, foster youth enrollment equates to 0.004%⁷ of total enrollments, though this count is limited strictly to those individuals for whom have been officially declared as a dependent of the court⁸.

A total of 3,996 unduplicated students who participated in dual enrollment were from one of the five high school categories I created for this sample and outlined above. Given the purpose of this study, my discussion will focus primarily on those students whose school of origin was a comprehensive or continuation high school. Of the sample, 82% of students came from traditional or comprehensive educational settings within SFUSD. Only 1% of participating students were from a continuation high school.

SFUSD lists a total of seven sites as enrollment options titled Alternative Schools in Educational Programs.⁹ They define these schools citing California Education Code 58500, which defines an alternative school as:

A school or separate class group within a school that is operated in a manner designed to:

- (1) Maximize the opportunity for students to develop the positive values of self-reliance, initiative, kindness, spontaneity, resourcefulness, courage, creativity, responsibility, and joy.
- (2) Recognize that the best learning takes place when the student learns because of a desire to learn.
- (3) Maintain a learning situation maximizing student self-motivation and encouraging the student in their own interest. These interests may result in whole or in

⁷ <http://www.ed-data.org/district/San-Francisco/San-Francisco-Unified>

⁸ SFUSD Foster Youth Coordinating Program, 2021 <https://www.sfusd.edu/services/student-supports-programs/foster-youth-services-coordinating-program-fyscp>

⁹ <https://www.sfusd.edu/services/know-your-rights/student-family-handbook/chapter-3-family-resources-and-rights/38-enrollment/3810-attendance-options-alternative-schools-educational-programs>

part from a presentation on choices of learning projects to their teachers. (4) Maximize the opportunity for teachers, parents, and students to cooperatively develop the learning process and its subject matter. This opportunity shall be a continuous, permanent process. (5) Maximize the opportunity for student, teachers, and parents to continuously react to the changing world, including, but not limited to the community in which the school is located (SFUSD 3.8.10 Attendance Options, 2021).

Of these seven listed school sites, only three alternative schools publicly list their enrollment figures, with a total of 362 enrolled students for the most recent 2020-2021 academic year.¹⁰

Comparing Comprehensive and Continuation High School Student Participation

Typically (and within this sample), most dual enrollment participation is among 11th and 12th grade students. For SFUSD, this equates to 8,829 11th and 12th grade students for the 2018-2019 school year¹¹. When comparing SFUSD's total 11th and 12th grade enrollments with the number of participating dual enrollment students in this sample, this translates to approximately 46% of 11th and 12th grade SFUSD students participating in some form of dual enrollment. Comparatively, when using the denominator of 362 students enrolled in continuation high schools across SFUSD with the number of continuation high school students represented in this sample, this number is less than 16% (15.5%) for continuation high school participation, a gap of approximately 30 percentage points. This area too reveals an equity gap in dual enrollment participation.

Comprehensive and Continuation High School Course Participation Comparison

Table 5 depicts high school participation by both high school type and course type, specifically CTE dual enrollment participation. The numbers of participation I use to discuss

¹⁰ <https://public.tableau.com/app/profile/san.francisco.unified.school.district/viz/shared/XJQ5HJ7NM>

¹¹ <https://www.sfusd.edu/schools/enroll/student-assignment-policy/annual-enrollment-highlights>

course level participation represent duplicated counts and not unique students (since some students may participate in multiple dual enrollment courses). Thus, these should be thought of as unique enrollments in courses. Later in the data discussion, I explore enrollment intensity.

Table 5: Course Participation by High School Type

High School Type	All Enrollees	Rate	CTE	Rate	Non CTE	Rate	Both CTE and Non	Rate	Totals
Unduplicated Enrollment									
Comprehensive	3270	82%	1,334	41%	1,391	43%	545	16%	100%
Continuation	56	1%	33	59%	17	30%	6	11%	100%
Other (Charter, Private, Other)	670	17%	161	24%	429	64%	80	12%	100%

Proportionally, while significantly underrepresented in dual enrollment participation overall, continuation high school students take career technical education (CTE) courses at higher rates (59%) than their comprehensive high school peers (41%), a difference of 18 percentage points. The difference between CTE and non-CTE course participation among comprehensive high school students is slight, with students splitting nearly evenly across course type: 41% in CTE and 43% in non-CTE courses. A sizeable number of students participate in both CTE and non-CTE course types across all high school types: 16% of students from a comprehensive school setting taking both and 11% of students from continuation high schools participating in CTE and non-CTE courses.

Course Level Participation by Demographic Group

Table 6 displays both CTE and non-CTE course participation across student demographic variables. Of note, when disaggregated by race and ethnicity, most students participate in both course types at similar rates. Also noteworthy, Filipino students were overrepresented in CTE

courses when compared to non-CTE courses. Conversely, White students participated substantially more in non-CTE education. Students who identified as belonging to two or more races were also more represented in non-CTE. For Black and African American students, more participated in non-CTE than CTE. Across gender categories, participation in course type remained evenly distributed. First generation students, while distributed nearly evenly across career and non-career courses, were overrepresented in CTE courses when compared to their non-first-generation peers who enrolled at a rate of 42% versus 35%.

Table 6: Course Participation by Demographic Group and Course Type

Individual Demographic Variable	All Enrollees	Rate	CTE	Rate of CTE	Non CTE	Rate of Non CTE	Both CTE & Non	Rate of CTE & Non CTE	Totals
Race/Ethnicity									
Black or African American	209	100%	83	40%	107	51%	19	9%	100%
American Indian or Alaska Native	2	100%	1	50%	0	0%	1	50%	100%
Asian	1,683	100%	633	38%	767	45%	283	17%	100%
Filipino	195	100%	98	50%	73	38%	24	12%	100%
Hispanic or Latino	1,114	100%	482	43%	435	39%	197	18%	100%
Pacific Islander	40	100%	17	43%	20	50%	3	7%	100%
White	417	100%	95	23%	267	64%	55	13%	100%
Two or More Races	261	100%	89	34%	144	55%	28	11%	100%
Not Reported	144	100%	52	36%	59	41%	33	23%	100%
Total	4,065	100%	1,550		1,872		643		
Gender									
Female	2,281	100%	846	37%	1,067	47%	368	16%	100%
Non-Binary	2	100%	0	0%	2	100%	0	0%	100%
Male	1,714	100%	671	39%	776	45%	267	16%	100%
Unknown/Unreported	68	100%	33	49%	27	40%	8	11%	100%
Parent or Guardian Highest Level of Education									
Associate	230	6%	87	38%	106	46%	37	16%	100%
Bachelor	587	14%	184	31%	318	54%	85	15%	100%
Grade 9 or Less	427	11%	166	39%	151	35%	110	26%	100%
Graduate Degree	440	11%	117	27%	270	61%	53	12%	100%
High School Graduate	736	18%	315	43%	295	40%	126	17%	100%
N/A Not raised by parent	77	2%	29	38%	41	53%	7	9%	100%
Some College Credit	465	11%	191	41%	212	46%	62	13%	100%
Some High School	381	9%	174	46%	150	39%	57	15%	100%
Unknown/Unreported	722	18%	287	40%	329	45%	106	15%	100%

Individual Demographic Variable	All Enrollees	Rate	CTE	Rate of CTE	Non CTE	Rate of Non CTE	Both CTE & Non	Rate of CTE & Non CTE	Totals
Total	4,065	100%	1,550		1,872		643		
First Gen	1,621	40%	684	42%	637	39%	300	19%	100%
Non-First Gen	2,444	60%	866	35%	1,235	51%	343	14%	100%
Total	4,065	100%	1,550		1,872		643	16%	

Research Question 2

What are the dual enrollment student success outcomes? Do these vary by race/ethnicity, gender, and SES? Do these vary between comprehensive versus alternative high school settings or by course type?). Do these outcomes reveal areas of disproportion?

Course Level Success by High School Type

In my examination of success outcomes, I use two key metrics: matriculation to community college (Table 7) and course level success (Table 8). The course success rates (presented in Table 8) for comprehensive students were high, with an 87% course level success rate (duplicated counts). Course level success for the continuation high school sample was only 57%. Matriculation rates were more similar across school types, with 38% of participating comprehensive students matriculating to their local community college and 23% of continuation high school students attending the same college post-graduation (Table 7). However, as discussed in the Measures section above, the matriculation success metric has significant limitations.

Table 7: Participation Rates and Matriculation by School Type

Variable Name	All Enrollees	Rate	Comprehensive	Rate	Continuation	Rate	Other*	Rate	Total
Participation Rate by School Type	3,996	100%	3,270	82%	56	1%	670	17%	100%
Matriculation Post High School to CC by High School Type	1,262	58%	1,239	38%	23	23%	X	X	X
*Charter, Private, Other									

Table 8: Course Level Participation and Success (Duplicated Count) by School Type

Variable Name	Enrollments ¹²	Rate	Comprehensive	Rate	Continuation	Rate	Other*	Rate	Total
Duplicated Course Level Participation Rate by School Type	5,978	100%	5,879	98%	99	2%	X	X	100%
Course Level Success Rate by School Type	5,879	87%	5,156	88%	56	57%	X	X	X
*Charter, Private, Other									

¹² N=5,978 is duplicated enrollment count

Given the limited scope of this study, I did not determine each participating student's matriculation status more generally (i.e., to any postsecondary institution). Instead, I only examine matriculation for the students in the dataset who matriculated to City College, the college providing dual enrollment courses. Since part of the intention of dual enrollment district partnerships is to tighten the transition to local community colleges for students who might not otherwise matriculate, this nevertheless served as a useful outcome measure. Importantly, it still misses the reality that many more students might also have achieved this outcome at a different community college or matriculated at a four-year institution. For academic year 2019-2020, San Francisco Unified School District reported a cohort graduation rate increase of 87%¹³

Course Level Success by Demographic Variable

In total, I examined student success across 7,267 duplicated course enrollments. Table 9 presents course success rates by student demographics. Overall, success rates remained high with 87% of students completing with a grade of C or higher. When examining success across demographic variables, I see several equity gaps. Asian students, the largest participating demographic group in the dataset, comprise 41% of unduplicated student headcount and had a course success rate of 93%. Latinx students, who represent 30% of participating students, had course level success rates of 79% overall. African American students, who represent 5% of participating students, had a course level success rate of 78%. Pacific Islander students also evidenced disparate outcomes with a 72% success rate. Filipino students succeed in dual enrollment at a rate of 88%, and White students had a course level success rate of 84%. Students identifying as belonging to two or more races maintained an 87% overall course success rate.

¹³ DataQuest report of the college-going rate (CGR) for all California public high school students who completed high school during the selected reporting year disaggregated by race/ethnicity, gender, student group for academic years.

Since the American Indian/Alaska Natives sample is so small, the success rate figure should be interpreted with caution.

Table 9: Course Level Success Rates

Course Level Success (Duplicated Students)	N	Success Rate
Overall	7,267	87%
Total		
Race/Ethnicity		
Black or African American	309	78%
American Indian or Alaska Native	6	50%
Asian	3,104	93%
Filipino	328	88%
Hispanic or Latino	1,983	79%
Pacific Islander	50	72%
White	774	84%
Two or More Races	441	87%
Not Reported	272	87%
Total		
Gender		
Female	4,121	89%
Male	3,037	83%
Unknown/Unreported	109	88%
Total	7,267	
Parent or Guardian Highest Level of Education		
Associate	372	84%
Bachelor	1,049	88%
Grade 9 or less	846	84%
Graduate Degree	785	86%
High School Graduate	1,372	90%
N/A Not raised by parent	142	75%
Some College Credit	749	88%
Some high school	660	86%
Unknown/Unreported	1,292	86%
Total	7,267	
First Gen	3,020	87%
Non-First Gen	4,247	87%
Total	7,267	

Variance across gender categories was minimal. Female students succeeded at a rate of 89% or 6 percentage points higher than their male peers. This overrepresentation should be noted and explored more pointedly. The emerging, new gender gap sees a reversal of male overrepresentation in education with fewer males in post-secondary education, lower academic outcomes for male students compared to their female peers and growing academic outcome disparities between female and male students in primary and secondary education.

The dataset reveals no disparity between first-generation and non-first-generation students and minimal differences across parent or guardian levels of education. One area of significant outcome disparity is for students not raised by a parent. This sub group is considered a special population by the CCCCCO and labeled foster youth within COMIS. Students coded as “N/A Not raised by parent” experienced an outcome disparity ranging from 9-15%. For example, students not raised by a parent had a 15% difference in success from students whose parents graduated from high school and a 9% variance from peers whose parents had a graduate degree.

Research Question 3

How many dual enrollment courses do high school students enroll in (i.e., enrollment intensity)? How does enrollment intensity vary by both student demographic variables and high school type?

Enrollment Intensity

From 2016-2019, a total of 3,996 unique continuation and comprehensive high school students enrolled in one or more dual enrollment experiences. Table 10 showcases student participation by intensity, i.e., the number of enrollments per unduplicated student. A student who enrolls in more than one dual enrollment course has greater enrollment intensity. This reveals a myriad of things, including how successfully students have been reengaged in more

than one early college credit opportunity. This may also hold promising information for pathway design, refinement, student engagement, and retention within a career pathway.

Generally, I note minimal variation of enrollment intensity across student subgroups. Most students (59%) enrolled in only one course. Among students from a comprehensive high school setting, 58% participated in one course, while 21% took two, and 20% took three or more. Students from alternative high school settings had a near even distribution with 41% participating in one dual enrollment course and 45% in two or more. Only 14% participated in three or more. I also observe slight differences across race and ethnicity when examining enrollment intensity. Pacific Islander students were the most likely to enroll in only one course (80%) when compared to their peers. This was followed by Black or African American students, 67% of whom enrolled in one course (instead of more). Figure 2 displays enrollment intensity across race and ethnicity.

Enrollment intensity surfaced several interesting data points among the first generation student subgroup and across parent level of education variables. While it remains difficult to quantify these variances, several potential interpretations arise. For example, between first gen and non-first gen students, more non-first gen enroll in one dual enrollment section. At the same time, more first gen students enroll in three or more dual enrollment courses. This may reveal that students are participating in a structured or programmatic based dual enrollment experience. It may also point to momentum in a pathway.

An examination of enrollment intensity by parent level of education also surfaces interesting trends. The rate of students taking three or more courses is highest for those whose parents with the lowest education level—less than 9th grade education. It remains

unclear what these patterns reveal though they may point to the value that parents and families with lower levels of education place on dual enrollment educational experiences; particularly if school-level counseling and informational sessions work with intention to engage and inform the students and their families. These outcomes highlight some meaningful successes among these dual enrollment experiences and may point towards multiple high impact practices.

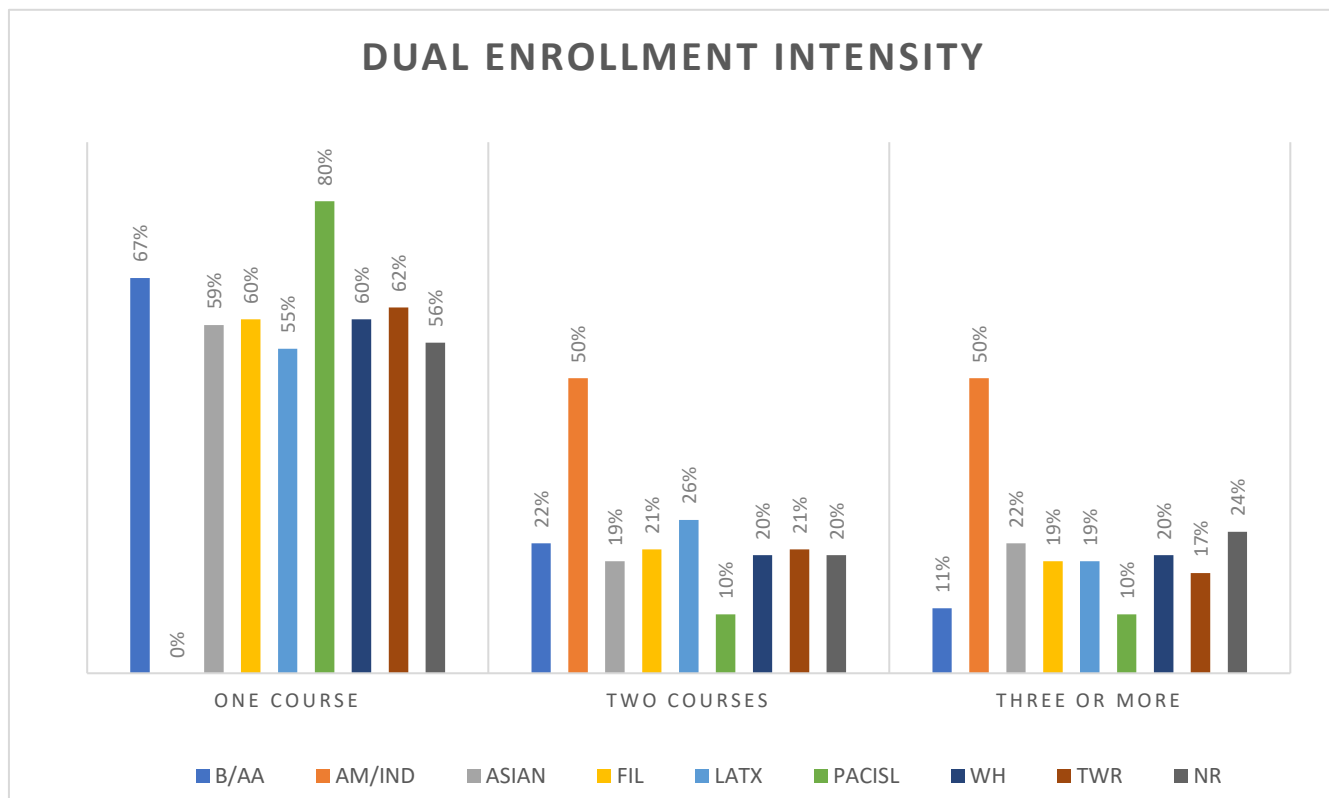
Enrolling at rates of higher intensity may deepen student engagement and success and increase the positive effects associated with early college exposure and dual enrollment instructional experiences. While beyond the scope of this study, further inquiry into implications for dual enrollment intensity and a closer examination of high participation rates among under resourced families would provide invaluable insights for future dual enrollment design and implementation. The success here of high participation among families with lower levels of education should be explored with meaningful practice operationalized and expanded across sites.

Table 10: Dual Enrollment Intensity Unduplicated

	N	Rate	Enroll in 1 DE	Rate	Enroll in 2 DE	N	3 or More	Rate	Total	Total Rate
Overall (Comprehensive and Continuation)	3996	100%	2346	59%	842	21%	808	20%	3996	100%
From Comprehensive	3270	82%	1903	58%	697	21%	670	20%	3270	100%
From Continuation	56	1%	23	41%	25	45%	8	14%	56	100%
Total										
Race/Ethnicity										
Black or African American	209	5%	140	67%	46	22%	23	11%	209	100%
American Indian or Alaska Native	2	0%	0	0%	1	50%	1	50%	2	100%
Asian	1683	41%	988	59%	317	19%	378	22%	1683	100%
Filipino	195	5%	116	60%	41	21%	38	19%	195	100%
Hispanic or Latino	1114	27%	615	55%	289	26%	210	19%	1114	100%
Pacific Islander	40	1%	32	80%	4	10%	4	10%	40	100%
White	417	10%	251	60%	81	20%	85	20%	417	100%
Two or More Races	261	6%	161	62%	56	21%	44	17%	261	100%
Not Reported	144	4%	81	56%	28	20%	35	24%	144	100%
Total	4065	100%	2384		863		818			
Gender										
Female	,281	56%	1323	58%	491	22%	467	20%	2281	100%
Male	1714	42%	1017	59%	355	21%	342	20%	1714	100%
Unknown/Unreported	70	2%	44	63%	17	24%	9	13%	70	100%
Total	4065	100%	2384		863		818			
Parent or Guardian Highest Level of Education										
Associate	230	6%	148	64%	40	18%	42	18%	230	100%
Bachelor	587	14%	367	62%	110	19%	110	19%	587	100%
Grade 9 or Less	427	11%	205	48%	102	24%	120	28%	427	100%

	N	Rate	Enroll in 1 DE	Rate	Enroll in 2 DE	N	3 or More	Rate	Total	Total Rate
Graduate Degree	440	11%	270	61%	88	20%	82	19%	440	100%
High School Graduate	736	18%	401	54%	173	24%	162	22%	736	100%
N/A Not raised by parent	77	2%	46	60%	16	21%	15	19%	77	100%
Some College Credit	465	11%	297	64%	96	21%	72	15%	465	100%
Some High School	381	9%	233	61%	75	20%	73	19%	381	100%
Unknown/Unreported	722	18%	417	58%	163	4522	142	20%	722	100%
Total	4065	100%	2384		863		818			
First Gen	1621	40%	885	55%	366	22%	370	23%	1621	100%
Non-First Gen	2444	60%	1499	61%	497	21%	448	18%	2444	100%
Total	4065	100%	2384		863		818			

Figure 2: Dual Enrollment Intensity by Race/Ethnicity



Summary

Through this quantitative investigation, I addressed each of my research questions and explored dual enrollment participation and success rates across demographic variables, school type, course type, and enrollment intensity. Overall, the data reveals promising early success, particularly around expanding scope, students served, and student access with early college experiences vis-à-vis dual enrollment. This also serves as a testament to effective integration across-educational systems. I do note several equity gaps across race and ethnicity and school type. This requires further investigation and inquiry well beyond this study. If the purpose of dual enrollment as outlined in AB 288 is to mitigate disproportionate educational access and outcomes, address historical and structural equity gaps, and ensure all students—especially those

most historically underserved—benefit from the positive benefits participation may yield (Reed et al., 2018), there remains much work to do. In the subsequent chapter, I discuss my findings more deeply using an equity-centered lens, provide recommendations for practitioners and educational leadership, and explore potential policy implications for those engaged in or seeking to advance equity-centered dual enrollment.

Chapter Five: Discussion

Equity Centered Educational Practice: Historical Frames and Institutional Responsibility

To begin this discussion, I revisit key terms and principles from my theoretical framework discussion. When institutions and organizations fail to effectively and systemically examine the ways in which they “restrict opportunity and upward mobility for students of color,” they fail to accurately measure and discuss their institutional success or failure (Bensimon, 2004, p. 46). Within education, disparities in access, mobility, and outcomes reveal structural, racialized patterns that divorce educational data from their proper sociohistorical context. All too frequently, shorthand terms, including “at risk,” “achievement gap,” and “minority,” describe *minoritized* students with language seeped in historical traditions of Neohereditarianism (Valencia, 2010) and eugenicist theories. Educational literature is suffused with de-historicized deficit frameworks that explain the disproportionate impact and outcomes of students. Likewise, these frames are most prominent within literature focused on historically underrepresented communities, dual enrollment studies among them.

Several studies explore and assess the role of dual enrollment in positive educational outcomes (Fink et al., 2017; Karp et al., 2007; Kleiner & Lewis, 2005; Marken et al., 2013; Rodríguez et al., 2012). Fewer focus on equitable impact for minoritized students (An, 2013; Struhl & Vargas, 2012). A smaller sample interrogate dual enrollment as a mechanism for achieving equity or exacerbating inequity (Taylor, 2015; Mehl et al, 2021). Equity-minded educational reform requires the integration of an antiracist approach that maintains “an awareness of the ways in which many groups within U.S. society have been historically excluded from educational opportunities or marginalized within the structures and institutions that house those opportunities” (Bensimon et al., 2016). Harris & Bensimon (2007) propose movement

beyond the use of compensatory programs and interventions and instead encourage a data-driven, sociohistorical, and racially aware approach to institutional change, which aligns closely with this study's purpose to narrow this literature gap, examine policy, and disaggregate, examine, and [re]frame dual enrollment data and disparities using an explicitly equity-centered lens. Below, I will revisit key findings and apply a blended approach to discussing the disproportionate impact and equity gaps I identified within this dataset

Research Question 1 Key Findings

What is the breakdown of participation across race/ethnicity, gender, parent level of education (a proxy for socioeconomic status), high school type (comprehensive versus continuation high school setting) and course type (career education and non-career education course)? Are their inequities in participation rates?

Participation Summary of Findings

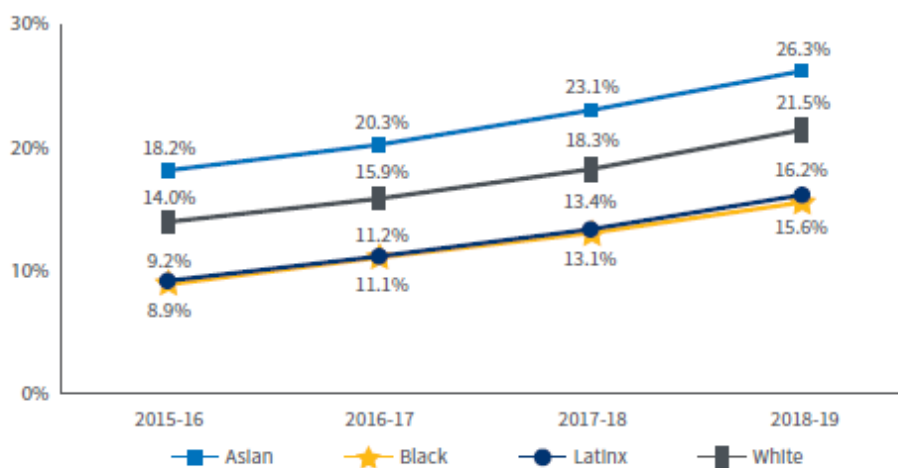
Dual enrollment participation has grown significantly since the implementation of AB 288. Yet, while the number of students participating across this single district partnership has increased relative to the size of the district, there continues to be room for more enrollment growth. Additionally, several areas revealed that equity gaps exist with respect to both dual enrollment access and outcomes. Asian and Latinx students participated at the greatest rates. I found that Asian students were overrepresented in this sample by 10 percentage points, while Latinx were disproportionately underrepresented by 8 percentage points. Black and African American students represent an average of 8.95% of the district's enrollment while only 5% of this dual enrollment sample. While dual enrollment participation has risen, inequities persist with notable disparities for minoritized students. Yet, there are also notable successes including higher participation and enrollment intensity for low SES student groups and an overrepresentation of

students not raised by a parent in this dual enrollment data set. Growth in these areas has been listed as both a local and statewide priority and goal.

Underrepresentation Among Dual Enrollment Students

Studies examining dual enrollment across California have found similar underrepresentation and disproportionate impact. Like this study, the most prominent disparities were among black and brown students (CCCCO CCAP Report, 2021; Friedmann, Kurlaender, & Rumberger 2020). Statewide, researchers found that “Latinx and African-American students were underrepresented in community college course-taking compared to their share of overall high school students” (Friedmann et al., 2020). Figure 3 displays data from the University of California Davis’s Wheelhouse Center recently published brief, which echoes this study’s findings on dual enrollment participation disparities among students of color (Rising Tide, 2020; Friedmann et al., 2020).

Figure 3: Percentage of High School Graduating Cohort Participating in Dual Enrollment by Race and Ethnicity¹⁴



¹⁴ Wheelhouse Infographic – A Rising Tide, Dual Enrollment is Growing Among California High School Students December 2020 from: <https://education.ucdavis.edu/leg-college-0>

Wheelhouse (2020) used two separate datasets from the California Department of Education public high school graduating cohorts along with data from the California Community Colleges Chancellor's Office Management Information Systems (COMIS).

My study used a similar three-year sample to better illuminate trends in disproportionate access and impact. I utilized local level special admit data, which feeds into the Statewide COMIS datasets. Again, statewide studies capture similar rates of growth. They also evidence similar entrenched disparate access and outcomes noting, “over a four-year period, participation in dual enrollment grew steadily for all students by seven percentage points [while] gaps in participation rates between students from different racial/ethnic subgroups have not changed” (Wheelhouse, 2020; Friedmann et al., 2020). While a smaller, locally focused dataset, the findings in this sample mirror rates and trends at scale. This strongly suggests a validity of this study's local findings.

School Type Implications

Using this study's dataset as a benchmark, approximately 40% of students (calculating for only juniors and seniors) across comprehensive and continuation high schools participate in a dual enrollment experience. When disaggregated, this participation rate reveals significant disparities across school type and demographic variables. Notably, only 16% of continuation high schools access an early college experience compared to 37% of their comprehensive high school peers.

AB 30, enacted in January 2020, both extended AB 288 and included several amendments intended to expand access to dual enrollment experiences, mitigate inequities, and strengthen pathway approaches. Among the amendments is specific inclusion of language naming continuation high schools among those able to participate in CCAP programs (CCCCO

CCAP Report, 2021). This addition serves as both a signal to practitioners regarding the prioritization of those served by AB 288 and a symbolic move toward a more equity-centered educational practice that intentionally names marginalized groups often made invisible within the very legislation intended to serve them. More pointedly, this linguistic expansion helps policy makers and implementers widen the positive effects associated with dual enrollment, including high school completion, college connection, and college completion (An, 2013; Berger, et al., 2013, 2014; Karp et al, 2007; Song & Zeiser, 2019; Struhl & Vargas, 2013) These, along with other positive effects, prove most impactful for low income and first generation students' college completion (An, 2009; CCCCO CCAP Report, 2021). Significantly more research is needed to provide guidance for dual enrollment efforts within alternative education school settings. Likewise, more evaluation is needed to assess the positive effect for continuation high school students participating in intentional dual enrollment programming.

Research Question 2 Key Findings

What are the dual enrollment student success outcomes (enrollment and matriculation)?

Do these vary by race/ethnicity, gender, and SES? Between comprehensive versus alternative high school settings? By course type? Do these outcomes reveal disparities?

Examining participation by course type revealed several findings. A slightly higher concentration of first-generation students took career education courses. Relative to the entire sample, 42% of first-generation students took career education courses compared to 35% of their non-first-generation peers. Across both race, ethnicity, gender, and SES proxies, the rate of CTE course participation compared to non CTE and enrollment in both types revealed little variance. However, when examining across school type, continuation high school students where

proportionally overrepresented by 18%. This figure becomes particularly interesting when comparing with enrollment intensity numbers for these same continuation high school students.

Course success rates were high across multiple demographic variables with an overall 87% success rate. I note several key areas of disparate outcomes. African American students who were underserved in dual enrollment experiences evidenced a 15% disparity in course success. Female students succeeded at a rate of 89% or 6% higher than their male peers. I observed an additional course success equity gap of 9-15% for students indicating they were not raised by a parent. The largest course level success disparity was among Latinx students, who represent 30% of participating students, and had course level success rates of 79%. This represents a 14% difference from Asian students, who had the highest rates of participation and a success rate of 93%.

Research Question 3 Key Findings

How many dual enrollment courses do high school students enroll in (i.e., enrollment intensity)? How does enrollment intensity vary by both student demographic variables and high school type?

Most students (59%) enrolled in only one course. Among students from a comprehensive high school setting, 58% participated in one course, while 21% took two and 20% took three or more. Students from alternative high school settings had a near even distribution with 41% participating in one dual enrollment course and 45% in two or more. Only 14% participated in three or more. This may indicate that this small sample may be progressing in a career education pathway. Career education courses, when taken together in multiples, can create stackable credentialing opportunities that lead to meaningful academic and economic progression. The amount of enrollment intensity illuminates areas of some

success and exposed opportunity for future development of comprehensive dual enrollment experiences. I discuss this more under my recommendations for creating cohesive K-14 career education pathways.

Implications for Policy and Practice

Without an intentional focus on implementing, evaluating, and refining existing and future dual enrollment opportunities, educational institutions will fail to realize equitable participation and outcomes for all California high school students. While state level policy (AB 288 and CCAP Partnership Agreements) intended to help “expand [] dual enrollment opportunities for students who may not already be college bound or who are underrepresented in higher education” (CCCCO AB 288 CCAP Agreements, 2016), high schools and colleges may be unintentionally replicating existing structural inequalities and disproportionate access and outcomes. Without an equity focused assessment on progress—one that extends beyond just the aggregate growth number of dual enrollment opportunities—an appearance of increased access may belie the number of students who are left unengaged and underserved. The Chancellor’s Office (CCAP Report, 2021) notes the need to interrogate unequal dual enrollment participation rates across student subgroups stating:

Although AB 288 was enacted with the goal of expanding dual enrollment specifically for student populations historically underrepresented in higher education, the available data suggests this goal is not being met with regards to racial/ethnic participation. The data raise important questions about the factors leading to the underrepresentation of Black students in dual enrollment (p.18).

Key Recommendations for Practice

Equity Centered Dual Enrollment

Increasing navigational capital (Yosso, 2005) and closing transition gaps, specifically for underserved high school students, ensures students can manifest both a successful connection and successful performance as college students. Community colleges must identify the largest “melting” (Ervin, 2016) points and embed additional mechanisms of support to ensure a reduction in the rate of student melt. Colleges must explore innovative approaches to student support, including partnerships with local high schools that work to embed the matriculation process into high school students’ senior year experience. Moreover, community colleges must ensure students in both comprehensive and alternative high schools benefit from early college access and transition support. A back-reach or bridging approach for college transition helps to ensure students have in-class and in-real-time support from both their high school environment and their receiving postsecondary institution. Community colleges are well positioned to pursue embedded, high-equity approaches to college preparation and connection by using dual enrollment agreements to support student academic and career exploration, preparation, and transition.

CCAP Agreements and Barriers to Partnerships

Per the legislation, “the chancellor [must] prepare a summary report, no later than January 1, 2021, that includes an evaluation of the partnerships, as specified” (California Legislative Information Website, 2019). Prior approaches to dual enrollment, including individual selection, formal early college partnerships, and select service agreements offered some benefit, but proved challenging “for providing dual enrollment equitably at scale” (CCCCO CCAP Report, 2021). In late April 2021, the Chancellor’s Office released its report to

Governor Newsom's office. The California Community Colleges' report on College and Career Access Pathways satisfied the aforementioned requirements of Assembly Bill 288 (AB 288) and Assembly Bill 30 (AB 30). It included an evaluation of College and Career Access Pathways (CCAP) partnerships, an assessment of trends in the growth of special admits, and recommendations for program improvements. It highlighted a critical need to simplify the process of partnering across systems. Specifically, the report called for a minimizing of administrative barriers that created hardships for both community college and high school practitioners as well as students. Absent from the findings was language around capacity issues and enrollment management anxieties for both partner institutions.

When selecting which dual enrollment courses to offer, colleges must frequently prioritize those courses that will enroll at capacity. Consequently, some colleges may pursue prescriptive sector specific strategies to meet enrollment targets. This may unintentionally track and assign students into preselected pathways less suited to their interests, abilities, and development and more into those meant to maximize enrollment and efficiency. Rarely do institutions effectively and systemically examine the ways in which they "restrict opportunity and upward mobility for students of color" and use that as a concrete measure of institutional success or failure (Bensimon, 2004, p. 46). When faced with pressures to fill a dual enrollment course or cancel an entire experience for students, institutions frequently abandon more impactful selections in favor of courses that fill easily. Likewise, community college implementers and decision makers often grapple with a fixed unit allocation for semester offerings, leaving difficult choices between what will be the college's general offerings and what opportunities can be provided via dual enrollment; a fraught choice when considering the extensive evidence citing dual enrollment's positive effects: a graduation increase of 7% on

average, a 15% increase on average for college enrollment, and a 25% increase on average for college degree completion (An, 2013; CCCO CCAP Report, 2021).

Cohesive K-14 Career Education Pathways

For students, an intentional progressive sequence of career education courses—a pathway approach—yields certificates, builds towards employment, provides academic and industry credentialing, and offers significant progress towards a major, certificate, and degree. This stackability is integral to student success, particularly for students engaged in meaningful career education, which can lead to an assortment of better high school and college outcomes, including completion and transition (Reed et al., 2018; Dougherty, 2018). By 2030, California will experience a shortfall of nearly 1.8 million workers¹⁵. Nearly 70% of this figure is comprised of higher skill positions that offer above-average wages and require a post-secondary degree. In many counties, this workforce gap is compounded by retirements and residents moving out of the region to find more affordable housing out of state. While recent legislation, K-12 focus areas, and funding metrics have seen a shift back towards prioritizing career education, comprehensive educational pathways and deeper integration of both college and career readiness, high schools are unable to meet the tremendous gap in preparing students to enter the workforce post-high school.

California’s Enacted 2021-2022 Budget Summary¹⁶ contained significant one-time and ongoing investments to advance training and education for workers impacted by the pandemic. In addition to significant community college investments, these allocations underscore the prioritization of career education and career pathways. Specific resources will be made available

¹⁵ https://collegefutures.org/wp-content/uploads/2019/10/Making-Room-for-Success_2019

¹⁶ <http://www.ebudget.ca.gov/budget/2021-22EN/#/BudgetSummary>

for workforce development efforts that focus on improving educational and employment access and outcomes and those that equip a “resilient workforce” through training. The budget reflects the State’s equity-focused agenda with support for innovative planning and programming concentrated on disproportionately impacted communities. In total, a \$920 million jobs package with \$600 million for regions and local collaboratives undertaking planning and implementation efforts, plus another \$320 million to expand pathway-focused workforce development strategies. Community colleges continue to play a central role in workforce development and should partner more strategically with their K-12 partners to access and leverage this influx of resources to build and refine innovative, in-demand, high-wage potential career education pathways.

Regular Data Collection and Evaluation Across Systems

A more cohesive and comprehensive picture of dual enrollment students and programs (outcomes, offerings, enrollment patterns) is needed. The field and practitioners would benefit from a regular process of cross-functional inquiry, dialogue, and planning that supports student-centered decision making and equity-minded evaluation, refinement, and implementation. By leveraging resources to build institutional research capacity and incorporate more holistic, regular, discursive inquiry, institutions can better support the growth and vitality of programs and ensure equitable access and outcomes on behalf of all students. To do this, institutions should regularly provide disaggregated dual enrollment participation and outcomes data to both high school and community college partners. Partners should convene together at least once annually to review and unpack findings. These locally focused conversations can lead to more in-real-time decisions about course offerings that inform more immediately how these experiences are implemented and what amount of staffing or support can be redirected to specific courses, students, and school sites. Statewide research provides similar recommendations

suggesting “much can be learned by bringing learned by bringing data from disparate education sectors together” and “important questions about the implementation and impact of policies and programs go unanswered for lack of longitudinal data” (Friedmann et al., 2020, p.6). In addition to the importance of local level regular data collection and discussions, efforts should be taken systemwide to mitigate the barriers to data collection, tracking, and sharing across systems.

Study Limitations and Future Research

I answered three primary research questions in this quantitative study:

1. What is the breakdown of participation across race/ethnicity, gender, parent level of education (a proxy for socioeconomic status), high school type (comprehensive versus continuation high school setting) and course type (career education and non-career education course)? Are there inequities in these rates of participation?
2. What are the dual enrollment student success outcomes (enrollment and matriculation)? Do these vary by race/ethnicity, gender, and SES? Between comprehensive versus alternative high school settings? By course type? Do these outcomes reveal areas of disproportion?
3. How many dual enrollment courses do high school students enroll in (i.e., enrollment intensity)? How does enrollment intensity vary by both student demographic variables and high school type?

Within this study, I provided policy and historical contexts and discussed the current functions and tensions within the California Community College system. I did so in order to help elucidate the significance of the dataset. I situated this study within an existing gap in dual enrollment literature and focused on examining dual enrollment access and outcomes using an equity framework to ground this research. I examined disaggregated data, including participation

and outcome rates across demographic variables, course, and school type. An absence of practitioner perspectives to nuance these findings limits my understanding.

Limitations

Qualitative Data

Qualitative inquiry can add much-needed texture to this study's data and traditional metrics of policy, program, and intervention evaluation. The inclusion of practitioner interviews serves as a critical piece for adding nuanced understanding of quantitative data. The omission of educators engaged in this work inhibited a more robust discussion. A discursive examination of how dual enrollment may serve as a tool of academic equity for underserved and underrepresented students with practitioners would provide valuable insights.

Student Voice

This study lacked student voice; a critical data point for assessment. Though absent of student level perspectives and voices, I did attempt to ground this inquiry in “anti-deficit achievement frameworks” (Urias, Falcon, Harris, & Wood, 2017, p.24). It was my intention to contribute to the growing body of work that seeks to reframe deficit-centered research questions and instead ground student outcomes within the important sociohistorical and legislative contexts that inform them.

Future Research

Engage Practitioners and Experts

Interviews with educators engaged in local dual enrollment efforts, as well as policy experts engaged in statewide implementation and legislative efforts, can provide much-needed clarity and context for quantitative findings like mine. To connect this inquiry to the broader policy context that propelled the dual enrollment work, focused interviews with state level

experts and representatives from the California Community College Chancellor's Office would further illuminate policy intent, provide a statewide perspective of implementation, and surface larger areas of promise as well as barriers. Policy experts themselves might benefit from a deeper understanding of legislative gaps and impediments as experienced by practitioners, implementers, and students. This investigation would help surface the ways in which interpretation of legislation impacts implementation and complicates policy purpose versus actual function.

Center Student Voices

The inclusion of student voice provides a critical element to ground this inquiry and extend a qualitative approach beyond the programmatic level. The inclusion of student voices provides space for students most marginalized within academia to lend their voice and experiences to this critical conversation and contribute their “voices and experiences [] often muted in educational practice and policy making” (Urias et al., 2017, p.24). It also provides a tremendous opportunity to elevate, from the student experience, “much-needed narratives of success” (Urias et al., p.23). Further study should include students and ask them to reflect about their own dual enrollment experiences. It should also leverage student expertise to surface recommendations for improvements and input on creating engaging early college and dual enrollment experiences.

Chapter Six: Conclusions

While we each may be committed to an inclusive, transformed curriculum...we do not all have to do the same thing in the same way. Instead, we must support each other's efforts, realizing that they are all part of the larger enterprise of bringing about social change.—
Patricia Hill Collins (1993, p.41).

Advancing Equity, Access, and Achievement for All Students

Too frequently, students experience systems that inhibit their progress: an assessment process lacking nuance and precision, course sequencing that hinders rather than supports student progress, and a high school system that quickly sorts and labels “college bound” students and prioritizes resources and guidance to those deemed best positioned for future achievement. A completion agenda, as outlined and pursued by the California Community College Chancellor’s Office, will fail to mitigate low success and completion rates if it neglects to ensure effective transitions and include the creation of a clear, accessible college front door for all Californians.

For secondary students who experience challenges in the traditional education system, continuation high schools and alternative education serve as critical avenues toward attainment. These public and private institutions have large diversity in form and function—from schools specializing in specific academic areas to schools that support students with non-traditional learning needs or identities. Alternative high schools also support students who may not be thriving in traditional schools, students in jeopardy of not graduating because of high absentee rates, insufficient completed courses, and not enough high school credits. Students attending alternative high schools are often the first in their families to go to college, and continuation high school students are more likely to leave school early without earning a high school diploma. Connection to college alone poses a significant barrier, one which requires navigating a complex

higher education system and confusing matriculation process, both of which often impede a student's ability to begin college with a firm-footed first step. These initial barriers contribute to a student's uncertainty and an increased likelihood of stop-out and drop-out for our most high-promise and under-resourced students. Initial clarity around college courses, major selection, and career choice can ensure a greater likelihood of long-term retention and success.

The largest falloff for students on the educational attainment pathway is the transition from high school to college. Stronger partnerships between secondary and postsecondary institutions have been shown to curtail the falloff and increase postsecondary attainment for alternative education students, in part through aligning academic expectations with curriculum and support services when needed (Ruiz De Velasco & McLaughlin, 2012). Shea and Giles's (2016) remind readers that students in non-comprehensive school settings may already have college aspirations. Institutions and practitioners must safeguard these existing aspirations by simplifying and eliminating, when possible, an overly complex matriculation process (Nagaoka, 2017). These bureaucratic features upend the successful college transitions we intend to facilitate through practices like dual enrollment. Student centered policies and practice should mitigate these complexities, support the existing ambition of continuation high school students, and legitimize the knowledge each student brings into their educational spaces.

I conclude this study with a brief discussion of literature advancing asset-based, culturally relevant pedagogy and its educational efficacy for students of color. I intend for it to provide additional framing for how we approach the refinement of dual enrollment experiences in the years ahead. While beyond the scope of this quantitative study, the inclusion of this epilogue elevates relevant scholarship to support how policy makers might better ground dual enrollment efforts within an equity-centered, ethic of caring approach. My hope is that this too

might lead to more meaningful educational experiences for our consistently underserved students.

From the Margins to the Center: Culturally Relevant Readings and Pedagogy

Several authors present promising, asset-based, culturally relevant alternatives useful for both research and educational practice focused on support for special populations. Dolores Delgado Bernal (2002) explores how critical race theory (CRT) and Latinx critical theory (LatCrit) position students as sources and creators of knowledge and experience. Bernal (2002) suggests CRT and LatCrit function as more appropriate lenses through which we view the experiences of students of color, as these theories move away from the deficit-based interpretations traditional Eurocentric models provide. Using student voice and narrative, Bernal (2002) juxtaposes traditional Eurocentric epistemologies and interpretations—bilingualism as a barrier to educational progress—against a LatCrit interpretation of bilingualism, which honors the commitment to family, ability to navigate two languages and two cultures, and the higher level of altruism Chicana/o students demonstrate. The use of student voice in Bernal's (2002) piece powerfully illuminates the subtle and overt ways Latinx students are positioned in deficit relative to their educational experience. While the students in Bernal's (2002) article recognized their biculturalism as a facet of strength, a resource to themselves and their communities, a Eurocentric epistemological paradigm frames Spanish as a barrier to learning.

Mehl, Wyner, Barnett, Fink, Davis, & Jenkins (2020) present an array of high impact, equity centered strategies and practices for dual enrollment expansion. The Dual Enrollment Playbook (Mehl et al., 2020) elevates five key principles to advance high quality and high equity focused dual enrollment across K-14 systems. Mehl et al. (2020) recommend community college and K-12 educators:

1. Set a shared vision and goals that prioritize equity.
2. Expand equitable access.
3. Provide advising and supports that ensure equitable student outcomes.
4. Provide high-quality instruction that builds students' competence and confidence.
5. Organize teams and develop relationships to maximize potential to advance equitable access and outcomes for historically underrepresented groups and low-income students.

The authors provide an array of design principles and strategies for building out equity advancing dual enrollment programs. As a component of providing high quality instruction and building student competence and confidence, the authors underscore the importance of culturally sustaining and asset-based approaches in alignment with Bernal's (2002) LatCrit grounded models of instructional practice. They note the importance of culturally and linguistically relevant instruction sharing:

Research has demonstrated that culturally responsive teaching—instruction that draws from and value students' experiences, prior knowledge, and ways of knowing, in particular from cultures historically excluded from academia—supports the academic success of students of color, English language learners, and students from low-income backgrounds. In particular, it can help these students learn how to become strong independent learners, a skill that is fundamental to thriving in school (p.44).

The authors of the playbook ground this recommendation in literature and research¹⁷ (Ladson-Billings, 1995; Pappamihel & Moreno, 2011; Booker, 2016) that demonstrates the efficacy of culturally and linguistically centered instructional and programmatic approaches.

¹⁷ "Connection and Commitment: How Sense of Belonging and Classroom Community Influence Degree Persistence for African American Undergraduate Women." *International Journal of Teaching and Learning in Higher Education* 28, no. 2, 218–229. 34. *Supporting Students to Be Independent Learners: State and District Actions for the Pandemic Era.* (2020). Washington, DC: The Aspen Institute.

Gloria Ladson-Billings (1995) explores high impact pedagogy for African American students based on her extensive three-year study of educators in the field. Ladson-Billings' (1995) seminal work highlights two specific effective teaching practices, which not only employ meaningful pedagogy but weave students' real-life context into the curriculum itself to create relevance and engagement for students and their families alike. Ladson-Billings (1995) argues that culturally relevant pedagogy (CRP) and teaching is a pedagogy of opposition not unlike critical pedagogy. CRP, however, must extend beyond individual transformation and include a commitment to collective empowerment. Additionally, culturally relevant teaching must lead to: students choosing academic excellence; students remaining culturally grounded; and student development of a socio-political consciousness. Ladson-Billings (1995) reminds readers that culturally relevant pedagogy compels and nurtures academic excellence through captivating curriculum and culturally reflective educational spaces. The achievement of cultural relevance in and of itself in classrooms must not be the goal. Rather, all three criteria must be met to be considered culturally relevant pedagogy.

Patricia Hilliard's inclusion of rap as poetry within her classroom served as one approach used with second grade African American students. Gertrude Winston extended culturally relevant pedagogical practice to include the community with a parent and community artists-in-residence model for her fifth graders.

Esteban-Guitart and Moll (2014) propose a similar, asset-based, culturally sustaining theoretical model useful for alternative education researchers and practitioners alike. The authors' theoretical construct—funds of identity—consists of the “historically accumulated, culturally developed, and socially distributed resources” that comprise an individual's conception and understanding of self. They expand funds of knowledge, defined as the “bodies

of knowledge and skills that are essential for the well-being of an entire household” (Esteban-Guitart & Moll, p.31) to include five subdivisions within their funds of identity (how one defines themselves). These five types are: “Geographical Funds of Identity...Practical Funds of Identity (any meaningful activity such as work, sports, or music, Cultural Funds of Identity, Social Funds of Identity, and...Institutional Funds of Identity” (Esteban-Guitart & Moll, p.38). These funds of identity, often ignored in educational contexts and curricula, can serve as powerful resources to situate learning in relevant contexts, those that include the individual, their families, and communities. Esteban-Guitart and Moll (2014) present a powerful expansion of funds of knowledge with funds of identity, one which can provide a useful methodical frame for ethnographic research as well as asset-based, equity-centered educational theory and practice. The authors move from a rich discussion of past models of identity theory to concrete examples of pedagogical tools that welcome an individual’s full context—their funds of identity—into the classroom, curriculum, and learning experience. Developing a more critical understanding of students as learners engaged in the production of knowledge shifts practice away from interventions which may unintentionally message to students that they must subtract their familial and cultural identities in order to be successful students and scholars.

Angela Valenzuela (1999) suggests that an authentic ethic of care can be demonstrated when teachers and administrators welcome students’ full selves into educational spaces. Including the whole student within the classroom invites the inclusion of culture, language, community, and familial resources. This approach adds in student identity as an educational value instead of subtracting it from their educational experience. Moreover, it supports student success and uproots paradigms of cultural deficit, underachievement, and prototypes of uncaring students. During Valenzuela’s (1999) three-year ethnographic study of Juan Seguin High School

in Houston, Texas, she observed a gap in Seguin's aesthetic of care and a genuine ethic of care, which provides "relations of reciprocity between teachers and students" (Valenzuela, 1999, p.61). She argues that to transform schooling into educación, schools must learn to include the whole student within the classroom and curricula. Valenzuela reframes the "uncaring" student as an individual exercising resistance and opposition to a subtractive educational environment that demands "active participation in a process of cultural and linguistic eradication" (Bartolomé, 1994, in Valenzuela, 1999, p.62).

The absence of authentic care reduces opportunities for students to master content, demonstrate skills, and cultivate a love of learning. Moreover, the maintenance of an aesthetic of care centered on achievement gaps ignores "the larger structural features...that subtract resources from students" (Valenzuela, 1999, p. 74) and instead locates the "onus of [a] student's underachievement" (Valenzuela, p.74) in their ethnicity, culture, family, and within the student themselves. A true ethic of caring must contain a nuanced understanding of a student's position in a larger educational and socio-political context; contexts containing economic, linguistic, and sociocultural barriers that impede mobility (Valenzuela, 1999). This ethic of authentic care also honors that the relationships formed between schools, educators, students, their families, and communities, are multi-directional and reciprocal; with both institutions and families contributing unique value to educational communities.

Authentic care, as framed by Valenzuela (1999) requires movement beyond understanding and raised consciousness, and like Ladson-Billings (1995) suggests, requires an integration of high-quality instruction, culturally relevant curricula, and active socio-political consciousness. For practitioners, this provides both a frame and call to action that requires educators to reflect upon and assess the ways in which institutional policies and practices (dual

enrollment) acknowledge the student's position within a structural and racialized politics of power. It acknowledges and names the impact on the educational journeys of students of color. Lastly, culturally relevant practice grounded in a paradigm of authentic care requires an interrogation and disruption of such inequitable policies.

In Conclusion

Dual enrollment experiences are meant to strengthen connections to college and deepen learning for students. Dual enrollment policies attempt structurally support educational progression and ensure meaningful transitions to additional college, career, and employment opportunities. Educational and theoretical frameworks provide important foundations that further inform institutional commitment to not only diversity and inclusivity, but to an anti-racist agenda that seeks structural reform for educational policy and practice. This requires a focused use of data to clearly identify and name educational equity gaps and to pursue intentional policy changes, program implementation, and student support interventions that mitigate disproportionate outcomes and service. California community colleges must continue to work beyond equitable access and towards more equitable outcomes for all students and communities served. Through deeper integration across high school and community college systems, including regular data sharing and inquiry, we may be better positioned to bridge the equity gaps for our high promising students and interrogate the structural legacies that uphold them.

Positionality Statement

While atypical for a quantitative study, I find it useful to acknowledge that quantitative research too is informed and molded by the experiential lenses of the researcher. Inquiry is both limited and enhanced by these inherent biases and personal identities. To that end, I intend for

this brief researcher positionality statement to provide an additional point of context for this dual enrollment study.

My personal identity and biography as a former community college student, first generation Latina, and my current professional positionality has enabled me to see the systems that inhibited my own progress: an assessment process lacking nuance and precision, course sequencing that hinders rather than supports student progress, and a high school system that quickly sorts and labels students and their trajectories and prioritizes resources and guidance to those “well” positioned for achievement.. This background shapes the ways in which I research, interpret, and present data. Like the students and communities, I serve and studied, positionality and context—personal, familial, school, community— (Perna, 2006) have impacted my professional praxis and informed my research.

Villenas (1996) discusses how she, as someone from a non-dominant culture, consciously and unconsciously forged a way through and up academia as a researcher: “I had learned to manipulate my identities successfully and did not expect them to be manipulated by others” (1996, p.716). She carefully unearths the harmony and cacophony of intersecting identities; how they converge in both personal and professional arenas. Her words: “I am a walking contradiction with a foot in both worlds” (1996, p.714) echo my own positionality—a daughter of Latino immigrants; carrying complexities that come with being first generation born, dancing between two worlds, two languages, two cultures. It is this intersection of personal context, scholarly inquiry, and professional experience that informs my educational and professional focus. It compels me to do this work and to demonstrate my own authentic ethic of care by critically interrogating the systems, policies, and practices that impede and support academic access, mobility, and equity for all our underserved and high-promise students.

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