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Students' Preparation for College Through Advancement Via Individual Determination (AVID) Programs and Dual Enrollment

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Students' Preparation for College Through Advancement Via Individual

Determination (AVID) Programs and Dual Enrollment

By

Brian P. Jones

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Doctor

of Education Degree in Educational Leadership

Minnesota State University, Mankato

Mankato, Minnesota

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Students Preparation for College Through Advancement Via Individual Determination (AVID) Programs and Dual Enrollment

Brian P. Jones

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To my mom, Jane, who I know would be proud. To my dad, Bob, who I know is proud. And to Christianne, Lalayna, Lola, and Hattie, whose patience with me while I worked selfishly for the last three years has been endless. Thank you for all you have given me.

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STUDENTS' PREPARATION FOR COLLEGE THROUGH ADVANCEMENT VIA INDIVIDUAL DETERMINATION (AVID) PROGRAMS AND DUAL ENROLLMENT

BRIAN P. JONES

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DOCTOR OF EDUCATION DEGREE IN EDUCATIONAL LEADERSHIP

MINNESOTA STATE UNIVERSITY, MANKATO
MANKATO, MINNESOTA
JULY, 2020

ABSTRACT

The purpose of this study was to identify opportunities to expand access to higher education. The research specifically explored the combination of two interventions that support college readiness: the Advancement Via Individual Determination (AVID) program and dual enrollment. Evidence indicated that each of these programs individually improved students' readiness for college, but there was no research that explored the success of students involved in both programs. This quantitative analysis used the chi-square statistic to compare the proportion of students from a suburban school district who were involved in both programs to students who were not. The analysis evaluated whether participation in the programs was related to admissibility to college, first-to-second year retention, and credit completion. The results for White students and students of color were compared. No relationship was detected between students who participated in both programs and their admissibility or retention. There was a statistically significant, positive relationship between students of color participation in dual enrollment and both admissibility and retention. There was also a statistically significant relationship between the participation of White students in AVID and their retention, however the relationship was negative.

CHAPTER I

Introduction

Background of the Research Problem

  College readiness

   Colleges and universities increasingly were held accountable for the retention and

graduation of students. This push for accountability increased because more and more

jobs in the United States' economy required completion of post-high school education. At

the same time, improvement in retention is necessary to stabilize the revenue of campuses

in the Midwest. There were fewer high school graduates and more competition to recruit

students (Western Interstate Commission for Higher Education, 2018). Unfortunately,

fifty percent of students entering two-year colleges and twenty percent of students

entering four-year colleges took remedial courses. Taking remedial courses reduces a

student's chance of graduation significantly (Complete College America, 2012, p. 6).

Compounding the phenomenon, students of color enrolled in remedial courses at an even

higher rate than white students (Complete College America, 2012). Students are directed

into remedial courses by colleges when they do not meet college readiness benchmarks

such as standardized test scores or grades in rigorous high school courses. However,

standardized test scores reinforce unequal opportunities inherent in our society. Students

from wealthier families had advantages in scoring higher on standardized tests (Tierney

& Duncheon, 2015). By extension, White students have also scored higher on

standardized tests than students of color due to societal power structures that defined

merit and generational poverty that had a longer-lasting effect on communities of color (Delgado & Stefancic, 2017).

While the definition of college readiness varies, the description used in this study was the ability to be admitted to college and earn a degree. There are three main components of college readiness, including cognitive factors, noncognitive factors, and campus integration factors (Tierney & Duncheon, 2015). Traditional college readiness benchmarks used by colleges to make admission decisions included grade point average and standardized test scores, both of which emphasized cognitive factors. Students of color and first-generation students achieved the criteria for college readiness upon graduating from high school less often than White students and students whose parents had attended college and were less likely to persist and graduate from college (ACT, 2017, Tierney & Duncheon, 2015). These students often lacked the same opportunity to take and succeed in rigorous high school courses and lacked the campus integration knowledge of more affluent White students (Tierney & Duncheon, 2015). It is critical for the definition of college readiness to include more noncognitive factors and an understanding of how to navigate the process and integrate effectively into a college community to expand access to higher education. This study explored two particular interventions designed to improve the college readiness of students upon transitioning from high school to college.

Advancement Via Individual Determination (AVID)

A sizeable academic success gap existed between White students and students of color and between first-generation students and students whose parents graduated from

college. Because of the pressure on increased accountability, high schools and colleges have used many interventions to better support student success. In high schools, the Advancement Via Individual Determination (AVID) program was successful at helping students prepare for college-level work (Bernhardt, 2013, Day, 2012, Eley, 2014 & Huerta & Watt, 2015). The program was created in the early 1980s in California by Mary Catherine Swanson as she sought to increase the success of underserved students in her district. AVID began as a set of strategies employed during the school day to help students with the motivations, attitudes, and study skills necessary to be successful in college (Eley, 2014). Currently, AVID can be implemented in elementary schools, middle and high schools, and in colleges and universities (AVID, 2019). School districts incorporated AVID principles in different ways, and the program is scalable. Schools could include an elective course that provides support for all aspects of the student to help them succeed in rigorous courses (AVID, 2019). Or schools and districts can implement the program more comprehensively. "AVID Secondary can have an effect on the entire school by providing classroom activities, teaching practices, and academic behaviors that can be incorporated into any classroom to improve engagement and success for all students" (AVID, 2019, para. 12).

As Bernhardt (2013) indicated, cultural capital was defined by the dominant culture and it was unequally distributed. It provided advantages to select people in society. AVID attempted to take the amorphous cultural capital and make it available to more of the disadvantaged in the community (Bernhardt, 2013). Cultural capital, or college and campus integration knowledge, has been a critical factor in college readiness.

Students of color, first-generation students, and low-income students often lacked this cultural capital even more than the cognitive and noncognitive preparation for college. The AVID program has been implemented by an increasing number of schools and districts around the country to address this inequity. Students enrolled in AVID performed higher in a combination of college and career readiness benchmarks tested in a study at a Midwestern high school (Day, 2012). Another study found there was a statistically significant difference between the ACT composite scores, ACT English scores, and ACT math scores of students who participated in AVID and students who did not (Eley, 2014). The AVID students achieved higher scores. These findings held across race, gender, socio-economic status, and grade level. The results from the quasi-experimental study were significant because they indicated that participation in the program allowed a population with a much higher percentage of minority students to achieve identical results to the rest of the school.

Dual enrollment

Another strategy that colleges and high schools have partnered on to impact students' college readiness was known as dual enrollment. Dual enrollment involved students being enrolled concurrently in college and high school courses; either delivered within the high school setting as concurrent enrollment through a partnership between high school teachers and university faculty, or traditional college courses taken by high school students on a college's campus known in Minnesota as Post-Secondary Enrollment Options (Minnesota State, 1994). The first state-level policy on dual enrollment passed in 1976 in California. It attempted to address "…concerns over

decreasing college completion rates, rising criticism of the lack of academic rigor in the senior year of high school, and growing demand for remedial post-secondary courses" (Mokher & McLendon, 2009, p. 249).

Minnesota was one of the first ten states to pass legislation providing dual enrollment opportunities for students in 1984, and the growth of the programs increased nationally beginning in the 1990s (Mokher & McLendon, 2009). In an analysis of national data from the Beginning Postsecondary Students Longitudinal Study and the 2009 Postsecondary Education Transcript Study, students participating in college courses while in high school performed significantly better in college courses (.11 grade point average points) than those without dual enrollment credits. They were six percent less likely to take a remedial course while in college (An, 2013, p. 418). The study also found that first-generation students who participated in dual enrollment could perform better in college than students whose parent(s) had graduated from college but did not participate in dual enrollment (An, 2013). Another study demonstrated that students who participated in dual enrollment had higher graduation rates than students who did not (Coffey, 2016), and those same students graduated in fewer semesters than non-participants. Dual enrollment had an impact on students of color when it came to college readiness as well. "…Underrepresented minorities displayed higher levels of key content knowledge, and key [college] transition knowledge and skills than Whites and Asians, but not for key cognitive strategies, and key learning skills and techniques" (An & Taylor, 2015, p. 17).

Critical Race Analysis of Educational Access in the United States

Despite the promise showed by AVID and dual enrollment programs in improving the college readiness of all students, subtle racism is a perpetual disadvantage for people of color in all aspects of life. Critical Race Theory (CRT) provides a mechanism to acknowledge this, talk about it, and challenge assumptions about race that factor into policy development. Throughout its history in the United States, educational policy has advantaged White students (Harper, Patton & Wooden, 2009). Historically Black Colleges and Universities (HBCUs) were controlled by White leaders who directed curriculum decisions and purveyed a Western, White cultural history to students. When the Morrill Land Grant Act passed in 1890, it allowed educational institutions to segregate by race. Land Grant institutions for Black students received less funding than those for White students; they employed poorly trained faculty, included inferior facilities and were restricted to academic programs that were less academically rigorous (Harper, Patton & Wooden, 2009). This inequality was still evident at the beginning of the 2000s through the funding of institutions of higher education. "…The average per-student allocation of state-appropriated funds during the 2000-2001 school year at public HBCUs was $6,064, compared to $10,266 at public PWIs [Predominantly White Institutions]" (Harper, Patton & Wooden, 2009, p. 399). Even apparent progress in racial equality, such as school desegregation, was not entirely philanthropic. The Brown versus Board of Education Supreme Court decision (Brown v. Board of Education of Topeka, n.d.) that required schools to integrate White and Black students was made partly to satisfy the White culture in power, not just to help minorities. White leaders wanted to avoid social upheaval during the Civil Rights era, so they allowed desegregation (Harper, Patton &

Wooden, 2009). Desegregation hurt HBCUs more than PWIs because of the historical funding discrepancy. "Public, four-year HBCUs are the only sector [of higher education] in which Blacks consistently approach or achieve equity in enrollment and degree completion" (Harper, Patton & Wooden, 2009, p. 400). PWIs had an easier time integrating because of their superior facilities, better-trained faculty, and breadth of rigorous academic programs. HBCUs conversely struggled to attract White students, and they also found more competition to enrolling Black students. The corresponding enrollment declines only worsened an already inferior budget situation (Harper, Patton & Wooden, 2009).

More Black and Hispanic students began attending college after the mid-1980s (Baker, Kasik & Reardon, 2018) and, therefore, White students had more competition for enrollment at institutions of higher education. Simultaneously, legal challenges were made to affirmative action in college admission. The threat of this increased competition led to the framing of desegregation strategies such as affirmative action as "reverse discrimination" and the feeling that efforts toward equity were no longer fair or desirable (Harper, Patton & Wooden, 2009). The reality for students of color was that while more Black and Hispanic students attended college, most of this increase occurred at open-access institutions. White students enrolled at selective colleges at much higher rates than students of color, which contributed to social inequity. Attending more selective schools predicted higher levels of income and employment rates in the future (Baker, Kasik & Reardon).

Enrollment in the AVID program and dual enrollment have each been studied independently as ways to improve students' readiness for college. However, few data were found on the performance of students that participated in both the AVID program and in dual enrollment courses. Additional support during concurrent enrollment classes, such as the strategies taught in AVID, may have offset the lower performance on traditional measurements, such as test scores, grade point average, and class rank. The support allowed more traditionally underserved students to get into and complete college. Expanding access to college was particularly important in Minnesota as the number of high school graduates of color was projected to increase by 2035. In contrast, the number of White high school graduates will decline over that period (Western Interstate Commission for Higher Education, 2018). Both AVID and dual enrollment helped increase the college readiness of White students as well as students of color, and neither was a complete solution to leveling the opportunity gap among races. Both programs involved implicit bias in the process of selecting participants as well. However, colleges and universities could reduce the opportunity gap among different races by seeking additional variables to consider in admission decisions, and AVID and dual enrollment have both demonstrated success in helping students of color increase their readiness for college.

Purpose Statement

This quantitative study examined the effectiveness of the AVID program combined with taking dual enrollment courses in preparing suburban Minnesota high school students for success at four-year colleges and universities. The admission policy

for state universities in Minnesota included a class rank in the top fifty percent of the

graduating class, a grade point average at or above 3.0, or a nationally normed,

standardized test score at or above the fiftieth percentile for all exam takers. Each

university had the autonomy to establish higher benchmarks, but these standards

indicated a minimum for admission without conditions (Minnesota State, 1995, 2006).

Research Questions

The study addressed the following research questions:

1. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who do not participate in either program?

1a. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who only participate in the AVID program?

1b. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who only participate in the dual enrollment program?

2. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses while in high school achieve

admissibility benchmarks for state universities in Minnesota than those who do not participate in either program?

2a. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who only participate in the AVID program?

2b. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who only participate in the dual enrollment program?

3. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who do not participate in either program?

3a. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who only participate in the AVID program?

3b. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who only participate in the dual enrollment program?

4. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who do not participate in either program?

4a. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who only participate in the AVID program?

4b. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who only participate in the dual enrollment program?

5. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who do not participate in either program?

5a. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the AVID program?

5b. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the dual enrollment program?

6. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who do not participate in either program?

6a. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the AVID program?

6b. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the dual enrollment program?

Significance of the Research

If the researcher's hypotheses were correct, successful college preparation could be made available to more students. If participation in both AVID and dual enrollment prepared students adequately for success in college-level coursework, then colleges could admit more students who have participated in both programs. If the hypotheses were incorrect, then the combination of students' participation in these two college readiness interventions would not be relevant to the admission process at four-year universities in Minnesota. The study evaluated the effectiveness of college readiness programs that cost school districts money, which impacts state and local taxpayers. The research supported increasing the percentage of the population in the state of Minnesota to achieve higher levels of education by evaluating the efficacy of the two college readiness programs at preparing a broader profile of students for college-level coursework.

Delimitations and Limitations

The study was limited to a suburban school district in southern Minnesota that mirrors state averages for many demographic categories, including race. The school district enrolled a slightly lower percentage of low-income students than the state average. Students' participation in both AVID and dual enrollment is not randomized, and there are likely other variables that impacted student success in college readiness and achievement. While the researcher was interested in the impact of the treatment on narrowing the opportunity gap for students of color, the controls of the experiment do not allow for the variable of race to be completely isolated. Although the study cannot establish causation between race and the effect of these interventions, the correlation between race and differences in student achievement will be relevant to the findings and allow the researcher to critique these programs through a lens of racial equity.

Definitions of Key Terms

AVID. Advancement Via Individual Determination. The program began as a set of strategies employed during the school day to help students with motivations, attitude and study skills necessary to be successful in college (Eley, 2014)

College Readiness. The ability to be admitted to a four-year college and earn a degree.

Dual Enrollment. A program in which students enroll concurrently in both high school and college courses, either offered in the high schools and supervised by college faculty or traditionally on college campuses taught directly by college faculty.

Racial Equity. A condition in which racial identity does not determine one's ability to succeed (W.K. Kellogg Foundation, 2014).

CHAPTER II

Review of the Literature

To determine the impact of AVID and Dual Enrollment on students, it is essential to understand how college readiness was defined historically and what factors played a role in influencing that definition. Both interventions studied in this research began by, or expanded to, impact the gap in success between White college students and Black and Brown students enrolled in college. However, the discrepancy in achievement between White students and students of other races and ethnicities can be traced back to differences in opportunities that these students have experienced throughout their lives and their educational history (Delgado & Stafancic, 2017; Harper, 2017; Harper, Patton, & Wooden, 2009). By reviewing the literature on college readiness, racial equity, specifically Critical Race Theory, the AVID Program, and Dual Enrollment, it was possible to understand how these two interventions can help improve opportunities for students. It was also possible to understand the limitations inherent within each of them.

College Readiness

> College readiness can be defined operationally as the level of preparation a
> student needs in order to enroll and succeed – without remediation – in a credit-
> bearing general education course at a postsecondary institution that offers a
> baccalaureate degree or transfer to a baccalaureate program. (Conley, 2007, p. 5)

Most academic research on college readiness built upon Conley's definition and framework for college readiness. College readiness indicators included high school coursework and GPA, standardized test scores, and students' performance in college

courses. Problems existed with these measures as most state high-school graduation tests do not align with college readiness skills. Many students that graduated from high school needed to complete remedial coursework or failed general education coursework once they enrolled in college (Conley, 2007). Conley also identified four facets of college readiness in combination to add nuance and strengthen college readiness skill-building: contextual skills and awareness, academic behaviors, key content – academic knowledge and skills, and critical cognitive strategies. College knowledge was included in contextual skills and awareness and helped explain the disadvantage that first-generation students experience in going to college. Additionally, standardized tests do not incentivize or measure critical cognitive strategies, but instead value the recall of fragmented information without context (Conley, 2017; Tierney & Duncheon, 2015; Castro, 2013).

"Many Americans go to college, but a large proportion of them are not ready in the sense that they take one or more remedial courses" (Porter & Polikoff, 2012, p. 396). Lack of readiness has a significant, practical impact on families because taking extra courses requires paying additional money to complete college. The lower the level of remediation tested into, the less likely students are to earn a degree. More students of color test into lower levels of remedial courses, perpetuating the readiness gaps between White students and students of color (Tierney & Duncheon, 2015; Carnevale, et al. 2018). "The mounting costs of postsecondary pose a significant challenge to students enrolling in and completing college" (Balfanz, et al., 2016). In addition to having to take remedial courses, the price of a college education has risen as states have reduced the amount of funding provided to support public colleges across the country for more than a

decade (Archibald & Feldman, 2011; Balfanz, et al. 2016). These two factors made

college less accessible, while middle-class jobs increasingly required college degrees

(Tierney & Hagedorn, 2012). The original schools in the United States did not make

everyone college and career ready. They educated the rich and elite by design (Barnes &

Slate, 2014; Singleton, 2013). As the number of post-secondary institutions in the United

States grew, admission requirements became more variable and complex. It became more

difficult for secondary school systems to keep track and prepare all students for all

college admission scenarios. Schools thus began to create paths for different students; the

academic track was for students that the school systems believed should go to college,

and the vocational track was for students who the school systems thought would not go to

college (Tierney & Duncheon, 2015). Students placed on the academic track in high

school had improved outcomes for higher-paying careers in their lifetimes and were more

commonly White students. Often, non-White students were placed on the vocational or

remedial tracks, thus disadvantaging them in longer-term outcomes such as wages and

career opportunities (Tierney & Duncheon, 2015). The problem is complex, and the

school systems could not account for such complexity (Barnes & Slate, 2014). Parents'

education level and occupational and social success impact their children's potential. One

positive finding indicated that, "… as high school graduating classes and entering college

students have become more diverse and less advantaged, their level of [college] readiness

has remained stable" (Balfanz, et al., 2016, p. 1). People often equate college readiness

with standardized test scores. However, standardized tests reinforce unequal systems of

power since families in a higher socio-economic condition can afford more preparation

for their students to take the tests (Tierney & Duncheon, 2015: Castro, 2013). Finding ways to continue increasing readiness as high school graduates become more diverse will be critical to continued economic productivity.

One specific challenge is to reduce the gap in college readiness outcomes for students of color. As is the case with many interventions, a statewide, multiyear study of ethnic differences in Texas found that efforts to improve college readiness did so modestly for all races, but did nothing to narrow the gap between White, Black, and Hispanic students (Barnes & Slate, 2014). Another study demonstrated a wide disparity in the graduation rates of White and minority students in 2002. There was also a significant difference in the percentage of these students who graduated high school eligible for college admission (Green & Forster, 2005). About 40% of White students, 23% of African American students, and 20% of Hispanic students who started public high school graduated college-ready in 2002 (Green & Forster, 2005). In a study of urban high school graduates, the percentage of students who completed some college increased for all racial groups. However, African American and Latino students completed college at much lower percentages than other racial groups, and that rate grew more slowly (Roderick, Nagaoka, & Coca, 2009). A large portion of students with high GPAs go on to college regardless of their race or income level (except Native American students). However, a much higher rate of Black, Latino, and low-income students have lower GPAs than White and Asian students (Balfanz, et al., 2016).

Standardized test scores largely drive the current conversation on [college] readiness and have a role to play, but the data are overwhelming that the single

best predictor of college success is a student's high school GPA, combined with a college-ready sequence of standards-based high school courses" (Balfanz, et al., 2016, p. 2).

Many high school graduates that enroll in college are not college-ready, and colleges need to be prepared to support these students. DeAngelo and Franke (2016) found that 38% of the students they studied were college-ready, and 62% were not. White and Asian students had a higher percentage in the college-ready group, while Black and Latino students had more in the not college-ready group. Additionally, the college-ready group had a higher parental income. Non-college ready students represented 75% of first-year attrition. However, students of color (excluding Asians) were more likely than White students to retain if they were college-ready and as likely to stay enrolled as Whites if they were not college-ready (DeAngelo & Franke, 2016). The study reinforces the value of supporting college readiness to reduce the gap in opportunity for students of color. "Increasing degree attainment in the United States depends on succeeding with students who begin college less academically ready and who are more vulnerable to attrition" (DeAngelo & Franke, 2016, p. 1614).

Readiness for college begins long before students are ready to graduate from high school. "Students who do not attain grade-level proficiencies in math and reading by the eighth grade are much less likely to be college-ready at the end of high school" (Kuh, 2007). Taking college preparatory courses all through high school increases students' odds of completing a bachelor's degree. Math courses are the strongest predictors of students' future college completion (Porter & Polikoff, 2012; ACT, 2017: Tierney &

Duncheon, 2015). However, "…racial and ethnic academic achievement gaps are the strongest among students taking the most advanced courses" (Alvarado & An, 2015, p. 164). Just getting underrepresented students to take more rigorous high school courses was not enough. If they performed poorly in the more rigorous courses, they would still not meet the college readiness benchmarks (Alvarado & An, 2015). Cognitive skills are not the only factor that predicts students' success in college. "Grades also measure the third area of college readiness, non-cognitive skills, particularly whether students have demonstrated the work effort and study skills needed to meet the demands of a college environment" (Roderick, Nagaoka, & Coca, 2009, p. 191). In this study, a 3.0 unweighted high school GPA was determined to provide students with more than a 50% chance of graduating from a four-year college within six years (Roderick, Nagaoka, & Coca, 2009).

> Educators and policymakers often discount grades because they believe that grades are not valid measures of student performance and that they are not comparable across high schools. But if grades were not comparable across high schools and were not reliable indicators of performance, they would not be so strongly associated with performance in college. (Roderick, Nagaoka, & Coca, 2009, p. 197)

Regardless of academic preparation, students of color and low-income students are more likely to attend a two-year college than a selective four-year college. College knowledge, the information about what options are available and how to navigate the bureaucracy of college admission and financial aid, was a key component to college readiness and

reducing the opportunity gap for students of color (Roderick, Nagaoka, & Coca, 2009).

Urban students and students of color were less likely to have engaged in a comprehensive

college search and more often had not completed an application to a four-year college.

The college-going culture had a statistically relevant impact on the rate of students

attending college in the study:

> About half of White graduates meet college readiness benchmarks, compared
>
> with less than one-quarter of Latino and African American graduates. Still,
>
> increasing qualifications may not be sufficient; even among students who meet
>
> college readiness standards, minority students are less likely to enroll in four-year
>
> colleges. (Roderick, Nagaoka, & Coca, 2009, p. 202)

College knowledge extends beyond the process of searching for and successfully

enrolling in college. Time spent studying was an essential indicator in which students

were successful at four-year colleges. "To prepare for college, students must learn early

on how to schedule time for studying, how to study effectively, and strategies for

studying large amounts of information in a relatively limited period of time" (Strayhorn,

2013, p. 989; Kuh, 2007). Accordingly, first-generation students and students of color

were at a disadvantage. They did not have as easy access to the knowledge of how to be

successful in college as their peers whose parents attended college (Strayhorn, 2013).

"Getting into college becomes only one part of the college access issue. Preparation for

college-level work is a key factor in persistence" (Tierney & Sablan, 2013, p. 944).

Significant disparities exist between White students and Black and Brown students in the

opportunity to succeed in college as in most other areas of opportunity in society.

Graduating from college has become a minimum requirement for socioeconomic access to the middle class (DeAngelo & Franke, 2016). Therefore, colleges and universities are increasingly being held accountable for graduation rates (Higher Education Attainment Goal, 2015).

Race and Equity

The United States Census included questions about race since its inception in 1970. Despite many changes over time, items on the census have always distinguished between Black and White. This question allows society to know who is not White (Ladson-Billings, 1998: Delgado & Stefancic, 2017). As the census changed over time, the definition of who was considered White evolved. Educated, female, black academic was considered Whiter compared to other types of people depending on the situation. "The creation of these conceptual categories is not designed to reify a binary but rather to suggest how, in a racialized society where whiteness is positioned as normative, everyone is ranked and categorized in relation to these points of opposition" (Ladson-Billings, 1998, p. 9). The fact that the census categories changed over time exemplifies two of the core tenets of Critical Race Theory, white-over-color ascendency and interest convergence. Racism provides advantages to White people, and therefore, the incentive for them to confront it is low. Changes that give benefits to people of color often occur because of the advantage they also provide to White people (Delgado & Stefancic, 2017). The Constitution of the United States did not explicitly address education, therefore states determined educational law and policy. The field of Critical Race Theory identifies school curriculum as being created by White culture to maintain their superiority

(Ladson-Billings, 1998). The cultural norm of colorblindness was problematic because it did not account for the historic disadvantage non-whites have endured. Black and Brown students were often not exposed to the enriched and advanced curriculum at the same rate as White students (Ladson-Billings, 1998; Castro, 2013; Delgado & Stefancic, 2017). Intelligence testing was used by schools to justify the oppression of Blacks. According to Ladson-Billings (1998) the intelligence test only demonstrates that a student knows how to take the test. It does not measure their capacity for knowledge and learning.

Student readiness for college is a critical factor in college retention and completion. However, financial aid and student support services offered by colleges are even more important factors in students' lack of persistence (Carnevale, et al., 2018; DeAngelo & Franke, 2016; Balfanz, et al., 2016, Bethea, 2016). Selective colleges offered more resources to support students and therefore demonstrated higher graduation rates. Black and Latino students graduated from selective colleges at a rate of 81%, while White students graduated from selective colleges at a rate of 86%. The gap between Black and Latino students and White students was wider, 9%, at open-access colleges. There were enough Black and Latino students that scored high enough on standardized tests to demonstrate the capability to be successful at selective colleges, but not as high as White students who had more privilege in their educational opportunities. Admission criteria that emphasized test scores as a sorting mechanism reinforced this structural racism (Carnevale, et al., 2018). There was very little difference in graduation rates between students scoring moderately high versus very high on the SAT exam. "Significantly, for Black students, including noncognitive measures or soft skills – such

as realistic self-appraisal, making long-term goals, leadership and having a supportive community – reduces the gap in predicted college performance between Blacks and Whites" (Carnevale, et al., 2018, p. 6). Despite this data on graduation rates, Latino student enrollment at selective colleges went up, but not proportionally to their percentage in the population of the United States. Black student enrollment at selective colleges went down. And ultimately selective colleges are the most effective at supporting students the most disadvantaged students (Carnevale, et al., 2018). Students from families in the bottom quarter of family income graduated at a 36% higher rate when they attended a selective college versus an open-access college. (Carnevale, et al., 2018). The population of White students enrolled at open -access colleges declined from 63% to 48% in ten years. This percentage decline was more than twice the decline of the White share of the college-age population (Carnevale, et al., 2018). Whites were underrepresented at open-access colleges and overrepresented at selective public colleges compared to the percentage of college-age people in the United States. It was also true that students of color were overrepresented at open-access colleges and underrepresented at selective public colleges compared to the percentage of college-age people in the United States (Carnevale, et al., 2018).

> These disparities in educational credentials carry over into the workforce. On average, Whites earn $50,000 annually, while Blacks earn $38,000, and Latinos earn $33,000. In other words, for every dollar a White worker earns, a Black worker earns 76 cents, and a Latino worker earns 66 cents. (Carnevale, et al., 2018, p. 10)

While Conley's framework for college readiness provided context that allowed researchers and practitioners to look beyond standardized tests for college readiness, it was not enough because it did not specifically address disparities between race and socio-economic status (Castro, 2013). Remediation was shifted from four-year colleges onto two-year colleges beginning in the 1990s. Higher-income students met traditional college readiness benchmark rates at higher levels than low-income students. Still, there were racial disparities in college readiness for both low and high-income students. College readiness evaluation should consider the broader context of discrimination faced by people of color in housing, employment, and the legal system when providing remediation to students to support them equitably (Castro, 2013; Balfanz, et al., 2016; Delgado & Stefancic, 2017;). "Great differences exist by race, ethnicity, and gender in where students go to college and what they study, signaling an uneven playing field in the labor market and a threat to the opportunity for intergenerational upward mobility" (Espinosa, Turk, Taylor, & Chessman, 2019, p. xv). Students of color are disproportionally enrolled at for-profit institutions and underrepresented at selective institutions. Black students were the most likely to have the highest need when applying for financial aid, and White students were most likely to have the lowest need when applying for financial aid. Higher need students ended up taking on more debt than students with less need (Espinosa, Turk, Taylor, & Chessman, 2019). Additionally, Black and Hispanic students pursued majors in Science, Technology, Engineering, and Math fields, and health care at lower rates than their percentage of the college-age population. These fields of study lead to some of the highest long-term wages among college degrees

(Espinosa, Turk, Taylor, & Chessman, 2019). Despite an increase in the racial and ethnic diversity of college enrollment, the employees and leaders of colleges and universities are not representative of that diversity (Espinosa, Turk, Taylor, & Chessman, 2019).

Colorblindness was used by Whites to explain racial differences and was referenced often in higher education research. To avoid guilt or personal implication, White people often fail to recognize all but the most outrageous acts of racism (Harper, 2012). While many educational researchers explained more subtle racism as individualistic and accused some of being oversensitive, "…the same could be said of other topics commonly written about in our field – sense of belonging, satisfaction, self-authorship, identity development, college readiness, and inclusive campus environments…" (Harper, 2012, p. 15). Educational researchers rarely acknowledged ways in which students of color were at risk and how that contributed to the lack of success in college. Most of the time, problems that arise for students of color are dealt with by addressing the students and not the systems at our colleges and universities designed to disadvantage them (Harper, 2012). Ironically, the quest for racial diversity on college campuses often benefits White students the most as they have interacted less with people of a different race than themselves and have the most to gain from being exposed to new people and ideas. However, most research ignores the strain created for Black and Brown students by interacting with so many White students who have not associated with different races as much (Harper, 2012).

A culmination of the challenges to the theme of colorblindness was put forward by a group of researchers challenging the absence of race in traditional student development theory. The researchers argued:

> The establishment of U.S. higher education is deeply rooted in racism/White supremacy, the vestiges of which remain palatable. The functioning of U.S. higher education is intricately linked to imperialistic and capitalistic efforts that fuel the intersections of race, property, and oppression. And U.S. higher education institutions serve as venues through which formal knowledge production rooted in racism/White supremacy is generated. (Patton, 2016, pp. 316-317)

In support of their arguments, the researchers explored the fact that the original Ivy League colleges in the United States were founded by slave owners and built by slaves. The institutions were funded by the profits of slave labor to include the large endowments that persist to the present (Patton, 2016). The vast majority of our nation's leaders, including legislators, judges, and presidents, have been White. Most of these leaders have college degrees from the elite, Ivy League institutions founded upon slavery, and the predominantly White enrollments at these institutions have continued to our country's leadership (Patton, 2016). The population and culture of higher education are still mostly White, even though the people of the United States have become increasingly racially diverse. The curriculum in higher education overwhelmingly perpetuated a Eurocentric perspective. Most diversity courses were scattered throughout the curriculum and built to include so many different elements that they did not adequately engage students in challenging structural racism (Patton, 2016; Harper, Patton, & Wooden, 2009).

Additional evidence of this included that language immersion programs have become a popular way for White students to gain an educational advantage during elementary grades. Becoming bilingual is seen as an advantage for many White students whose families are of high socio-economic status. Yet English Language Learner students are penalized in the U.S. educational system, made to assimilate and assessed only on the academic acquisition of their non-native language (Singleton, 2013).

"Even sincere efforts to close the academic achievement gap in education do not address the consequences of a difficult history" (Singleton, 2013, p. vii). Fundamentally school systems in the United States were based on White cultural norms. Reinforcing individualism over collaboration, rigid time schedules, silence, and delayed gratification were all specific to White culture and disadvantaged students of other races (Singleton, 2013; Vaught & Castagno, 2008). White students did not have to put forth as much effort to succeed in these behaviors. Students of color not only had to master academic skills in the classroom, but they had to learn and adapt to these cultural norms, which may not have matched their own family and community (Singleton, 2013). Nationally normed, standardized test results from 2011 found that White students performed better than most other races at all income levels. Therefore, poverty did not explain the gap in achievement between students entirely, and race played a factor. Unfortunately, race was often not considered in educational research when looking at causes and solutions to gaps in outcomes (Singleton, 2013). California data on high school students reinforced this point. "White male students in California are more than twice as likely to be placed in gifted/talented programs as are Black male students. The latter, however, are more than

twice as likely to be classified as mentally retarded as White male students…" (Singleton, 2013, p. 119). These facts existed even though the percentage of students at each intelligence level is approximately the same across racial groups. Disciplinary data in the state of California reflected the same trend of Black male students being expelled for disciplinary reasons at three times the rate of White male students (Singleton, 2013). Higher education admissions must engage with secondary education in reforming the system to promote racial equity. If school districts are hesitant to fundamentally change their evaluation systems and educational models to avoid disadvantaging traditionally successful students in college admissions, the racial inequities will continue (Singleton, 2013). Postsecondary institutions can seek to change and be more equitable by expanding opportunities for students to demonstrate their readiness for college-level coursework.

AVID

Research has demonstrated that the rigor and quality of the courses students have available in high school were a strong predictor of success in college (Watt, Huerta, & Butcher, 2018). And yet students of color, particularly African American males, were disadvantaged in having access to rigorous high school courses because of societal pressure to not succeed in school and because of structural racism in secondary education that expected them to not be successful in rigorous courses (Watt, Huerta, & Butcher, 2018). These students felt that they had to work even harder than white students to succeed in high school. The dominant culture created the educational system and embedded their own cultural norms and values into it. This provides members of the dominant culture, White people, with advantages in navigating the system (Bernhardt,

2013). AVID, according to Bernhardt (2013), is an attempt to take the amorphous

"cultural capital" and provide it for more of the disadvantaged. "…The capitalistic idea

that those who work the hardest will eventually benefit has little credibility in the context

of cultural capital" (Bernhardt, 2013, p. 217). AVID was created in part to support first-

generation students and focuses on helping students find their identity and develop goals

for their future beyond high school (Bernhard, 2013). "Intervention programs like AVID

help lead to achievement, the impact of school experiences on students greatly impacts

their educational outcomes" (Watt, Huerta, & Butcher, 2018, p. 215). In their study of

African American male students enrolled in an AVID program, Watt, Huerta, & Butcher

(2018) found that the program provided participants a sense of "brotherhood" that

allowed for high trust and positive pressure to be successful. Students did not want to let

other members of the group down. Staff in the study indicated the importance of the

AVID program in building relationships with students and creating a robust mentorship

environment. A theme that emerged was allowing Black students to be comfortable with

being smart and that spreading to other students (Watt, Huerta, & Butcher, 2018). The

study demonstrated that "…the more people students communicated with about college

requirements, the greater their college knowledge" (p. 221). The same was true for

communication with others about financial aid. The evidence from this study supported

the ability of AVID to improve the college readiness of African American students (Watt,

Huerta, & Butcher, 2018).

Additional studies found that students believed that their high school AVID class

and AVID teachers helped them get into college and that specific strategies learned in the

program helped them to be successful in college (Huerta, Watt & Reyes, 2013; Ratliff, 2018). The average retention rate of students from their first to second year in college was found to be higher for students who had participated in AVID than those who had not in a study in Texas. Those same students who had participated in AVID were on track to graduate at a higher proportion (Huerta & Watt, 2015). One finding of note in this study given the increased success of AVID students was that all the participants came from underrepresented groups, and a vast majority were either African American or Latino (Huerta & Watt, 2015). In another study of first-generation Hispanic students in Texas, "The logistic regression showed that students who enrolled in an AVID elective course were more likely to pass the Texas Success Initiative Exam in Reading, Writing, and Math" (Morely, 2017, p. 109). The importance of this finding was that students achieving this outcome were determined to be ready for college and could avoid remedial coursework at Texas colleges (Morely, 2017). This study also found that students enrolled in more than one dual enrollment class were more likely to pass all three sections of the Texas Success Initiative Exam (Morely, 2017). This result reinforced other studies discussed in the next part of this literature review.

Finally, AVID students in another study were successful in college even when most of them had not met the traditional college readiness benchmarks delineated by ACT for score levels on subject tests within the exam (Watt, Huerta & Alkan, 2011). AVID graduates of the Hispanic Serving Institution in the study had an 8.5% higher retention rate from their first to the second year in college than their non-AVID peers (Watt, Huerta & Alkan). Ratliff's (2018) qualitative study of first-generation Hispanic

AVID students enrolled in college provided some rationale for the increased success of AVID students. Some clear themes emerged from the group of students interviewed, including that the AVID program improved their determination to succeed. It also motivated them to serve as good role-models for younger family and community members, provided a strong network of support, and taught them that engaging in their campus community was necessary. The students were grateful that AVID helped them build life skills even though they did not always enjoy doing the work (Ratliff, 2018). The improved outcomes observed of students enrolled in the AVID program indicated that AVID principles should be explored for all students even though resources prevent having AVID elective classes for all students in many districts. Embedding AVID principles, academic skills combined with social support, throughout the entire school district should be the goal for educational leaders (Day, 2012).

Dual Enrollment

In addition to the AVID program, taking college courses while in high school improved students' readiness for college. Historically dual enrollment was only offered to high achieving students because they benefitted from the challenge. The program has expanded to provide a way to motivate and engage low and middle achieving students in preparation for college (Bailey, Hughes, & Karp, 2002; An & Taylor, 2015; Trost, 2016). Dual enrollment can help students prepare emotionally and socially for college and figure out if college coursework is right for them before graduating from high school and having to pay a lot of money on tuition for regular college enrollment (Bailey, Hughes, & Karp,

2002). Studies have demonstrated that students involved in dual enrollment are more successful in college than students who did not complete any dual enrollment courses:

> We find that enrolling in a College Now dual enrollment course reduces time to degree, not only by allowing students to earn college credits before entering college but also by increasing the number of college courses students take once they are enrolled in college. Furthermore, we find that the program also increases students' academic performance as measured by higher college grade point average (GPA). (Allen & Dadgar, 2012, p. 11)

In a study of national longitudinal data analyzing the effect of socio-economic status and dual enrollment, students that participated in dual enrollment performed significantly better in first-year college GPA than students who had not completed dual enrollment credits (An, 2013). The results of this study showed that dual enrollment participants performed better in college, even if they were first-generation than students who did not participate in dual enrollment. The results indicated that dual enrollment could elevate college success for more students, but it did not offset the gap between first-generation and non-first-generation students (An, 2013). Students enrolled in dual enrollment courses in Florida and New York had higher grade point averages in college than students who had not participated in dual enrollment. Additionally, participants had accumulated more college credits three years after high school graduation than students who had not participated in dual enrollment courses (Karp, et al., 2007). In a 2016 study, Coffey gathered records from a variety of colleges and universities in Missouri and found that dual enrollment increased college graduation rates and reduced the number of semesters

it took students to graduate from college. However, on both measures, students who completed one to thirty credits of dual enrollment benefited increasingly, but beyond thirty credits, there was no noticeable probability of improvement. The reduction in semesters needed to graduate from college by students who have completed dual enrollment reduced the overall cost of a college education (Hudson, 2016; Bailey, Hughes, & Karp, 2002). Another study identified students participating in dual enrollment as "…nearly fifty percent more likely to earn a college degree from a Texas college within six years than students who had not participated in dual enrollment" (Struhl & Vargas, 2012, p. 5). The study also found that African Americans that participated in dual enrollment were more likely than non-dual enrollees to enroll in college after high school. However, the improved enrollment rate was even higher for White students participating in dual enrollment (Struhl & Vargas, 2012). Therefore, while dual enrollment can help underrepresented students toward college success, it does not necessarily narrow the gap in achievement between White students and students of color.

Race plays a role in the effect of dual enrollment on student success. In her dissertation research, Trost (2016) found that it was common for White students to participate in dual enrollment at a higher rate than students of color, which contributed to inequity in college preparedness. The disparity in participation existed at two specific urban high schools in Minnesota. In one example, Black and Hispanic students were underrepresented in dual enrollment courses due mostly to lower test scores, grade point average, and class rank (Trost, 2016). The result was not surprising considering that thirty percent more of the predominantly White schools in Minnesota had a primary post-

secondary partner (for dual enrollment) compared to high-minority high schools.

Additionally, predominantly white high schools partnered with four-year colleges 10%

more often than high-minority high schools. While dual enrollment helped

underrepresented and low-income students become college-ready, there was a gap in

opportunity for students of color and low-income students as it related to participating in

dual enrollment.

> White students who completed dual enrollment were 2.21 times more likely to
>
> enroll [in college] than white students who did not complete dual enrollment;
>
> African American students who completed dual enrollment were 1.6 times more
>
> likely to enroll than African American non-completers. (Struhl & Vargas, 2012, p.
>
> 13)

In a qualitative study, Hudson (2016) found that African American male students were

impacted by societal norms that deem doing well in school as "acting White" and

therefore led to the devaluation of education amongst African American males included

in the study through peer pressure. However, students involved in the study were

impacted positively by dual enrollment. The study found that the students were

influenced by their parents to see the value of higher education even though most of their

parents had never gone to college. (Hudson, 2016). Students of color and first-generation

students participating in dual enrollment likely benefitted from the practice it provided to

high school students in preparing for what it is like to be in college:

> Students who successfully make the transition to college have strong time-
>
> management skills and goal orientation, can advocate for themselves in order to

get help, and understand college systems and procedures. There is evidence that

helping students learn the non-academic facets of post-secondary education can

lead to academic success. (Karp, 2012, p. 22)

The study went explained that dual enrollment allowed students to practice being a

college student and allowed them to become comfortable with it before enrolling fully

(Karp, 2012).

There were some concerns associated with dual enrollment as a tool to support

college readiness. Fear existed regarding the overall rigor of dual enrollment courses and

a feeling that they may not be at the same level of courses taught to regularly enrolled

college students (Bailey, Hughes, & Karp, 2002). Additionally, the selection of students

to participate in dual enrollment posed a challenge to its efficacy. "Many programs

require students to be academically successful prior to admission. In such cases it is

hardly surprising that dual enrollment students enroll in postsecondary education and

have greater success there than a more typical group of students" (Bailey, Hughes, &

Karp, 2002, p. 17). Some states were resistant to expanding dual enrollment programs

because they perceived it to be funding the same student in two places, both in high

school and college (Bailey, Hughes, & Karp, 2002). Despite the opportunity gap within

the system dual enrollment benefits secondary and postsecondary schools because it is

likely to increase success and graduation rates for both (An & Taylor, 2015).

Recommendations from one study included expanding dual enrollment opportunities for

underserved populations based on the results of the research. Additionally, the study

recommended expanding restrictive eligibility requirements for dual enrollment programs

to allow access to a broader range of students (Karp, et al., 2007). While neither is a panacea, both AVID and dual enrollment in high school have demonstrated some success in improving students' college readiness. The programs might reduce the gap in college readiness and success between White students and Black and Brown students.

As outlined in this literature review, research has shown that both the AVID program and dual enrollment have increased students' preparedness for college (Day, 2012; Eley, 2014; Huerta & Watt, 2015; An, 2013; Karp, et al., 2007). Both programs have also demonstrated some reduction in the readiness gap between White students and Black and Brown students. However, both interventions leave room for systemic racial inequity to skew their effectiveness for students of color. AVID is implemented differently in each school district, and short of district-wide implementation, which can be cost-prohibitive, students are selected for participation, which can be subjective. Dual enrollment often requires students to meet traditional benchmarks to take college courses. Admission usually relies on traditional merit benchmarks, such as standardized test scores, which can disadvantage students that are not part of the dominant culture. To reduce the gap in opportunities for students of color to gain access to and succeed in college, post-secondary institutions must engage in challenging the historical methods for demonstrating college readiness. Current research did not address the potential benefits of overlapping the AVID program and dual enrollment together to better support high school students in demonstrating college readiness. If students have access to the skill building within an AVID program, they may be more successful in taking college courses while in high school. And if they complete college courses successfully in high school,

colleges and universities may find it easier to offer them admission upon graduation from high school. While there may still be discrepancies in who has access to these two programs, combining the two interventions may increase the opportunity for different types of students to gain admission to colleges by providing alternative ways for students to demonstrate their readiness for college. Because of the lack of research involving participation in both AVID and dual enrollment, it is not clear if the combination can advantage students any more than participating in one or the other. The research project described in the next chapter explored whether both interventions together increased the opportunity for students of color to be successful in college and helped to reduce the opportunity gap between students of color and White students.

CHAPTER III

Methodology

This causal-comparative study explored ways to expand the criteria to measure students' readiness for success in college-level work. By identifying additional evidence to predict success in college, the researcher hoped to expand access to college to a broader group of students, particularly students of color, that have historically been underserved by higher education (Tierney & Hagedorn, 2012). Specifically, this study sought to determine the efficacy of two college-readiness interventions, the AVID program, and enrolling in dual enrollment courses, used together in predicting students' readiness for college. By comparing the admissibility, retention, and credit accumulation of students from a suburban school district that participated in both interventions to students that did not participate in both the researcher sought to determine if participation in these two interventions could expand the admission requirements at state universities in Minnesota. The researcher selected the school district used in this study due to an ability to gain access to disaggregated student data that included high school GPA, which was not readily available in statewide data. While the school district was not representative of the entire population of students in Minnesota, it did represent a historically significant subset of students for the enrollments of state universities in Minnesota, given its location within the Minneapolis-Saint Paul Metropolitan Area. Additionally, the district implemented AVID throughout its schools and had a variety of partnerships with colleges to provide dual enrollment opportunities for its students. The

implementation of these programs in the district made the sample size of students for this study meaningful.

Study Design

Participation in both the AVID program and dual enrollment involved selection within the high school that was not randomized; therefore, the study design was not experimental. Additionally, because the data to be analyzed was archival, and the researcher did not manipulate any of the variables, a causal-comparative analysis was employed in the research (Fulmer, 2018). Causal-comparative studies explored comparisons between both participation in AVID and college success (Day, 2012; Eley, 2014; Huerta & Watt, 2015); as well as participation in dual enrollment and college success (An, 2013; An & Taylor, 2015; Struhl & Vargas, 2012). In all the studies above, participation in the college readiness program correlated with the students' preparedness for or success in college. The researcher did not find any research on the two programs' usage together. Therefore, this study explored whether the combination of programs correlated with college readiness even more than each program individually.

The study compared students who participated in the AVID program for at least three terms between grades nine through twelve and participated in dual enrollment in college courses while in high school to students who did not participate in both programs. Comparisons included: students who participated in only the AVID program for at least three terms during high school, students who participated in only dual enrollment courses while in high school, and students who did not participate in either intervention. By measuring the academic success of multiple cohorts of students and comparing

longitudinal measurements for each group during high school and after their first year in

college this analysis provided a picture of the development of students across a school

district of more than 25,000 students. The study also explored the efficacy of the

treatment on preparing students for success in college. The study isolated race and

identified the potential gaps in opportunity between races when both interventions were

present by comparing the relationship between the variables for students of color

separately from White students. Most research on college readiness utilized standardized

test scores and high school course curriculum to define the benchmark (Barnes & Slate,

2014); however, Conley's (2007) commonly accepted definition of college readiness

included high school GPA. Admission standards used by state universities in Minnesota

(Minnesota State, 1995) included GPA as an element in admission decisions because of

the correlation between this performance metric and college success. Research on college

readiness and the AVID and dual enrollment programs generally did not consider high

school GPA. One of the specific goals of this study was to incorporate high school GPA

into an analysis of college readiness intervention programs. Therefore, the determination

of whether students met the threshold for admission to state universities in Minnesota

included it. Achieving the benchmark was defined as having a 3.0 GPA or higher, being

ranked in the top 50th percentile of their high school class, or scoring a 21 or higher

composite score on the ACT exam. Many studies on college readiness measured first-to-

second year retention rates (Ratliff, 2018; Swanson, 2008; Karp, Calcagno, & Hughes,

2007) because performance in college courses was an identifiable element of college

readiness as well (Conley, 2007). This study compared students who returned for their

second year with those who did not. Analyzing the number of credits completed by students after one year of college has been used to demonstrate whether students are "on track to graduate" (Huerta & Watt, 2015). Accumulating thirty credits during a student's first year in college is roughly analogous to being on track to graduate in four years if the average bachelor's degree requires 120 credits (Huerta & Watt, 2015). The researcher hoped to compare students who completed thirty credits during their first year in college to those who did not. However, the data set did not include credits accumulated and that analysis was not possible.

Statistical Analysis

The study explored the statistical relationship between variables for each research question with chi-square tests for independence. The chi-square analysis was selected because the values for each variable were non-parametric (dichotomous), and the frequency of each value demonstrated the relationship between the variables (Gravetter, Wallnau, & Forzano, 2018). The study compared the rate of students participating in the AVID program and dual enrollment to the proportion of students meeting admissibility benchmarks to state universities in Minnesota and the proportion of students retaining from their first to the second year at a four-year college. Additionally, students who participated in only the AVID program, those who participated in only dual enrollment, and those who did not participate in either were compared to admissibility and retention in college. All the comparisons were calculated separately for students of color and for White students to isolate race. The researcher evaluated whether there was a difference in correlation between participation for students of color and White students.

If correlations existed between the variables, the results could inform the expansion of admission requirements to state universities in the state of Minnesota using participation in both programs. Such expansion would broaden access to higher education opportunities for students. If the treatment maintained or expanded the gap of achievement between White students and students of color, the data could be used by school districts to assess the methods for selection into the programs.

Research Questions

The research questions were:

1. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who do not participate in either program?

1a. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who only participate in the AVID program?

1b. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who only participate in the dual enrollment program?

2. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who do not participate in either program?

2a. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who only participate in the AVID program?

2b. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who only participate in the dual enrollment program?

3. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who do not participate in either program?

3a. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who only participate in the AVID program?

3b. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who only participate in the dual enrollment program?

4. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who do not participate in either program?

4a. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who only participate in the AVID program?

4b. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who only participate in the dual enrollment program?

5. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who do not participate in either program?

5a. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the AVID program?

5b. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the dual enrollment program?

6. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who do not participate in either program?

6a. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the AVID program?

6b. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the dual enrollment program?

The researcher manipulated the data sets to create dichotomous values for all the variables. The values indicated whether the students identified as White, whether they participated in both AVID and dual enrollment, whether they met the admissibility benchmark for state universities in Minnesota, and whether they returned for a second year at a four-year college. The researcher used a chi-square analysis to determine if a statistically significant relationship existed between the intervention and the college readiness measures. When relationships were detected, a phi-coefficient (ϕ) measured effect size. This measure of effect size was developed specifically for the chi-square test for independence and was used for this study because all the variables were dichotomous (Gravetter, Wallnau, & Forzano, 2018). For the chi-square analysis, a probability (p) score less than .05 indicated significance as there was less than a 5% chance of the chi-square value occurring if no relationship existed between the variables (Gravetter,

Wallnau, & Forzano, 2018). Phi coefficient correlation scores of .10-.29 represented a small effect size, .30-.49 represented a medium effect size, and .50-1.0 represented a large effect size (Gravetter, Wallnau, & Forzano, 2018). The analyses were all run using IBM SPSS Statistics software.

Data Collection Procedures

This research involved analysis of archival student data requested from a public, suburban school district in southern Minnesota that offered the AVID program and dual enrollment opportunities. Academic profile data from 2016, 2017, and 2018 high school graduates, including GPA, class rank, and ACT composite scores, were requested in a disaggregated format to protect the identity of all individual students. The researcher also asked for race and ethnicity data to explore the variance of effect by racial or ethnic groups. Additionally, the request included data that indicated whether students participated in both the AVID program and dual enrollment programs to support their readiness for college. The district changed student record systems during the years studied, and each high school in the district identified courses in their systems differently. Because of these inconsistencies, students who participated in dual enrollment courses in their high schools were not able to be identified in the data set. The definition for students participating in dual enrollment in the analysis reflected students who participated in dual enrollment at a college or university, a program known as Post-Secondary Enrollment Options (PSEO) in Minnesota (Minnesota State, 1994).

The data request to the school district occurred in April of 2020. From April until June of 2020, the researcher and the school district negotiated with the National Student

Clearinghouse® Research Center™, a national non-profit educational data collection organization, to receive a report of students' postsecondary enrollment. The final disaggregated data set was provided to the researcher by the school district in June of 2020, and the statistical analysis of the data also took place in June 2020. The National Student Clearinghouse® Research Center™ data did not include the number of credits accumulated in college by each student. When constructing the research questions, the researcher assumed that the number of credits accumulated would be available in the data set because it is commonly provided in reports to postsecondary institutions about their students. The reports made available from National Student Clearinghouse® Research Center™ to secondary institutions do not include the number of credits completed in college and the researcher discovered this after beginning the data request and negotiation process in conjunction with the school district. Therefore, analysis for being on track to graduate based on completing thirty credits during the first year was not completed.

Summary

In summary, this chapter outlined the research method used to answer the research questions. Archival data from a school district in Minnesota was requested and analyzed in a causal-comparative study, along with college attendance results, to evaluate whether the combination of two intervention programs impacted students' readiness for college. In addition to the efficacy of the intervention programs, the researcher assessed differences in college readiness between races and applied a racial equity lens to the results of the study. By comparing the rate of students of color that participated in each of the two programs to the percentage of White students that participated in each, the

researcher explored the role that race played in selection for each program. By comparing the college readiness results of students of color to the outcomes of White students, the researcher gained insight into the efficacy of the interventions on reducing the gap of opportunity for success in college between students of color and White students.

CHAPTER IV

Findings

The data set included a sample of 1,526 graduates of color and 4,238 White

graduates from 2016, 2017, and 2018.

Research Questions Analyzed

    Analysis of admissibility.

1. Does a larger proportion of students of color that participate in the AVID

   program and dual enrollment courses while in high school achieve

   admissibility benchmarks for state universities in Minnesota than those who

   do not participate in either program?

The results of the analysis of research question one showed a relationship for

students of color between participating in both the AVID program and PSEO and

achieving admissibility benchmarks for state universities, $\chi^2(1, n = 1,462) = 6.80, p < .05,$

$\phi = .07$. The obtained chi-square value was in the critical region, indicating that there was

a relationship between participation and admissibility, however, the phi coefficient

indicated a negligible effect size. Therefore, the relationship was not significant.

Similarly, the analysis of students of color that did not participate in either AVID or

PSEO courses indicated a relationship, but was not significant, $\chi^2(1, n = 1,462) = 10.43, p$

$< .05, \phi = -.08$. The results indicated no significant difference between the proportion of

students of color that participated in the AVID program and PSEO while in high school

and those that did not participate in either program as it related to their admissibility to a state university in Minnesota. The answer to research question one was "no."

    1a. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who only participate in the AVID program?

The analysis of participation of students of color in AVID showed no relationship between their participation in AVID and admissibility at a state university in Minnesota, $\chi^2(1, n = 1,462) = .02, p > .05$. Although a relationship existed between participation in both AVID and PSEO, it was not significant, and therefore, the answer to research question 1a was also "no." There was no statistically significant difference in admissibility between participation in both programs and participation in the AVID program.

    1b. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who only participate in the dual enrollment program?

Students of color who participated in PSEO had a higher proportion of admissibility to a state university in Minnesota than students of color that participated in both the AVID program and PSEO. The results of the analysis indicated there was a relationship between participating in PSEO for students of color and their admissibility, $\chi^2(1, n = 1,462) = 39.65, p < .05, \phi = .17$. The value of the phi coefficient indicated a

small effect size. The combination of the chi-square proportional value and phi coefficient indicated a statistically significant relationship between students of color participation in PSEO and their admissibility. The answer to research question 1b is "no" because participation in both the AVID program and PSEO did not relate to admissibility for students of color, but participation in PSEO did.

2. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses while in high school achieve admissibility benchmarks for state universities in Minnesota than those who do not participate in either program?

The analysis of participation of White students in the AVID program and PSEO and their admissibility to a state university in Minnesota was not completed because of a small sample size. The expected count of White students that participated in both programs was less than five. The chi-square analysis does not provide reliable results when the expected frequency values are that small (Gravetter, Wallnau, & Forzano, 2018). The proportion of White students that participated in both the AVID program and PSEO was smaller than the proportion of students of color that had participated in both programs. A relationship was detected between the lack of participation of White students in either program and their admissibility to a state university in Minnesota, $\chi^2(1, n = 4{,}122) = 3.96$, $p < .05$, $\phi = -.03$. However, the phi coefficient indicated a negligible effect size and therefore diminished the significance in the relationship. Research question two could not be answered because of the small sample size of White students that participated in both the AVID program and PSEO.

2a. Does a larger proportion of White students that participate in the AVID

program and dual enrollment courses while in high school achieve

admissibility benchmarks for state universities in Minnesota than those who

only participate in the AVID program?

Analysis was completed for participation of White students in the AVID program

and a relationship was detected between their participation and admissibility, χ^2(1, n =

4,122) = 24.41, $p < .05$, ϕ = -.08. The phi coefficient indicated that the relationship

detected was not statistically significant. Research question 2a could not be answered

because of the small sample size of White students that participated in both the AVID

program and PSEO.

2b. Does a larger proportion of White students that participate in the AVID

program and dual enrollment courses while in high school achieve

admissibility benchmarks for state universities in Minnesota than those who

only participate in the dual enrollment program?

Analysis was completed for participation of White students in PSEO and a

relationship was detected between their participation and admissibility, χ^2(1, n = 4,122) =

33.37, $p < .05$, ϕ = .09. The phi coefficient indicated that the relationship was not

statistically significant. Research question 2b could not be answered because of the small

sample size of White students that participated in both the AVID program and PSEO.

Analysis of retention.

3. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who do not participate in either program?

An analysis of participation of students of color in both the AVID program and PSEO was conducted to see if there was a relationship between this participation and returning for a second year at a four-year college or university. A relationship was detected, however the phi coefficient was below the level of it being statistically significant, $\chi^2(1, n = 1,526) = 7.66$, $p < .05$, $\phi = .07$. Similarly, an analysis of the lack participation of students of color in either program was conducted, $\chi^2(1, n = 1,526) = 4.04$, $p < .05$, $\phi = -.05$. A relationship was detected; however, the phi coefficient was below the level of statistical significance. The answer to research question three was "no" because there was no statistically significant difference between the retention of students of color that participated in both the AVID program and PSEO and those that did not participate in either.

3a. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who only participate in the AVID program?

The analysis of participation of students of color in AVID did not show a relationship between their participation and retention at a four-year college, $\chi^2(1, n = 1,526) = .78$, $p > .05$. Although a relationship was detected between students who participated in both AVID and PSEO, it was not statistically significant, and therefore, the answer to research question 3a is also "no." There was no statistically significant

difference in retention between students that participated in both programs and those that only participated in the AVID program.

3b. Does a larger proportion of students of color who participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who only participate in the dual enrollment program?

The results of the analysis indicated there was a relationship between the participation of students of color in PSEO and their retention, $\chi^2(1, \text{n} = 1,526) = 30.54$, $p < .05$, $\phi = .14$. The value of the phi coefficient indicated a small effect size. The combination of chi-square proportional value and phi coefficient indicated a statistically significant relationship between students of color participation in PSEO and their retention. Students of color who participated in PSEO had a higher proportion of retention at a four-year college than students of color who participated in both AVID and PSEO. The answer to research question 3b is also "no" because participation in both AVID and PSEO did not relate to retention for students of color, but participation in PSEO did relate to retention.

4. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses return for their second year at a four-year college than those who do not participate in either program?

The analysis of participation of White students in the AVID program and PSEO and their retention at a four-year college was not able to be run because of a small sample size. The expected count of White students that participated in both programs was less than five. The chi-square analysis does not provide reliable results when the frequency

values are that small (Gravetter, Wallnau, & Forzano, 2018). The proportion of White

students that participated in both the AVID program and PSEO was smaller than the

proportion of students of color that participated in both programs. A relationship was

detected between the lack of participation of White students in either program and their

retention at a four-year college, $\chi^2(1, n = 4{,}238) = 11.08, p < .05, \phi = .05$. The phi

coefficient indicated no statistical significance in the relationship. Research question four

could not be answered because of the small sample size of White students that

participated in both the AVID program and PSEO.

4a. Does a larger proportion of White students that participate in the AVID

program and dual enrollment courses return for their second year at a four-

year college than those who only participate in the AVID program?

The analysis of participation of White students in the AVID program indicated

that there was a relationship between their participation and retention at a four-year

college, $\chi^2(1, n = 4{,}238) = 55.96, p < .05, \phi = -.12$. The relationship has a small effect size

but is statistically significant. Research question 4a could not be answered because of the

small sample size of White students that participated in both the AVID program and

PSEO.

4b. Does a larger proportion of White students that participate in the AVID

program and dual enrollment courses return for their second year at a four-

year college than those who only participate in the dual enrollment program?

The participation of White students in the PSEO program was analyzed, and no

relationship existed between their participation and retention for a second year at a four-

year college, $\chi^2(1, n = 4{,}238) = 1.64, p > .05$. Research question 4b could not be answered because of the small sample size of White students that participated in both the AVID program and PSEO.

Analysis of credits completed.

5. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who do not participate in either program?

Research question five could not be analyzed because the data set did not include the number of college credits students completed during their first year of college.

5a. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the AVID program?

Research question 5a could not be analyzed because the data set did not include the number of college credits students completed during their first year of college.

5b. Does a larger proportion of students of color that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the dual enrollment program?

Research question 5b could not be analyzed because the data set did not include the number of college credits students completed during their first year of college.

6. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who do not participate in either program?

Research question six could not be analyzed because the data set did not include the number of college credits students completed during their first year of college.

6a. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the AVID program?

Research question 6a could not be analyzed because the data set did not include the number of college credits students completed during their first year of college.

6b. Does a larger proportion of White students that participate in the AVID program and dual enrollment courses complete thirty credits in their first year at a four-year college than those who only participate in the dual enrollment program?

Research question 6b could not be analyzed because the data set did not include the number of college credits students completed during their first year of college.

CHAPTER V

Discussion

This quantitative study examined the effectiveness of the AVID program combined with taking dual enrollment courses in preparing suburban Minnesota high school students for success at four-year colleges and universities. The research explored the goal of increasing the percentage of the population in the state of Minnesota to achieve higher levels of education by evaluating the efficacy of two college readiness programs at preparing a broader profile of students for college-level coursework. Specifically, the study sought to identify opportunities to increase college readiness for students of color by comparing the impact of college readiness programs on students of color to their effect on White students.

Limitations existed in the data set used by the researcher. Data from the school district did not identify students who participated in dual enrollment courses on-site in their high schools due to record system changes and course labeling differences among schools. Research suggests that dual enrollment options on-site at high schools are more readily available to students in predominantly White schools (Trost, 2016). If dual enrollment data was available from these courses, the sample size of White students who had participated in both the AVID program and dual enrollment may have been large enough for useful analysis. The small sample size of White students in the data set that participated in both programs prevented the researcher from comparing the impact of the combination of the programs between White students and students of color directly.

Additionally, data from the National Student Clearinghouse® Research Center™ did not include the number of credits students accumulated in their first year in college. When constructing the research questions, the researcher assumed that the number of credits accumulated would be available in the data set because it is commonly provided in reports to postsecondary institutions about their students. The reports made available from National Student Clearinghouse® Research Center™ to secondary institutions do not include the number of credits completed in college and the researcher discovered this after beginning the data request and negotiation process in conjunction with the school district.

Because the analysis was not completed comparing the proportion of students staying on track to graduate, the study could not project longer-term success for students involved in the intervention programs. These limitations of the data set reduced the researcher's ability to evaluate the efficacy of participation in both the AVID program and dual enrollment in preparing students for success in college. The summaries in Tables 1 and 2 help demonstrate the results of the analyses. The columns labeled "Relationship" refer to the determination of whether a relationship existed between the intervention and a student's admissibility in Table 1 and a student's retention in Table 2.

Table 1

Analysis of Admissibility

Race	Intervention	Relationship
Students of color	AVID & PSEO	No
Students of color	No intervention	No
Students of color	AVID	No
Students of color	PSEO	Yes
White	AVID & PSEO	N/A
White	No intervention	No
White	AVID	No
White	PSEO	No

Table 2

Analysis of Retention

Race	Intervention	Relationship
Students of color	AVID & PSEO	No
Students of color	No intervention	No
Students of color	AVID	No
Students of color	PSEO	Yes
White	AVID & PSEO	N/A
White	No intervention	No
White	AVID	Yes
White	PSEO	No

Implications

The hypothesis of the researcher was not supported by the data. Participation in both the AVID program and dual enrollment did not result in higher proportions of admissibility or retention compared to students that did not participate in both. However, the sample size of students of color that participated in each intervention and the combination of the two was large enough to analyze. Specifically, the proportion of students of color that participated in both the AVID program and PSEO was larger than the percentage of White students that participated in both. Given that researchers have identified that AVID (Watt, Huerta, & Alkan, 2011; Eley, 2014) and dual enrollment (An, 2013; Coffey, 2016) can have positive impacts on students' college readiness, a higher percentage of students of color that participated in both programs is promising. The higher proportion supports a focus on racially equitable outcomes related to college readiness (Castro, 2013). For students of color, participation in the PSEO program did have a statistically significant relationship to both admissibility to a state university in Minnesota and returning for a second year at a four-year college or university. The effect size was small, but the relationship existed.

Conversely, participation in the AVID program alone demonstrated no relationship to either admissibility or retention for students of color. Finding ways to increase the involvement of students of color in PSEO courses could increase the rate of these students admitted to and retaining at four-year colleges. Colleges and universities should work with school districts to find creative ways to expand the admission

requirements and work to enroll more students of color in PSEO courses based on the analyses.

For White students, none of the intervention scenarios appear to be related to students' admissibility to a state university in Minnesota. While the analysis was not completed for White students that participated in both the AVID program and PSEO, there was no relationship demonstrated between White students that participated in one or neither of the programs and their meeting the admissibility benchmark. There was, however, a relationship identified between White students' participation in the AVID program and their return for a second year at a four-year college. The effect size was small, but the relationship did exist. White students historically graduate high school at higher rates and are admitted to colleges at higher rates than students of color (Greene & Forster, 2005). However, the analysis indicated that promoting participation in the AVID program would not support reducing the gap in college readiness between White students and students of color. Because participation in PSEO did demonstrate a relationship to both admissibility and retention for students of color but not White students, promoting participation for more students of color in PSEO could support a reduction in the gap in college readiness between White students and students of color.

Recommendations for Further Research

Future studies should incorporate dual enrollment coursework on-site in the high schools to evaluate if that type of coursework expands access to dual enrollment for White students and students of color. It would be valuable to study if this expansion of sample of students that participated in dual enrollment might impact the effect of the

combination of programs on students' admissibility and retention in college. This study was unable to evaluate the efficacy of student participation in both the AVID program and dual enrollment for White students. Although the current study did assess the efficacy for students of color that participated in both programs, further research should identify if the impact is different for White students. Additionally, analysis is needed to include dual enrollment credits earned by students through classes at their high schools in addition to credits earned at the colleges through programs such as PSEO. Similarly, retention measured by returning for a second fall semester provides a limited picture of success in college. Persistence beyond the first year, full-time student status, and graduation rate would be more comprehensive analyses of student success. It would make for even more robust comparisons to students' participation in the AVID program and dual enrollment.

The study was limited to a suburban school district in southern Minnesota that mirrors state averages for many demographic categories, including race. The school district enrolled a slightly lower percentage of low-income students than the state average, and nearly 75% of its enrollment is made up of White students. A similar analysis of the relationships between AVID and dual enrollment on student admissibility, retention, and success in college using a statewide sample would be more generalizable. This study should encourage state education officials to begin tracking cumulative high school GPA and all forms of dual enrollment in a more standardized way at a state level. The design of this study intentionally compared the impact of the college readiness programs between White students and students of color.

Similarly, future research should compare the selection of students into the AVID program and the access provided to dual enrollment opportunities between White students and students of color. While the relationships reflected small effect sizes, they existed between students participating in PSEO for students of color and the AVID program for White students. Making sure that access to these supports is equitable, and not merely equal, is critical to reduce the gap of educational attainment between White students and students of color.

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APPENDIX A

Chi-square Analysis Tables

Table A1

Admissible to State U * Student Participated AVID & PSEO Crosstabulation

			Student Participated AVID & PSEO		
			No	Yes	Total
Admissible to State U	No	Count	551	4	555
		Expected Count	544.4	10.6	555.0
	Yes	Count	883	24	907
		Expected Count	889.6	17.4	907.0
Total		Count	1434	28	1462
		Expected Count	1434.0	28.0	1462.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.795[a]	1	.009		
N of Valid Cases	1462				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.63.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
	Phi	.068	.009
	Cramer's V	.068	.009
N of Valid Cases		1462	

Table A2

Admissible to State U * No intervention Crosstabulation

			No intervention		
			No	Yes	Total
Admissible to State U	No	Count	96	459	555
		Expected Count	120.7	434.3	555.0
	Yes	Count	222	685	907
		Expected Count	197.3	709.7	907.0
Total		Count	318	1144	1462
		Expected Count	318.0	1144.0	1462.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	10.426[a]	1	.001		
N of Valid Cases	1462				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 120.72.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.084	.001
	Cramer's V	.084	.001
N of Valid Cases		1462	

Table A3

Admissible to State U * Student Participated in AVID Crosstabulation

			Student Participated in AVID		
			No	Yes	Total
Admissible to State U	No	Count	469	86	555
		Expected Count	470.0	85.0	555.0
	Yes	Count	769	138	907
		Expected Count	768.0	139.0	907.0
Total		Count	1238	224	1462
		Expected Count	1238.0	224.0	1462.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.021[a]	1	.885		
N of Valid Cases	1462				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 85.03.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.004	.885
	Cramer's V	.004	.885
N of Valid Cases		1462	

Table A4

Admissible to State U * Student Participated in PSEO Crosstabulation

			Student Participated in PSEO		
			No	Yes	Total
Admissible to State U	No	Count	541	14	555
		Expected Count	508.7	46.3	555.0
	Yes	Count	799	108	907
		Expected Count	831.3	75.7	907.0
Total		Count	1340	122	1462
		Expected Count	1340.0	122.0	1462.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	39.650[a]	1	.000		
N of Valid Cases	1462				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 46.31.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.165	.000
	Cramer's V	.165	.000
N of Valid Cases		1462	

Table A5

Admissible to State U * Student Participated AVID & PSEO Crosstabulation

			Student Participated AVID & PSEO		
			No	Yes	Total
Admissible to State U	No	Count	652	1	653
		Expected Count	652.2	.8	653.0
	Yes	Count	3465	4	3469
		Expected Count	3464.8	4.2	3469.0
Total		Count	4117	5	4122
		Expected Count	4117.0	5.0	4122.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.065[a]	1	.799		
N of Valid Cases	4122				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .79.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.004	.799
	Cramer's V	.004	.799
N of Valid Cases		4122	

Table A6

Admissible to State U * No intervention Crosstabulation

			No intervention No	No intervention Yes	Total
Admissible to State U	No	Count	52	601	653
		Expected Count	66.1	586.9	653.0
	Yes	Count	365	3104	3469
		Expected Count	350.9	3118.1	3469.0
Total		Count	417	3705	4122
		Expected Count	417.0	3705.0	4122.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.956[a]	1	.047		
N of Valid Cases	4122				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 66.06.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.031	.047
	Cramer's V	.031	.047
N of Valid Cases		4122	

Table A7

Admissible to State U * Student Participated in AVID Crosstabulation

			Student Participated in AVID		
			No	Yes	Total
Admissible to State U	No	Count	611	42	653
		Expected Count	631.6	21.4	653.0
	Yes	Count	3376	93	3469
		Expected Count	3355.4	113.6	3469.0
Total		Count	3987	135	4122
		Expected Count	3987.0	135.0	4122.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	24.408[a]	1	.000		
N of Valid Cases	4122				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 21.39.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.077	.000
	Cramer's V	.077	.000
N of Valid Cases		4122	

Table A8

Admissible to State U * Student Participated in PSEO Crosstabulation

| | | | Student Participated in PSEO | | |
			No	Yes	Total
Admissible to State U	No	Count	642	11	653
		Expected Count	607.5	45.5	653.0
	Yes	Count	3193	276	3469
		Expected Count	3227.5	241.5	3469.0
Total		Count	3835	287	4122
		Expected Count	3835.0	287.0	4122.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	33.369[a]	1	.000		
N of Valid Cases	4122				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 45.47.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.090	.000
	Cramer's V	.090	.000
N of Valid Cases		4122	

Table A9

Student Retained four year * Student Participated AVID & PSEO Crosstabulation

			Student Participated AVID & PSEO		
			No	Yes	Total
Student Retained four year	No	Count	850	9	859
		Expected Count	842.7	16.3	859.0
	Yes	Count	647	20	667
		Expected Count	654.3	12.7	667.0
Total		Count	1497	29	1526
		Expected Count	1497.0	29.0	1526.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.664[a]	1	.006		
N of Valid Cases	1526				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.68.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.071	.006
	Cramer's V	.071	.006
N of Valid Cases		1526	

Table A10

Student Retained four year * No intervention Crosstabulation

			No intervention		Total
			No	Yes	
Student Retained four year	No	Count	167	692	859
		Expected Count	182.9	676.1	859.0
	Yes	Count	158	509	667
		Expected Count	142.1	524.9	667.0
Total		Count	325	1201	1526
		Expected Count	325.0	1201.0	1526.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.040[a]	1	.044		
N of Valid Cases	1526				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 142.05.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.051	.044
	Cramer's V	.051	.044
N of Valid Cases		1526	

Table A11

Student Retained four year * Student Participated in AVID Crosstabulation

			Student Participated in AVID		
			No	Yes	Total
Student Retained four year	No	Count	724	135	859
		Expected Count	730.1	128.9	859.0
	Yes	Count	573	94	667
		Expected Count	566.9	100.1	667.0
Total		Count	1297	229	1526
		Expected Count	1297.0	229.0	1526.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.775[a]	1	.379		
N of Valid Cases	1526				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 100.09.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.023	.379
	Cramer's V	.023	.379
N of Valid Cases		1526	

Table A12

Student Retained four year * Student Participated in PSEO Crosstabulation

| | | | Student Participated in PSEO | | |
			No	Yes	Total
Student Retained four year	No	Count	818	41	859
		Expected Count	788.6	70.4	859.0
	Yes	Count	583	84	667
		Expected Count	612.4	54.6	667.0
Total		Count	1401	125	1526
		Expected Count	1401.0	125.0	1526.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	30.536[a]	1	.000		
N of Valid Cases	1526				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 54.64.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.141	.000
	Cramer's V	.141	.000
N of Valid Cases		1526	

Table A13

Student Retained four year * Student Participated AVID & PSEO Crosstabulation

			Student Participated AVID & PSEO		Total
			No	Yes	
Student Retained four year	No	Count	1598	2	1600
		Expected Count	1598.1	1.9	1600.0
	Yes	Count	2635	3	2638
		Expected Count	2634.9	3.1	2638.0
Total		Count	4233	5	4238
		Expected Count	4233.0	5.0	4238.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.011[a]	1	.917		
N of Valid Cases	4238				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.89.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.002	.917
	Cramer's V	.002	.917
N of Valid Cases		4238	

Table A14

Student Retained four year * No intervention Crosstabulation

			No intervention		
			No	Yes	Total
Student Retained four year	No	Count	192	1408	1600
		Expected Count	160.5	1439.5	1600.0
	Yes	Count	233	2405	2638
		Expected Count	264.5	2373.5	2638.0
Total		Count	425	3813	4238
		Expected Count	425.0	3813.0	4238.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	11.075[a]	1	.001		
N of Valid Cases	4238				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 160.45.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.051	.001
	Cramer's V	.051	.001
N of Valid Cases		4238	

Table A15

Student Retained four year * Student Participated in AVID Crosstabulation

			Student Participated in AVID		
			No	Yes	Total
Student Retained four year	No	Count	1506	94	1600
		Expected Count	1547.9	52.1	1600.0
	Yes	Count	2594	44	2638
		Expected Count	2552.1	85.9	2638.0
Total		Count	4100	138	4238
		Expected Count	4100.0	138.0	4238.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	55.957[a]	1	.000		
N of Valid Cases	4238				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 52.10.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.115	.000
	Cramer's V	.115	.000
N of Valid Cases		4238	

Table A16

Student Retained four year * Student Participated in PSEO Crosstabulation

			Student Participated in PSEO		Total
			No	Yes	
Student Retained four year	No	Count	1500	100	1600
		Expected Count	1489.8	110.2	1600.0
	Yes	Count	2446	192	2638
		Expected Count	2456.2	181.8	2638.0
Total		Count	3946	292	4238
		Expected Count	3946.0	292.0	4238.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.641[a]	1	.200		
N of Valid Cases	4238				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 110.24.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.020	.200
	Cramer's V	.020	.200
N of Valid Cases		4238	