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Complete Issue

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About the Journal



An Overview

The *Journal of College Access* (JCA) focuses on the current trends, research, practices, and development of all types of programs, policies, and activities related to the access of and success in postsecondary education. Issues of college aspiration, qualification, application, enrollment, and persistence are the primary emphases.

The Journal was co-founded by Dr. Patrick O'Connor and Dr. Christopher Tremblay. O'Connor is Chief Strategist and CEO of College is Yours, an organization dedicated to expanding college opportunity. He is a board member and past chair of the Michigan College Access Network (MCAN). Tremblay is Executive Director of Enrollment Management and Student Affairs for the Taubman College of Architecture and Urban Planning at the University of Michigan.

Launched in March 2014, JCA is a part of Western Michigan University's ScholarWorks, a digital showcase of research, scholarly and creative output.



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Affiliations



The *Journal of College Access* is affiliated with the Michigan College Access Network, the Center for Postsecondary Readiness and Success (CPRS) and the Center for Equity and Postsecondary Attainment (CEPA).



MICHIGAN COLLEGE ACCESS NETWORK

MCAN is a statewide non-profit organization with a mission to increase college readiness, participation, and completion in Michigan, particularly among low-income students, first-generation college going students, and students of color.

micollegeaccess.org

The goal of the Center for Postsecondary



**The Center for
Postsecondary
Readiness and Success**

Readiness and Success is to increase equitable and accessible pathways to postsecondary success for all people. Located at American University in Washington, D.C., the Center creates aligned systems, driven by student outcomes to disseminate new knowledge and discovery of college and career readiness and persistence models, while simultaneously connecting this new knowledge to K-12 and higher education policy formation.

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College of Education
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Equity and
Postsecondary
Attainment**

The Center for Equity and Postsecondary Attainment (CEPA) focuses on promoting equitable access to viable postsecondary pathways and opportunities. Guided by diverse student and parent perspectives, CEPA aims to

create college and career counseling and advising practices that reconnect with and elevate the voices of those who have been historically marginalized and excluded. All students deserve access to high quality guidance that supports both individual and collective needs, challenges inequitable and racist school-based systems and policies, and promotes postsecondary opportunities.

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From the Editors



Diana Camilo
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Laura Owen
Christopher W. Tremblay


This edition of the *Journal of College Access* includes three peer-reviewed articles, a book review, and a commentary.



The first article, “The Impact of Optional: Investigating the Effects of Test-Optional Admissions Policies” (Paris, et al.), looks at the impact of test optional admissions policies on college applications, acceptances, and enrollment. Additionally, the authors investigate the racial and socioeconomic composition of campuses, post adoption of the test-optional policy.

access to college readiness counseling impacts college persistence and attainment for multiracial students and those living in low SES. The authors call for the interrogation of the school system that historically and continuously underserves these student groups.

Edwin et al. look at the impact of academic aspirations and career uncertainty on students’ college outcomes. They draw attention to a slow but concerning decline in postsecondary institutional enrollment between fall of 2009 and 2019. While there is evidence linking career certainty and academic aspirations to college outcomes, they note that no national studies have looked at the impact of career uncertainty and academic aspirations on students’ college outcomes.

Finally, JCA Co-Editor Christopher Tremblay reviews the book “Early Colleges as a Model for Schooling: New Pathways for Access to Higher Education” and JCA Co-Editor Patrick O’Connor writes about the impact of COVID on college access. 

This will be the final edition of JCA for 2022.

Using the 2009 High School Longitudinal Study, Brookover & Johnson, look at the connection between school counselor access and postsecondary outcomes. They find

Special Thanks

Special thanks to outgoing JCA Board Members Dr. Keren Zuniga McDowell and Dr. Mandy Savitz-Romer as this is their last issue. We are grateful for their contributions over the years.



The Impact of Optional: Investigating the Effects of Test-Optional Admissions Policies



Authored by

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ABSTRACT

An increasing number of postsecondary institutions in the United States have introduced test-optional admissions policies primarily due to criticism of standardized admissions tests as potentially biased predictors of student success. However, the impact of the test-optional movement is largely unknown and continues to evolve amid the COVID-19 pandemic. Using institutional isomorphism as our theoretical framework, we update and extend existing research by broadening the number and type of test-optional institutions represented in the literature. We use 2x2 repeated measures multivariate analysis of variance (MANOVA) to examine change in applications received, acceptances, enrollment, and the racial and socioeconomic composition of the student body upon the implementation of a test-optional admissions policy. Findings demonstrate that test-optional policy implementation results in a statistically significant increase in applications and enrolled students. However, we find that test-optional policy adoption does not result in a statistically significant increase in the percentage of underrepresented racial minority students or Pell Grant recipients.

Keywords: test-optional, college admissions, longitudinal studies, institutional theory, institutional isomorphism, Repeated Measures Multivariate Analysis of Variance (MANOVA)

Since the 1980s, an increasing number of colleges and universities in the United States have introduced new models for evaluating the potential of undergraduate admissions applicants (Furuta, 2017). These models, broadly referred to as “test-optional” admissions policies, permit some or all undergraduate admissions applicants to forgo the submission of standardized test scores (e.g., SAT). Test-optional is a general term that refers to policies that include a range of test considerations including, but not limited to, test-free policies under which standardized test scores are not required nor considered and test-flexible policies under which applicants can choose which standardized test scores to submit. A common feature of test-optional policies is increased emphasis on applicants’ previous academic performance (e.g., high school grade point average [GPA]), personal background characteristics, and extracurricular experiences.

The test-optional movement in the United States primarily emerged in response to criticism that standardized tests have engendered barriers that limit the equitable distribution of postsecondary educational opportunities (Camara & Kimmel, 2005;



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Soares, 2012; Zwick, 2007, 2017). Although test-optional admissions policies alone cannot drastically change the structural inequalities that inhibit postsecondary educational access for historically underrepresented student groups (Chetty et al., 2020; Hout, 1988; Torche, 2011), there is substantial interest in examining the extent to which test-optional policies are effective in broadening access to postsecondary education.

Amid the global COVID-19 pandemic, an unprecedented number of institutions in the United States temporarily or permanently adopted test-optional admissions policies primarily due to widespread public health concerns, limited standardized admissions test administrations, and anticipated decline in student enrollment (Turk et al., 2020). While the staying power of test-optional policies among temporary institutional adopters is uncertain, the accelerated rate of change in how institutions evaluate admissions applicants requires a better understanding of the implications of test-optional policies on a national scale and across time.

Literature Review

For nearly a century, colleges and universities in the United States have used standardized tests as an efficient mechanism for qualifying an increasing number of undergraduate admissions applicants (Camara & Kimmel, 2005). With nearly 1.5 million test takers in 2021 (College Board, 2021), SAT scores have

served among the predominant criteria for the evaluation and selection of college admissions applicants. However, standardized admissions tests have been subject to widespread criticism as “inadequate and potentially biased measures of postsecondary promise” (Belasco et al., 2015, p. 206) and “measures increasingly deemed to provide a narrow assessment of human potential” (Syverson et al., 2018, p. 5). These observations are congruent with previous studies that have consistently identified differences in the accuracy of SAT scores in predicting the first-year grade point average of admissions applicants across racial, ethnic, socioeconomic, and gender groups (Atkinson & Geiser, 2009; Blau et al., 2004; Fleming, 2002; Freedle, 2003; Hoffman & Lowitzki, 2005; Kobrin et al., 2007; Soares, 2012; Young & Kobrin, 2001; Zwick, 2007, 2017; Zwick & Green, 2007).

Research suggests there are racial and economic inequities manifest in the admissions criteria that often receive greater emphasis under test-optional policies such as extracurricular activities, essays, interviews, and recommendation letters (Rosinger et al., 2019). Further, scholars have identified disparate access to resources associated with college readiness including Advanced Placement courses (Kolluri, 2018; Rodriguez & McGuire, 2019), test preparation (Buchmann et al., 2010), college counseling (Robinson & Roksa, 2016), college-going knowledge (Deil-Amen & Tevis, 2010), parental involvement (Hamilton et al., 2018;

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Perna & Titus, 2005), and school-based extracurricular activities (Meier et al., 2018). Therefore, some individuals have argued that providing the option of submitting standardized test scores may, in fact, be the optimal way for talented students from underserved backgrounds to demonstrate their potential for success in college (Buckley et al., 2018).

The test-optional movement has been propelled by non-profit organizations (e.g., National Center for Fair and Open Testing [FairTest]; American Talent Initiative) and the findings of single-institution case studies (e.g., Mulugetta, 2013; Rubin & González Canché, 2019; Schultz & Backstrom, 2021; Shanley, 2007) that explore the effectiveness of test-optional admissions policies in improving institutional desirability and campus diversity as measured by a larger and more racially, ethnically, and socioeconomically diverse applicant pool. However, these efforts have yet to result in comprehensive and representative evidence of the impact of test-optional policies on postsecondary opportunity across the many types of institutions that characterize the modern landscape of higher education in the United States.

The adoption of test-optional policies is generally motivated by two complementary objectives: (1) increased access by providing applicants with an opportunity to demonstrate their academic potential in ways measured other than by standardized test

scores and (2) increased diversity of the adopting institution's student body. Past research has sought to test the validity of these stated objectives by examining the extent to which test-optional admissions policies are effective in enhancing institutional standing (e.g., increased admissions selectivity) and student characteristics (Belasco et al., 2015; Hiss & Franks, 2014; Saboe & Terrizzi, 2019; Sweitzer et al., 2018; Syverson et al., 2018). However, limitations of past research require further investigation of the complex relationships between these interrelated objectives, particularly across a more recent and more representative sample of test-optional institutions.

Admissions Funnel

In higher education, the "admissions funnel" depicts the stages through which potential students progress, concluding with their matriculation at a particular institution (Hossler & Bontrager, 2014). The top of the admissions funnel begins with "prospects," potential students who possess college-going attributes but have yet to formally express interest in applying for admission. The objective of enrollment management is to strategically manage the volume of prospective students who progress from one stage of the admissions funnel to the next so that the institution achieves its enrollment goals (Hossler & Bontrager, 2014).

Previous studies have examined the impact of the adoption of test-optional policies on several stages of the undergraduate

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admissions funnel, particularly in relation to applicant quality (i.e., mean standardized test scores) and application volume. For example, Belasco et al. (2015) investigated whether test-optional policy implementation effects applicants' SAT scores and the number of admissions applications institutions received. To assess changes in pre- and post-policy implementation outcomes, Belasco et al. (2015) analyzed data from 180 selective liberal arts institutions from 1992 through 2010 using a difference-in-differences analytical approach, which mimics experimental research design using observational study data by estimating the differential effect of a treatment on a "treatment group" as compared to a "control group" in an experiment (Donald & Lang, 2007). Belasco et al. (2015) included institutional characteristics and trend-specific variables (e.g., average SAT score trends) as covariates to control for pre-existing differences between test-optional and test-requiring institutions and to account for admissions- and campus-related trends prior to policy implementation. Results indicated that the implementation of test-optional policies was associated with a subsequent increase in mean SAT scores and in the number of first-year undergraduate admissions applications received. This suggests that the implementation of test-optional policies may function to affect institutional standing and selectivity (Belasco et al., 2015). Unlike other studies (e.g., Hiss & Franks, 2014; Sweitzer et al., 2018; Syverson et al., 2018), Belasco et al. (2015) employed a theoretical framework of manifest and latent functions (Merton, 1957) to explain their

findings, thus shedding light on possible unstated, underlying motivations that guide institutions toward the adoption of test-optional policies. In the context of the study conducted by Belasco et al. (2015), manifest functions specifically refer to an intended increase in student diversity because of test-optional policy adoption, while latent functions refer to the unrecognized and unintended outcomes of policy adoption such as enhanced institutional standing.

Following this same logic, Saboe and Terrizzi (2019) also employed a difference-in-differences approach to determine whether the adoption of test-optional policies impacted relevant admissions outcomes. Data from 2009 through 2014 were collected from four-year, public and private, not-for-profit baccalaureate-granting institutions; among these institutions, 1,649 were test-requiring and 127 had test-optional policies. Results were consistent with those of Belasco et al. (2015) regarding the effect of test-optional policies on the number of applications received. The number of applicants increased shortly after the implementation of test-optional policies. However, the increase in applicants was not long-lasting, and was followed by a decline in the number of admitted students who chose to enroll. Additionally, in contrast to the findings of previous research (Belasco et al., 2015; Sweitzer et al., 2018), Saboe and Terrizzi (2019) found that test-optional policies are associated with a subsequent decrease in reported SAT math scores, suggesting that test-optional policies may have negative

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effects on institutional selectivity and implications for academic undermatching (Smith et al., 2013).

Sweitzer et al. (2018) analyzed data from 1999 through 2014, collected from 35 liberal arts colleges with test-optional policies and 80-test requiring institutions. The researchers computed a propensity score that represented the probability that an institution would introduce a test-optional admissions policy based on observed characteristics. Institutions were matched based on these scores to observe how a test-optional institution would differ across several variables if it had remained test-requiring. This technique differs from other test-optional studies as the use of propensity score matching mimics the process of random assignment in experimental design thereby enabling unbiased estimation of the treatment effect (i.e., test-optional policy adoption). Sweitzer et al. (2018) identified that the implementation of a test-optional policy resulted in increased mean SAT scores by an average of 10.4 points ($p < .001$). However, results showed that implementation did not have a significant effect on acceptance rates ($p = .650$), and while the average number of applications increased after implementation, this increase was not statistically significant ($p = .177$).

Furthermore, Syverson et al. (2018)—in a study that expanded upon the findings of Hiss and Franks (2014)—identified a relationship between test-optional policy adoption and the number of undergraduate admissions applications received. This study

included case studies of 28 postsecondary institutions, including public and private colleges and universities of varying enrollment size, admissions selectivity, geographic location, and type of test-optional admissions policy. Through the analysis of data from 2004 through 2016, Syverson et al. (2018) discovered that, on average, the implementation of test-optional policies resulted in an increased number of applications received; more than half of the test-optional institutions studied experienced an increase in admissions applications at greater levels than those of test-requiring institutions during the same time frame. However, findings revealed a marginal decrease in acceptance rate (i.e., increased admissions selectivity) and the rate by which admitted students enroll (Syverson et al., 2018).

Through our analysis of the literature, previous research suggests there is substantial variation in the admissions outcomes associated with test-optional policy implementation. There is sufficient evidence to indicate that test-optional policies lead to an increase in the size of the applicant pool. However, findings related to the impact of test-optional policies on admission yields, and inconsistent findings regarding their effects on reported mean SAT scores, make it unclear whether these policies fulfill often unstated objectives of improving institutional standing and selectivity. Except for the studies conducted by Syverson et al. (2018) and Saboe and Terrizzi (2019), limited research has examined the impact of test-optional policies

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on indicators of institutional desirability as measured by admitted student yield rate. To address these limitations, we examine the impact of test-optional policy implementation on institutional desirability and selectivity as reflected through three key stages of the admissions funnel (application, admission, and enrollment).

Racial and Ethnic Diversity

To assess whether the implementation of test-optional policies is effective in increasing postsecondary access for underrepresented racial minority students, several studies have examined the impact of test-optional policy adoption on the racial and ethnic diversity of students. Belasco et al. (2015) demonstrated that the implementation of test-optional policies was not associated with increased enrollment of underrepresented racial minority students. Similarly, Sweitzer et al. (2018) determined that test-optional policy implementation did not have a significant effect on the enrollment of underrepresented racial minority students. The authors attributed greater increases in the tuition and fees of test-optional institutions as compared to test-requiring institutions as a factor that potentially limited the positive effects test-optional policies may have on the diversity of adopting institutions. Saboe and Terrizzi (2019) also found that the implementation of test-optional policies did not have a statistically significant effect on the percentage of enrolled students who identify as a racial minority.

In contrast to others (Belasco et al., 2015, Saboe & Terrizzi, 2019; Sweitzer et al., 2018), Syverson et al. (2018) and Bennett (2021) found that the adoption of test-optional policies increased the racial diversity among enrolled students, demonstrating that test-optional policies can provide underrepresented racial minority students access to certain institutions that they otherwise may not have. For example, in a study of test-optional policies implemented by 100 private institutions between 2005–2006 and 2015–2016, Bennett (2021) found that test-optional policies resulted in a 10 to 12 percent increase in first-time students from underrepresented racial and ethnic backgrounds. These inconclusive findings highlight the tensions between stated and unintended consequences of test-optional policies and warrant further investigation to discern the efficacy of test-optional policies in expanding access to underrepresented racial and ethnic minority students.

Socioeconomic Diversity

Although a limited number of studies have examined whether the adoption of test-optional policies affects postsecondary access for low-income students, conflicting findings have emerged in the literature. Using Pell Grant receipt as an approximation of low-income status, Belasco et al. (2015) and Saboe and Terrizzi (2019) found that the implementation of test-optional policies was not associated with increased enrollment of low-income students. While Saboe and Terrizzi (2019) found that test-optional policies had no significant effect on

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postsecondary access for low-income students, Belasco et al. (2015) found that test-optional institutions enrolled a lesser proportion of low-income students than their test-requiring counterparts. In contrast, Syverson et al. (2018) found that the implementation of a test-optional policy resulted in a small but statistically significant increase in the enrollment of low-income students as compared to test-requiring peer institutions. Bennett (2021) found that test-optional policies were associated with a 3 to 4 percent increase in Pell Grant recipients. The lack of consistent findings suggests there is need for further research to clarify the effect of test-optional policies on the socioeconomic diversity of enrolled students.

Theoretical Framework

There have been accounts of institutional motivation for implementing test-optional policies to increase admissions selectivity and average SAT scores in the pursuit of prestige and improved institutional rankings (Belasco et al., 2015; Furuta, 2017; Lucido, 2017). Institutional decisions to adopt test-optional admissions policies can be explained through organizational theories such as institutional theory (Scott, 2013) and institutional isomorphism (DiMaggio & Powell, 1983; Selznick, 1996). Institutional theory explains the adoption and proliferation of formal organizational structures, policies, standard practices, and new forms of organization (Peters, 1999; Scott, 2005). Institutional theory is useful for understanding the internal conditions (e.g., shared expectations, norms,

priorities) and external factors (e.g., marketplace competition) that serve as catalysts for the introduction or modification of organizational policies. Institutional isomorphism posits that a set of environmental conditions prompt organizations to resemble other organizations to compete effectively (DiMaggio & Powell, 1983; Selznick, 1996). DiMaggio and Powell (1983) explain that organizations within a particular organizational field tend to become increasingly isomorphic over time, adopting similar structures, processes, and rhetoric as they seek legitimacy. Similarly, competitive isomorphism suggests that organizations operating in the same competitive marketplace tend to become more homogeneous over time, as competition eliminates less productive models in favor of those that are more efficient (Scott, 2013). Increasingly, mimetic isomorphism emerges from organizational uncertainty thereby leading to institutional convergence. Institutions continuously encounter challenges, and the absence of clear and readily available solutions prompts institutions to replicate seemingly sufficient modes of decision making and problem solving (Seyfried et al., 2019). Institutional isomorphism is reflected in institutional ranking, rating, and classification systems as well as the policy approaches institutions implement to improve their standing within such systems (Bastedo & Bowman, 2011). As institutions grapple with competitive and normative pressures, test-optional policies have become seemingly attractive mechanisms to attain institutional objectives

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such as enrollment growth and to maintain prominence in an increasingly competitive marketplace (Furuta, 2017). Past research has provided insight into the unstated outcomes of test-optional policy adoption such as enhanced institutional standing (Belasco et al., 2015). This outcome is reflective of institutional isomorphism as institutions rely on replicative approaches as they strive for legitimacy and prestige (DiMaggio & Powell, 1983). Institutional isomorphism and institutional theory are useful for explaining decisions to adopt or modify policies to effectively compete with institutions of similar typology (e.g., institutional control) and characteristics (e.g., admissions selectivity), and considering how institutional similarities or differences potentially impact the outcomes of test-optional admissions.

Current Study

Using the theory of institutional isomorphism as a guide, we extend previous literature by analyzing more recent data from a broader sample of institutions to assess the impact of test-optional policies on several stages of the admissions funnel, racial diversity of the student body, and the enrollment of Pell Grant recipients. Previous research has principally focused on small liberal arts colleges given their propensity to introduce test-optional policies as compared to their more comprehensive public university counterparts. Although previous studies analyzed the impact of test-optional admissions policies across time, research has not addressed test-optional outcomes since

2016 despite the accelerating rate of policy adoption (Belasco et al., 2015; Bennett, 2021; Saboe & Terrizzi, 2019; Sweitzer et al., 2018; Syverson et al., 2018). The use of more recent data allows for renewed understanding of how the impact of test-optional policies may have changed in the past several years. Past research has offered insight into prospective students' preferences as approximated by application submissions but provides minimal evidence of the effect of test-optional policies on post-admission behavior as evidenced by matriculation decisions (Belasco et al., 2015; Sweitzer et al., 2018; Syverson et al., 2018). Therefore, we extend the findings of prior studies and expand the number and type of test-optional institutions represented in the literature.

By addressing the following research questions, we build on the findings of previous research regarding the relationship between test-optional admissions policies and key indicators of institutional desirability (applications received, admitted student enrollment decisions), admissions selectivity (acceptances), and the racial and socioeconomic diversity of enrolled students:

1. Does the implementation of a test-optional admissions policy result in a statistically significant change in the volume of first-year undergraduate admissions applications received, acceptances, and enrollees between Carnegie Classification groups?

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a. Based on the findings of previous studies, we hypothesize that the implementation of a test-optional admissions policy results in a statistically significant increase in the volume of first-year undergraduate admissions applications received, acceptances, and enrollees (Belasco et al., 2015; Saboe & Terrizzi, 2019; Sweitzer et al., 2018; Syverson et al., 2018).

2. Does the implementation of a test-optional admissions policy result in a statistically significant change in the percentage of enrolled undergraduate students who identify as an underrepresented racial minority between Carnegie Classification groups?

a. Based on the findings of previous research, we hypothesize that the implementation of a test-optional admissions policy results in a statistically significant increase in the percentage of enrolled undergraduate underrepresented racial minority students (Bennett, 2021; Syverson et al., 2018).

3. Does the implementation of a test-optional admissions policy result in a statistically significant change in the percentage of full-time first-time undergraduate students who receive Pell Grants between Carnegie Classification groups?

a. Based on the findings of previous research, we hypothesize that the implementation of a test-optional admissions policy results in a statistically significant increase in the percentage of

full-time first-time undergraduate students who receive Pell Grants (Bennett, 2021; Syverson et al., 2018).

Methodology

Using a 2x2 repeated measures multivariate analysis of variance, we examined the change in indicators of admissions desirability (applications received, enrollments), admissions selectivity (acceptances), and the racial (percentage of underrepresented minority students enrolled) and socioeconomic (percentage of Pell Grant recipients enrolled) composition of the student body upon the implementation of a test-optional admissions policy across time and between institutional Carnegie Classifications. We designed the study as depicted in Figure 1 (see next page).

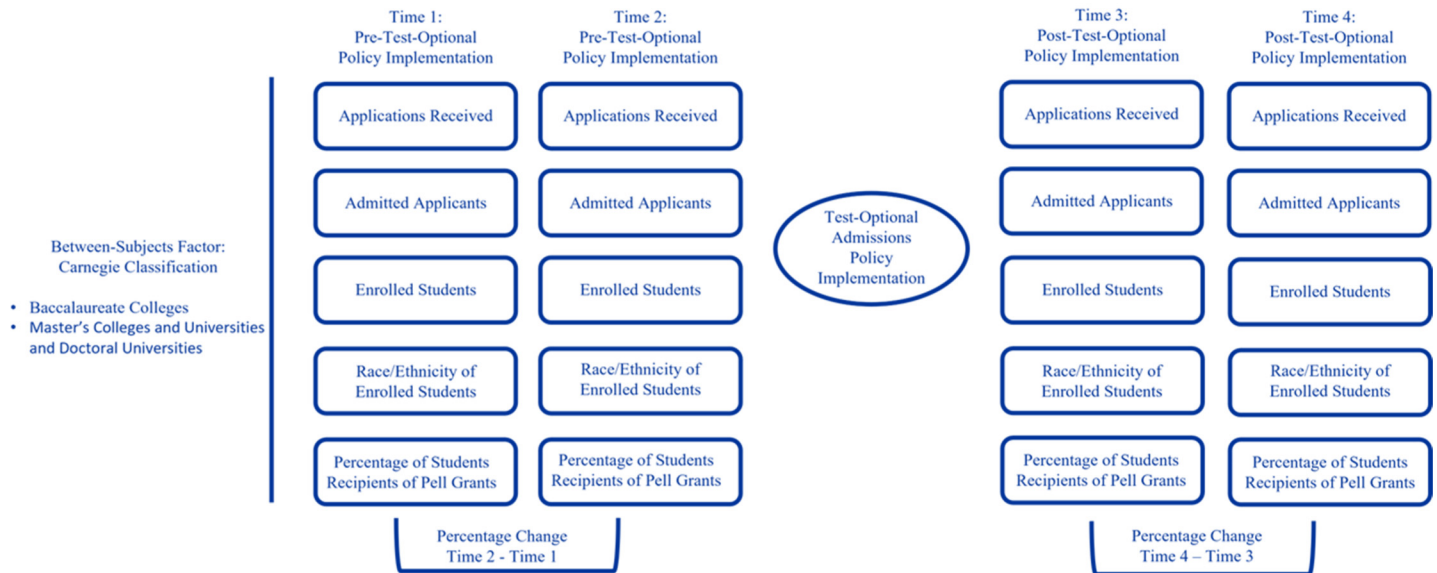
Sample and Data Collection

We examined data collected from 162 four-year, degree-granting, Integrated Postsecondary Education Data System (IPEDS)-submitting, public and private not-for-profit institutions in the United States. According to FairTest, as of December 2021, more than 1,830 colleges and universities in the United States have introduced policies that deemphasize or forgo the consideration of standardized tests as part of the undergraduate admissions process (FairTest, 2021). The test-optional institutions included in our study were drawn from FairTest's 2020 list of the "380+ 'Top Tier' Schools that Deemphasize the ACT/SAT in Admissions Decisions per *U.S. News & World Report Best*

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Figure 1.

2x2 Repeated Measures Study Design



Colleges Guide (2020 Edition)." At the time of data collection, this list included 369 public, private non-profit, and private for-profit institutions that implemented test-optional policies and were ranked by *U.S. News & World Report* among the "Best Colleges and Universities" for 2020. Of the 369 institutions, our study included those that reported a change in IPEDS admissions test scores consideration from required to one of the following:

- considered but not required ($n = 41$; 25.3%)
- recommended ($n = 73$; 45.1%), or
- neither required nor recommended ($n = 48$; 29.6%)

between 2003 and 2016 (U.S. Department of Education, 2020). Despite inclusion on FairTest's list, we excluded 197 test-optional institutions that did not report a change in

admissions test score consideration to IPEDS. Not reporting a change in test score consideration suggests that these institutions may have implemented a test-optional admissions policy for some, but not all academic programs. Therefore, we excluded these institutions from the study. Given the study years (2001-2018), some of the earliest known institutional adopters of test-optional admissions policies such as Bowdoin College (Test Optional Policy, n.d.) were not included in our sample. Additionally, our sample does not include institutions that adopted test-optional policies immediately prior to or amid the COVID-19 pandemic given the substantial and variable impact of the pandemic on higher education institutions (Melidona et al., 2021).

We collected panel data from IPEDS for reporting years 2001 through 2018. We used IPEDS imputation values for missing data. All

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other missing cases were treated using listwise deletion as is consistent with ANOVA techniques (Johnson, 1989; Little & Rubin, 2002) and as recommended for IPEDS-related data issues (Jaquette & Parra, 2014). Table 1 (see next page) presents descriptive statistics on the institutions in our sample.

Data Analysis

The repeated factor included two time intervals: (1) the two years prior to policy implementation, (2) the two years after policy implementation. For the between-subjects factor, we combined the 2018 Basic Carnegie Classification for each institution into two categories: (1) Baccalaureate Colleges ($n = 72$; 44.4%), and (2) Master's Colleges and Universities and Doctoral Universities ($n = 90$; 55.6%). We used this combined Carnegie Classification variable as a between-subjects factor to examine differences in the outcome variables by institutional classification.

The outcome variables included applications received, acceptances, enrollments, the percentage of undergraduate underrepresented racial minority students enrolled, and the percentage of full-time first-time Pell Grant recipients enrolled. To create these variables, we calculated the percent change between Time 1 and Time 2 (the two years prior to policy implementation) and between Time 3 and Time 4 (the two years after policy implementation). We used percent change as the outcome variables prior to and after policy implementation to control for institutional differences in the study variables, such as

application volume, because using mean or raw scores would result in between-subject differences.

We defined underrepresented racial minority student status using the following IPEDS categorizations: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and Two or More Races (U.S. Department of Education, 2020). We combined these categories into one variable as a total percentage of undergraduate underrepresented racial minority students enrolled. We used the percentage of full-time first-time undergraduate students receiving a Pell Grant in any dollar amount. Table 2 provides descriptive statistics on the study variables. We analyzed the data using 2x2 repeated measures MANOVA for Research Question 1 and 2x2 repeated measures ANOVA for Research Questions 2 and 3 to examine the change in the outcome variables across the two time intervals.

Results

Applications, Acceptances, and Enrollees

Our first research question asked whether the implementation of a test-optional admissions policy results in a statistically significant change in the number of first-year undergraduate admissions applications received, acceptances, and enrollees. Our analysis revealed a statistically significant main effect for time (Wilks $\Lambda = F[3, 152] = 6.25, p < .001, \eta p^2 = .11$). There was no interaction between time and Carnegie

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Table 1.
Descriptive Statistics on Sample of Test-Optional Institutions.

	<i>n</i>	Percentage
Institutional Control		
Private	137	84.6
Public	25	15.4
Institution Size Category		
Under 1,000	14	8.6
1,000 – 4,999	108	66.7
5,000 – 9,999	20	12.3
10,000 – 19,999	11	6.8
20,000 and above	9	5.6
Minority-Serving Status		
Alaska Native and Native Hawaiian-Serving Institution	1	.62
Asian American and Native American Pacific Islander-Serving Institution	5	3.1
Hispanic Serving Institution	11	6.8
Non-Minority-Serving Institution	145	89.5

Notes. $n = 162$. Data for the 2018 IPEDS reporting year. Institution size category refers to the total number of undergraduate students enrolled. Two institutions in the sample hold two minority-serving institution statuses. Numbers do not total to 100% due to rounding. Minority-serving status data derived from Skinner (2021).

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Table 2.
Means and Standard Deviations of the Study Variables.

Variables	Time 1	Time 2	Percent Change Time 1-2	Time 3	Time 4	Percent Change Time 3-4
Applications received	4,783 (4,924.5)	4,818 (5,007.6)	2.31 (11.9)	5,071 (5,286)	5,404 (5,572)	8.9 (20.1)
Acceptances	2,938 (3,165)	2,948 (3,163)	2.91 (14.9)	3,131 (3,236)	3,284 (3,373)	6.3 (18.3)
Enrollees	742 (851)	743 (880)	.88 (14.1)	759 (884)	784 (907)	4.4 (15.6)
Percentage minority students enrolled	21.4 (14.3)	21.7 (13.7)	4.8 (18.3)	22.1 (13.4)	22.6 (13.8)	3.6 (18.0)
Percentage Pell Grant recipients enrolled	26.4 (13.6)	26.8 (14.3)	3.9 (24.2)	27.7 (14.5)	28.6 (15.6)	4.2 (21.2)

Notes. $n = 162$. Standard deviations are included in parentheses.

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Classification. We identified two significant univariate main effects of time for applications received ($F(1, 154) = 16.04$, $MSE = .44$, $p < .001$, $\eta p^2 = .01$, a small effect size) and enrollees ($F(1, 154) = 4.68$, $MSE = .10$, $p < .003$, $\eta p^2 = .03$, a small effect size). The main effect of time for acceptances was approaching significance ($F(1, 154) = 3.43$, $MSE = .09$, $p < .066$, $\eta p^2 = .02$). Additionally,

enrollees between groups with increased first-year enrollments over time. Table 3 and Figures 2-4 present these findings.

Underrepresented Racial Minority and Pell Grant Recipient Enrollment

Our second and third research questions asked whether the implementation of a test-optional admissions policy results in a

Table 3.
Means and Standard Deviations of the Study Variables.

Research question	<i>F</i>	<i>df</i>	<i>MSE</i>	<i>p</i>	ηp^2
Overall Model Results (Wilks' λ)	6.25	3, 152	-	.000 *	.11
Effect of time					
Applications Received	16.04	1, 154	.44	.001 *	.009
Acceptances	3.43	1, 154	.09	.066 **	.02
Enrolled	4.68	1, 154	.10	.003 *	.03
Between-subjects main effect for Carnegie Classification for enrollees	11.30	1, 154	.25	.001	.07

Notes. * $p < .01$, ** Approaching statistical significance.

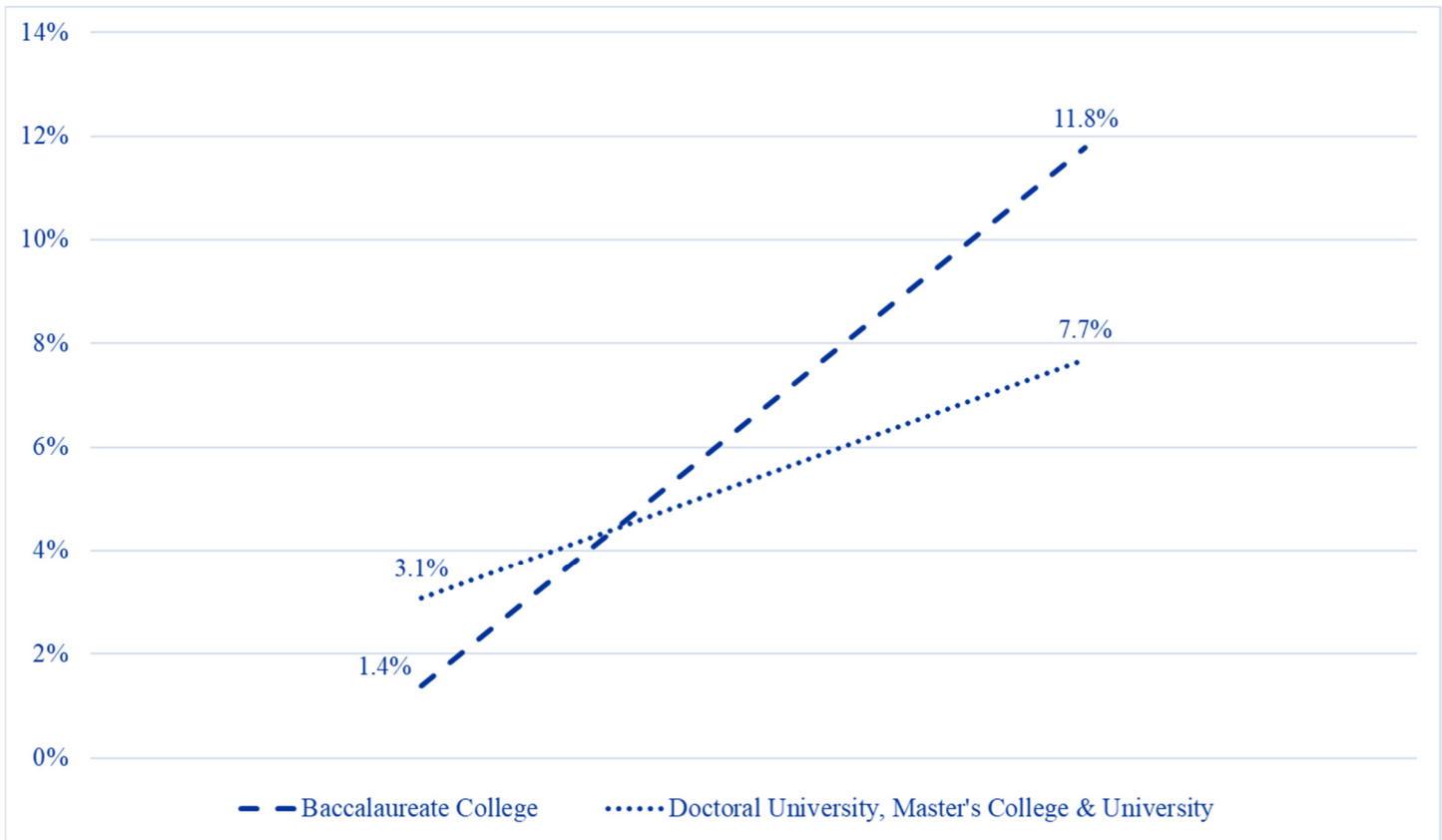
there was a between-subjects main effect for institution type for enrollees ($F(1, 154) = 11.30$, $MSE = .25$, $p = .001$, $\eta p^2 = .07$, a small effect size).

These results demonstrate a statistically significant difference in new undergraduate first-year applications received across Carnegie Classification groups. Additionally, we observed between-subjects differences for

statistically significant change in the percentage of enrolled undergraduate students who identify as an underrepresented racial minority and who receive a Pell Grant, respectively. To answer these questions, we conducted two repeated measures ANOVAs. These analyses revealed a non-significant overall model for both research questions. However, we identified a small but non-significant increase in the proportion of Pell

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Figure 2.
Percent Change in Applications Received by Carnegie Classification.



Grant recipients two years after policy implementation at baccalaureate institutions. Overall, these findings do not support our hypothesis that the implementation of a test-optional admissions policy results in a statistically significant increase in the percentage of enrolled undergraduate students who identify as an underrepresented racial minority or who are Pell Grant recipients.

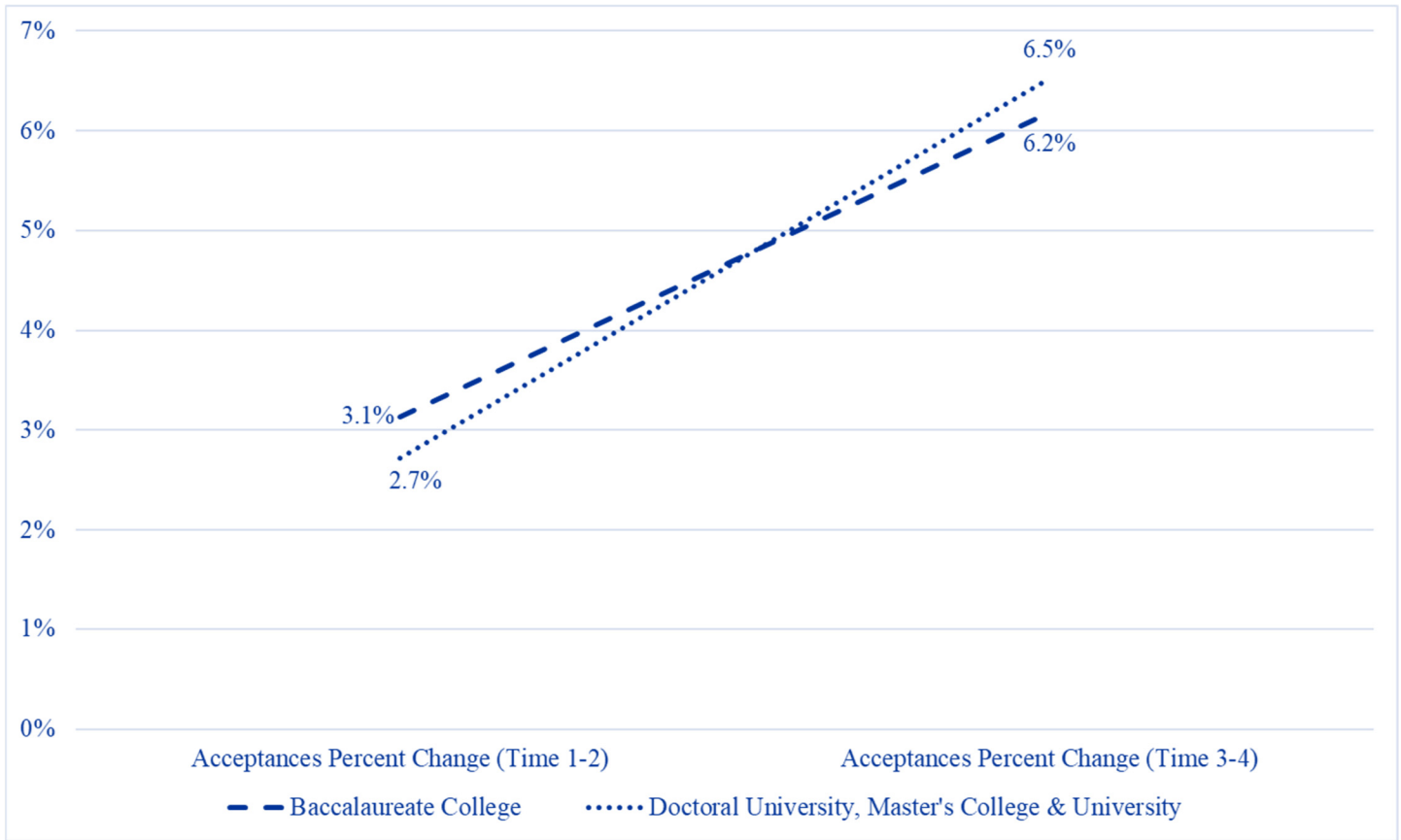
Secondary Analyses

We conducted two secondary analyses to test whether there was a statistically significant change in indicators of admissions

desirability (applications received, enrollments), admissions selectivity (acceptances), and the racial (percentage of underrepresented minority students enrolled) and socioeconomic (percentage of Pell Grant recipients enrolled) composition of the student body upon the implementation of a test-optional admissions policy across time and between (1) test-optional policy types (considered but not required, recommended, neither required nor recommended) and (2) Minority Serving Institution designations (Alaska Native and Native Hawaiian-Serving Institution, Asian American and Native American Pacific Islander-Serving Institution, Hispanic Serving Institution). Our secondary

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Figure 3.
Percent Change in Acceptances by Carnegie Classification.



analyses did not demonstrate statistically significant results.

Discussion

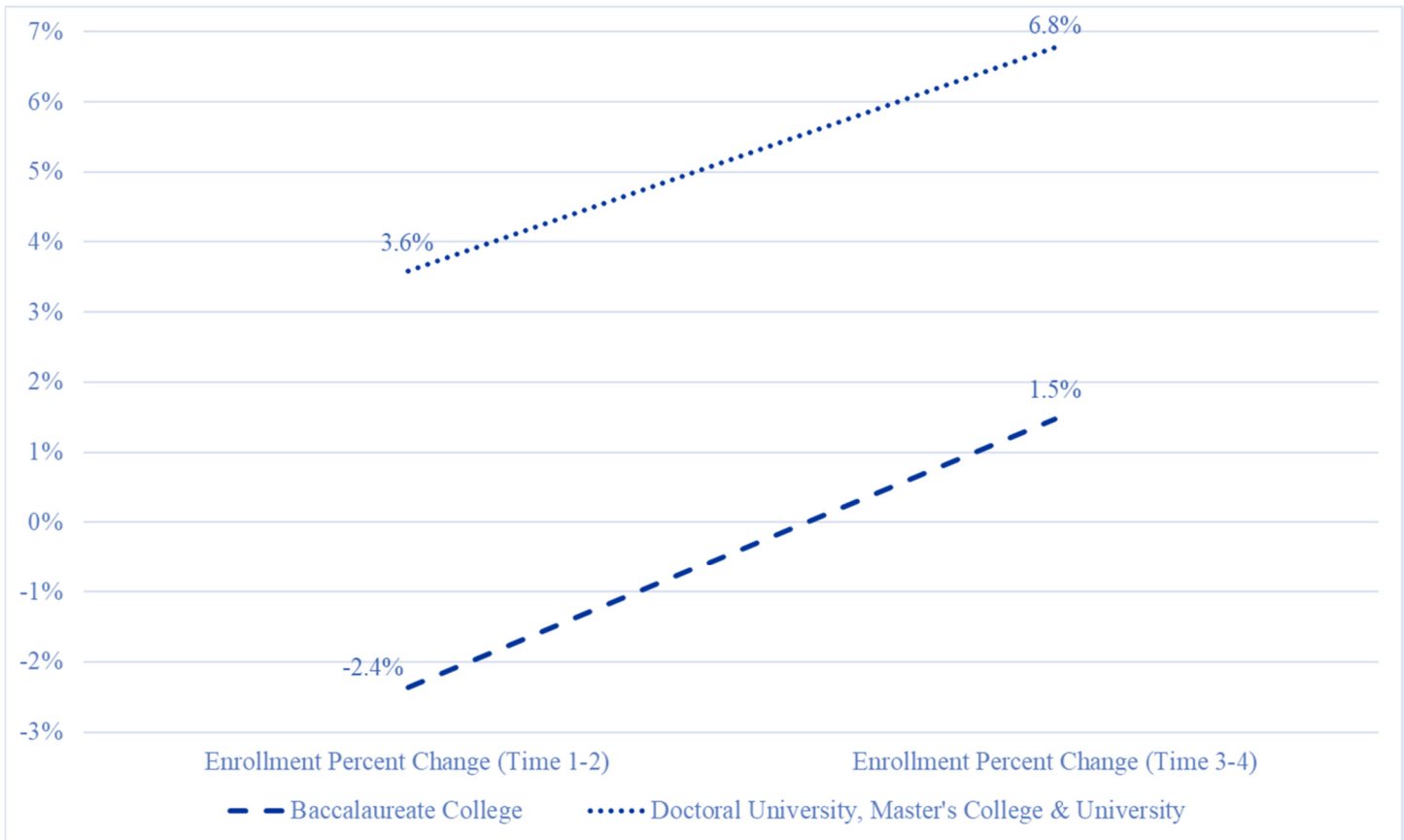
Summary of Findings

We identified three key findings. First, our analysis demonstrated a significant main effect between time and applications received and enrollees. This finding suggests that the implementation of a test-optional admissions policy results in a statistically significant change in the number of applications received across Carnegie groups. Second, our analysis demonstrated a significant main effect

between Carnegie groups for enrolled students. This suggests that applicants admitted under test-optional policies yield at a higher rate than those who were admitted prior to policy implementation. We did not identify evidence of a significant model for the percentage of enrolled undergraduate students who identify as an underrepresented racial minority or for the percentage of full-time first-time undergraduate students who receive Pell Grants. These findings are consistent with those of Saboe and Terrizzi (2019).

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Figure 4.
Percent Change in Enrollment by Carnegie Classification.



Importance of the Findings

Our findings illuminate the complex relationships between institutional theory, isomorphic tendencies in higher education, and college admissions practices—relationships that have become even more complicated due to the COVID-19 pandemic. While the implementation of test-optional policies has allowed institutions to pursue internal priorities such as increased student selectivity, the rapid adoption of test-optional policies across the higher education system in the United States suggests that the test-optional movement may be an example of an isomorphic practice that perpetuates gaps in

student access and institutional recruitment practices. Although data on test-optional enrollment outcomes are not yet widely available, especially among recent institutional adopters, some reports have indicated that increases in applications are disproportionately larger at highly selective institutions and that applications to less-selective institutions that serve lower-income students have decreased (Jaschik, 2021). Furthermore, many admissions and college access professionals are uncertain how increased applications will translate into the enrollment of accepted students, which may be a particular challenge for institutions

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seeking opportunities to diversify their student body and accept more students from low-income backgrounds. Our findings suggest that while test-optional policies present a possible pathway to increased access to and diversity in higher education, it is not a panacea for mitigating inequities nor replicating institutional success as explained by institutional isomorphism.

Standardized test scores gained prominence as efficient criteria for comparing a growing number of undergraduate admissions applicants. Yet there is clear evidence of the differential prediction of standardized test scores across socioeconomic and racial groups of test takers. The adoption of test-optional admissions policies does not appear to be effective in addressing disparities in educational opportunity by expanding access for underrepresented racial minority or low-income students. Rather, test-optional admissions policies may serve to shift the emphasis from standardized test scores to other admissions criteria, some of which may reflect similar issues of reliability and differential prediction (Bastedo et al., 2018) and perpetuate racial and economic inequities (Chetty et al., 2020, Rosinger et al., 2019). For

example, additional emphasis on academic rigor (e.g., Advanced Placement or International Baccalaureate coursework) and extracurricular involvement (e.g., volunteerism, community engagement) may serve to reproduce or exacerbate existing stratification in terms of postsecondary

access. In other words, students of underrepresented backgrounds and those who attend under-resourced schools may have fewer opportunities to enroll in college preparatory coursework or engage in extracurricular activities as compared to their more affluent peers.

Counter to the findings of Syverson et al. (2018) and Bennet (2021), test-optional admissions policies may not effectively bolster opportunities for low-

income students as demonstrated by the small but non-significant increase in the proportion of Pell Grant recipients two years after policy implementation at baccalaureate institutions. However, the relationship between test-optional policies and access to postsecondary education for low-income students remains of particular importance as the nation recovers from the economic impact of the COVID-19



“...our analysis demonstrated a significant main effect between time and applications received and enrollees. This finding suggests that the implementation of a test-optional admissions policy results in a statistically significant change in the number of applications received across Carnegie groups.”

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pandemic, which has assuredly altered the postsecondary educational plans of many students and families (Bennett, 2021).

Limitations

When considering the results of our study, it is important to recognize that although we included a more representative sample of test-optional institutions than previous studies, our study employed a more focused examination than previous work (e.g., Syverson et al., 2018). We placed intentionally greater emphasis on whether test-optional policies are effective in attaining the more commonly stated institutional objectives of promoting access to postsecondary education among historically marginalized racial minority and low-income student populations.

As is consistent with previous studies, test-optional effects may be attributable to other differences in policy change, enrollment strategy, or events that are not accounted for by our model. For example, the Great Recession in the United States and the subsequent increase in federal Pell Grant expenditure may explain, at least in part, the small increase in the percentage of Pell Grant recipients enrolled at baccalaureate institutions during the years examined in the current study (Barr & Turner, 2013; Bettinger & Williams, 2013). Additionally, the use of IPEDS data limited the scope of the research and our ability to address questions that can only be answered with student-level data or


data provided directly by institutions. For example, we did not investigate the differences between test-optional applicants and test-submitters on important demographic, psychographic, and academic variables such as the likelihood of test-optional applicants to have intellectual disabilities or pursue majors in certain academic disciplines and professional fields. Also, we did not investigate what motivates prospective undergraduate students to apply to institutions with test-optional policies as opposed to those that require the submission of standardized test scores as part of the undergraduate admissions process. Additionally, our analyses did not consider how test-optional policies effect the stages of the admissions funnel prior to application when students may express initial interest in a particular institution (Hossler & Bontrager, 2014).

Future Research

Given the limitations of the current study, we recommend several directions for future research. As an increasing number of postsecondary institutions introduce test-optional policies, future research should consider the extent to which policy adoption is effective in attaining manifest goals as the marketplace becomes saturated with adopting institutions. Although our research did not identify statistically significant differences between test-optional policy types, the field of higher education requires a more nuanced understanding of how test-optional policy variations may impact institutional

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desirability, admissions selectivity, and the racial and socioeconomic diversity of the student body. Considering the substantial variability in the institutional characteristics that classify the more than 1,830 test-optional institutions in the United States (FairTest List, 2021), future research should explore how the effects of test-optional admissions policies differ across institutional characteristics such as institutional geography, religious affiliation, and mission.

Lastly, future research should explore how prospective and current students perceive test-optional admissions policies in terms of the extent to which these policies provide expanded access to postsecondary education. A qualitative exploration using a theoretical framework such as consumer behavior theory (Howard, 1977) could lend important insight into students' motivations as they pursue admission to test-optional institutions. 

Declaration of Interest Statement

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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The Impact of Academic Aspirations and Career Uncertainty on Students' College Outcomes



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ABSTRACT

Between the fall of 2009 and 2019, total postsecondary institution enrollment in the United States decreased by 5%, and for those students who do enroll in college, many who lack clear career objectives drop out, making the U.S. the nation with the highest college dropout rate in the industrialized world. Students' academic aspirations and career certainty have been shown to impact college outcomes. However, the impact of career uncertainty and academic aspirations on students' college outcomes has not been studied nationally. Using binomial regression analyses and a nationally representative sample (N = 23,503) of high school students, we investigated the impact of high school students' career uncertainty and academic aspirations on their college outcomes. Findings indicate that academic aspirations were a significant predictor of students' college application, enrollment, attendance, and major decision status. Career uncertainty was a significant predictor of students' college enrollment status. We discuss implications for practice and future research.

Keywords: College outcomes, academic aspirations, career uncertainty

While four-year degrees are essential for many high-skill, high-wage jobs in the U.S., only 36% of U.S. adults over 25 years old have a four-year degree (U.S. Census, 2020). In 2019, the college enrollment rate for 18- to 24-year-olds was 41%, and between the fall of 2009 and 2019, total postsecondary institution enrollment decreased by 5% (National Center for

Education Statistics, 2021a, b). For those students who do enroll in college, many are not academically prepared and lack clear career objectives (ACT, 2019), and drop out, making the U.S. the nation with the highest college dropout rate in the industrialized world (Coalition for Career Development [CCD], 2019). Students' academic aspirations and career certainty have been shown to impact college preparation and retention outcomes (CCD, 2029; Griffin et al., 2007). However, the impact of career uncertainty and academic aspirations on students' transition into postsecondary education and their postsecondary outcomes has not been studied nationally.

Adolescence is a period of role exploration and refinement of educational and career choices, yet evidence shows that many adolescents do not have clear occupational and educational aspirations (CCD, 2019; Gutman et al., 2012; Staff et al., 2010). Previous research has defined career uncertainty as the inability to specify occupational choices or aspirations (Kelly & Lee, 2002; Staff et al., 2010). Gutman et al. (2012) defined career uncertain students as



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those who do not know what they would like to do in the future regarding their occupational plans. Academic aspirations are defined as a student's desire to remain in education after 16 years old (Rothon et al., 2011) or the highest educational level individuals expect to achieve (McGaha & Fitzpatrick, 2010). Research suggests that having high academic aspirations can positively impact students' educational and postsecondary outcomes (Gutman et al., 2012; Kim et al., 2019). High school students with high academic aspirations are more likely to be in A.P. courses and spend more time on college preparation (Griffin et al., 2007). Furthermore, students with high educational aspirations are more likely to have higher academic achievement (Gutman et al., 2012; Rothon et al., 2011) and be admitted to and enroll in college (Kim et al., 2019; McCulloch, 2017).

According to the Coalition for Career Development (2019), students who are uncertain about their career aspirations are more likely to drop out of college. In addition to high dropout rates, career uncertainty has been shown to impact future career success (Portfeli & Lee, 2012). Youth who are uncertain about their career aspirations are less likely to have future employment stability and educational attainment, which can lead to lower-wage attainment (Sabates et al., 2011; Staff et al., 2010). Additionally, career uncertainty can lead to stress and anxiety (Campagna & Curtis, 2007; Ito & Brotheridge, 2001), and this stress can negatively impact

students' psychological well-being (Creed et al., 2005; Kwok, 2018). Furthermore, in a longitudinal study of uncertainty, researchers found that students who remain undecided about a career lack confidence (Hartman et al., 1985).

Although career uncertainty affects many aspects of a student's life, more research is necessary to understand how career uncertainty and academic aspirations affect students' postsecondary outcomes. This study aims to examine the impact of high school students' career uncertainty and academic aspirations on their college transition and outcomes. In this study, we define career uncertainty as a "student's certainty about their choice of occupation in adulthood and academic aspirations as the highest level of education students expected to achieve."

Impact of Career Uncertainty on College and Career Outcomes

Career decision-making begins as early as elementary school then continually evolves throughout middle and high school (Akos et al., 2010; Auger et al., 2005; Ginzberg, 1952; Hartung et al., 2005; Park & Jun, 2017; Turner & Lapan, 2013). High school students' academic and career certainty levels directly impact students' success rates in transitioning into a career. Portfeli and Lee (2012) maintained that higher certainty levels lead to a more successful career path due to personal adjustments, career maturity, and determination to pursue a college degree.

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Similarly, adjustment to social and academic domains early in life has been found to have long-term effects on subsequent adaptive functioning in those and other domains later in life (Blumenthal et al., 2015). This phenomenon, referred to as developmental cascades, describes how early developmental maladjustment, such as career uncertainty, can negatively impact future career development and result in higher perceived career uncertainty in early adulthood (Blumenthal et al., 2015). Furthermore, Staff et al. (2011) found that young adults who presented with uncertain career aspirations in their adolescent years were less likely to have future employment stability and earned significantly lower wages than those who were more certain. Career uncertainty has also been termed career 'indecisiveness.' Germeijs et al. (2006) reported that 12th-grade students' career indecisiveness resulted in students having unclear ideas about their future education and career needs and indecisiveness around choosing a college major. However, it would be inaccurate to assume that the impact of uncertainty is the same for all high school students.

Demographic characteristics have been shown to impact the relationship between uncertainty and postsecondary outcomes. In a longitudinal study examining influential antecedents to youth career and educational development, Gutman et al. (2012) found that young males reported higher uncertainty in their aspiration to continue postsecondary education than their female counterparts.

According to Gutman et al.'s pathway model (2012), the significant gender differences can be attributed to factors associated with a family's socioeconomic level, parental educational expectations, and youth's perceived ability, school motivation, career guidance, and academic performance. Relatedly, other studies have linked family socioeconomic background and academic and career development. For example, Yates et al. (2011) found that young men from families with a low socioeconomic background were more likely to be unemployed or unengaged in educational or vocational training later in life than their counterparts from higher socioeconomic status (SES) backgrounds. Students' race was also a factor in high school students' college choices. Cabrera & La Nasa (2002) found the most influential factors in racially minoritized students' decision-making regarding college are their financial needs, availability of financial assistance, and the college's distance from home.

Academic Aspirations and Postsecondary Outcomes

As discussed earlier, a lack of clear career goals or an understanding of the connection between college degrees and career pathways often leads students to drop out, making the U.S. the nation with the highest college dropout rate in the industrialized world (CCD, 2019; Hanson, 2021). Furthermore, dropout rates are estimated to cost educational institutions approximately \$16.5 billion per year (Hanson, 2021). Academic

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aspirations are thought to be a key variable in continuing postsecondary education.

Research focusing on academic aspirations has examined the relationship between academic aspirations, demographic variables, and retention and persistence in various forms of higher institutions. While examining the longitudinal relationship between academic aspirations in 10th grade and 12th grade and postsecondary retention and persistence, Poynton and Lapan (2017) found that early academic aspirations in 10th grade were predictive of academic aspirations in 12th grade associated with retention and persistence in college. Wang (2013) examined the relationship between sociodemographic variables, academic aspirations entering postsecondary institutions, and retention and persistence. In this study, Wang found that graduating seniors' academic aspirations were predictive of baccalaureate aspirations in community college. Further, SES and parental expectations strongly impacted initial academic aspirations.

Examining the impact of academic aspirations and expectations has also been researched within the context of academic certainty and uncertainty. Like career uncertainty, uncertainty about one's academic aspirations also influenced high school students' transitions into postsecondary opportunities (Schoon & Polek, 2011). Compared to peers who are uncertain about their future careers, students with aspirations for a professional job are more likely to participate in further education (Schoon & Polek, 2011). Therefore,

examining high school students' career and academic uncertainty levels is critical when exploring interventions that support a more successful transition into postsecondary education. Though very few articles address the interplay between career and academic uncertainty, research suggests that the two are positively related (Bergeron & Romano, 1994; Orndoff & Herr, 1996). Students who are certain about their academic aspirations are also more certain about their career aspirations than their academically uncertain peers (Bergeron & Romano, 1994; Orndoff & Herr, 1996). Bergeron and Romano (1994) further found that students who decided or were certain about a college major reported the same level of certainty in their career choice.

Furthermore, some research indicates that students who enter college with undecided majors tend to come from higher socio-economic status (SES) families and may receive greater parental financial contributions than their counterparts who are certain about their academic aspirations. Quadlin (2017) found that as the level of parental financial contributions increases, the likelihood of a student entering college as an undeclared major rather than a declared major increases. Quadlin (2017) further maintained that because students from higher SES families may be less academically inclined than their peers, they may enroll in institutions that support academic uncertainty in the first few years to provide students with the opportunity to explore classes in diverse fields. On the other hand, Glassegen et al.

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(2018) reported that a lack of familial support in identifying a future academic direction could increase students' postsecondary attrition, especially considering traditionally marginalized student groups, such as first-generation college students.

School Counseling College-Going Culture

Bryan et al. (2021) identified and tested a School Counseling College-Going Culture (SCCGC) Model using the HSLS:09 dataset. They examined the relationship of the SCCGC (i.e., counselor expectations and priorities, student-counselor contact for college and career counseling, college and career readiness activities, and constraints) to high school seniors' college outcomes (i.e., student-counselor contact for college admissions counseling, student-counselor contact for financial aid counseling, the number of college applications, and student enrollment in college). Bryan et al. (2021) situated SCCGC within the high school (along with Student Performance Variables) while accounting for context (Student Background and Demographics) and examining the model's impact on College Outcomes. Findings from the initial test of the SCCGC framework suggest that school counseling culture, contextual, and student performance variables all significantly impact college outcomes. These significant findings and the use of the HSLS:09 dataset make this model an ideal conceptual framework for examining the impact of student background and performance variables on college outcomes.

The Present Study

Following Bryan et al.'s (2021) SCCGC Model, we sought to examine the impact of student performance variables on students' college-going outcomes while controlling for background and demographic variables. The current study posits that students' academic aspirations and career certainty are student performance variables. College outcomes in this study include four dichotomous variables assessing whether a student applied to college, planned to enroll in college, attended college, and declared a major in college. We sought to examine the following research questions:

Research Question 1:

Controlling for demographic and background variables, what is the impact of students' academic aspirations on their college outcomes?

Research Question 2:

Controlling for demographic and background variables, what is the impact of students' career certainty on their college outcomes?

Methods

Data Source

We conducted a secondary data analysis using the High School Longitudinal Study of 2009 (Ingels et al., 2015) dataset, a study conducted by the National Center for Educational Statistics (NCES; U.S. Department of Education, 2009).

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Our university's institutional review board approved the study. NCES collected HSLs:09 base year data in 2009 through a stratified, two-stage, random sample design. The final base-year sample included:

- 944 schools,
- 25,206 ninth-grade students,
- 16,995 parents,
- 34,151 teachers,
- 888 school administrators, and
- 852 school counselors

in the first year of administration. The current study utilized data from the base year and follow-up studies using the restricted data file provided by NCES.

Participants

The analytic sample for the current study comprised 23,503 high school students (weighted sample = 3,575,625) who participated in the base year (2009), first follow-up (2012), high school transcript (2013), and second follow-up (2016) surveys. Of the sample, 51.6% identified as White, 22.1% as Hispanic, 13.6% as Black, 7.9% as Multiracial, 3.6% as Asian, and 1.2% as Indigenous. The dataset comprised 52.5% female students and 47.8% male students.

Measures

Dependent Variables: College Outcomes

This study aimed to examine the impact of students' academic aspirations and career certainty on students' college transitions and outcomes. The dependent variables in this

study were students' college application status, students' plans to enroll in college, college attendance, and major decision status.

College Application. College application status was measured using a composite variable created by NCES researchers indicating whether the respondent ever applied to or registered at a college or trade school for postsecondary enrollment. The composite variable was created based on two separate items. Students indicated if they had applied or registered at any postsecondary institution during the HSLs:09 2013 Update and the second follow-up data collection in 2016. College application status was a dichotomous variable with two categories (0 = Never applied or registered, 1 = Applied or registered).

Plan to Enroll in College. Plan to enroll in college was measured using the following item from the survey: "Do you plan to enroll full-time or part-time in the fall of 2013?" Responses on the survey were categorical (1 = Full-time, 2 = Part-time, 3 = Don't know). We recoded the variable into a dichotomous variable (1 = Yes, 2 = No).

College Attendance. Whether or not students ever attended college was measured using the following item from the survey: "Did you attend any college or trade school between the time you [received your high school diploma/received your GED/received your high school equivalency/received your certificate of attendance or completion/last

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attended high school] and February 2016?” Responses to the survey were dichotomous (0 = No, 1 = Yes).

Plans to Declare a Major. Plans to declare a major was measured using a composite variable created by NCES researchers. The composite variable was created as an aggregate of the categories of fields of study students selected on the item “When you first started at [first college/trade school attended after high school] in [date of first postsecondary attendance], what was the major or field of study you were most seriously considering?” The variable had 11 categories, one of which was “Undecided.” We collapsed the ten fields of study to create a dichotomous variable (1 = Decided, 2 = Undecided).

Independent Variables: Academic Aspirations and Career Uncertainty

We used two variables to measure student college/career aspirations and expectations – academic aspiration and career certainty.

Academic Aspiration. Academic aspiration was measured by the highest level of education students expected to achieve. Responses were 13 categories that we recoded into four categories (0 = Don’t Know, 1 = High school degree or less, 2 = Some postsecondary degree, 3 = Graduate degree).

Career Uncertainty. Career certainty was measured by students’ responses to the item: “How certain are you that this will be your job or occupation at age 30?” Responses were collected on a three-point Likert scale “not certain,” “fairly certain,” and “very certain.” We recoded this variable into a dichotomous variable (0 = Uncertain, 1 = Certain). Table 1 (see next page) presents descriptive statistics for dependent and independent variables.

Control Variables: Student Background and Demographic Variables

Background and demographic control variables were selected using the SCCGC framework (Bryan et al., 2021).

Student Background Variables:

Parental Involvement. Student background variables comprised two dichotomous (yes/no) parental involvement variables. The first variable was whether the family members met with the school counselor generally when students were in ninth grade; the second variable was whether or not the family members talked with a school counselor or teacher about academic requirements for postsecondary admission specifically.

Student Demographic Variables. The student demographic variables were gender (male/female), race/ethnicity, and SES. Race/ethnicity was originally a categorical variable with eight groups in the dataset that we collapsed to six categories: 1 = Indigenous (American Indian/Alaska Native and Native

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Table 1.
Characteristics of Participants by Student Performance and College Outcome Variables.

Characteristics	Weighted n^a	Unweighted n	%
Ever Applied to College			
Yes	3,559,110	11840	87
No	533,330	1360	13
Plan to Enroll in College			
Yes	2,972,890	9980	83
No	602,735	1840	17
College Attendance			
Yes	3,027,190	10535	72
No	1,154,540	2890	28
Plan to Declare a Major			
Yes	2,812,790	9829	94
No	1,710,080	570	6
Academic Aspiration			
Don't Know	423,520	1280	10
High school degree or less	679,290	1620	16
Some postsecondary degree	1,578,140	5035	38
Graduate Degree	1,496,970	5490	36
Career Certainty			
Certain	2,673,040	8460	89
Not Certain	322,130	1160	11

Note. Weighted $N = 4,181,740$. Unweighted $N = 13,420$.

^a Sample sizes are rounded to the nearest whole number in compliance with NCES requirements for use of restricted data.

Complete case analysis was utilized for each dependent variable resulting in varying samples sizes in variables.

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Hawaiian/Pacific Islander, 1.2%); 2 = more than one race (multiracial, 7.9%); 3 = Hispanic (22.1%); 4 = Asian (3.6%); 5 = Black/African American (13.6%); 6 = White (reference group, 51.6%). SES was measured by a continuous composite score created by NCES researchers using family income, parent/guardians' education, and occupation (composite score range = -2 - 3).

Data Analysis

HSL:09 survey data are unique because of primary sampling units, weighting, stratum, and imputation, which created a complex sample. We used SPSS for Complex Samples version 27 (IBM Corp. Released 2020) to account for the reduction in variance due to weight adjustments (Ingels et al., 2015). According to Cunningham and Huguet (2011), using complex sampling analyses for survey methodology results in unbiased population estimates and inferences in a study's findings. First, we used SPSS for Complex Samples 27 to obtain descriptive statistics for the sample. Then we conducted binomial logistic regressions to model relations between the predictors and membership in each outcome group (applied to college, attended college, enrolled in college, declared a major). Wald F was used to assess overall model fit. Other test statistics used to evaluate the effect of each independent variable on college outcome variables were logged odds (B), standard errors (S.E.), odds ratios (O.R.s), and t values. To improve OR interpretation, we report

inverted O.R.s (i.e., 1/OR) when direct interpretation was not straightforward. Following Bryan et al.'s (2021) decision to report p-values at both 0.05 and 0.10 levels because that study is the first test of the SCCGC framework, we also report p-values at 0.05 and 0.10 levels.

Results

Students' academic aspirations significantly predicted students' college application status ($F = 71.94, p < .001$), attendance status ($F = 124.08, p < .001$), enrollment status ($F = 25.51, p < .001$), and plans to declare a major ($F = 2.95, p = .032$). Students' career certainty significantly predicted students' enrollment status ($F = 4.45, p .035$). Career certainty did not predict students' college application status ($F = 0.97, p = .325$), attendance status ($F = 3.196, p = .076$), and plans to declare a major ($F = 0.79, p = .374$). Parameter estimates are presented in Table 2 (see next page).

Effects of Student Performance Variables on College Outcomes

Considering students' college application status, the odds of applying to college were significantly lower for students who did not have academic aspirations (OR = .18, $p < .001$), aspired to a high-school degree or less (OR = .08, $p < .001$), and aspired to some college (OR = .48, $p < .001$) compared to students who aspired to attain a graduate degree. Considering students' college enrollment status, the odds of not enrolling in college were significantly higher for students who did not have academic aspirations (OR =

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Table 2.
Logistic Regression Analyses Predicting Students' College Outcomes.

Variables	Apply to College Yes vs. No		Enroll in College No vs. Yes		Attend College No vs. Yes		Declare Major Undeclared vs. Declared	
	OR	S.E.	OR	S.E.	OR	S.E.	OR	S.E.
Student Performance Variables								
Academic Aspiration ^a								
Don't know	0.18***	0.22	3.96***	0.16	4.16***	0.15	1.26	0.30
HS/less than HS	0.08***	0.19	2.98***	0.18	11.79***	0.14	2.64*	0.37
Some college	0.48***	0.17	1.79***	0.12	1.87***	0.11	1.45*	0.18
Career Certainty ^b								
Uncertain	0.86	0.16	1.54*	0.21	0.79 ⁺	0.13	1.22	0.22
Control Variables								
Race ^a								
Indigenous	0.47*	0.37	0.92	0.49	1.62	0.33	3.02 ⁺	0.59
Multiracial	0.96	0.23	1.39 ⁺	0.18	0.99	0.17	0.88	0.26
Hispanic	1.77**	0.19	1.35*	0.14	0.62**	0.14	1.28	0.22
Asian	2.87**	0.35	1.27	0.20	0.47*	0.26	0.58	0.36
Black/African American	1.78**	0.21	1.16	0.17	1.20	0.12	0.70	0.28
Gender ^b								
Male	0.67***	0.10	1.40**	0.10	1.57***	0.09	0.77	0.17
Socioeconomic status	2.05***	.086	0.84*	0.07	0.40***	0.07	0.85	0.11
Parent Involvement								
Met school counselor in 9 th grade (No) ^b	1.28 ⁺	0.13	1.03	0.12	0.80*	0.10	1.13	0.22
Talked to counselor about postsecondary admission (No) ^b	0.76	0.17	1.24 ⁺	0.13	1.33*	0.11	1.17	0.18

^a Reference category for nominal variables in order: Graduate degree, White

^b Reference category for binary variables: Certain, Male, Yes, Yes

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ⁺ $p < 0.10$.

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3.96, $p < .001$), aspired to a high-school degree or less (OR = 2.98, $p < .001$), and aspired to some college degree (OR = 1.79, $p < .001$) compared to students who aspired to attain a graduate degree. Additionally, the odds of not enrolling in college were 1.5 times higher for students who were uncertain about their career aspirations (OR = 1.54, $p = .035$) compared to students who were certain about their career aspirations. Considering students' college attendance status, the odds of not attending college were significantly higher for students who did not have academic aspirations (OR = 4.16, $p < .001$), aspired to a high-school degree or less (OR = 11.79, $p < .001$), and aspired to some college degree (OR = 1.87, $p < .001$) compared to students who aspired to attain a graduate degree. Finally, considering students' plans to declare a major, the odds of students being undecided were significantly higher for students who aspired to a high-school degree or less (OR = 2.64, $p = .009$) and aspired to some college degree (OR = 1.45, $p = .042$) compared to students who aspired to attain a graduate degree.

Control Variables

Background Variables

Students whose family members did not talk to a school counselor or teacher about postsecondary admission requirements had significantly higher odds of not attending college (OR = 1.33, $p = .042$) compared to students whose family members did talk to a school counselor or teacher about

postsecondary admission requirements. Students whose family members did not talk to a school counselor generally while the student was in ninth grade had significantly higher odds of attending college (OR = 1.26, $p < .001$) compared to students whose family members did talk to a school counselor generally while the student was in ninth grade.

Demographic Variables

Concerning gender, male students had significantly lower odds (OR = 0.66, $p < .001$) of applying to college and significantly higher odds of not attending (OR = 1.57, $p < .001$) and not enrolling in college (OR = 1.4, $p = .001$) compared to female students. Concerning race, Indigenous (i.e., American Indian/Alaskan Native and Native Hawaiian/Pacific Islander) students had significantly lower odds (OR = 0.47, $p = .041$) of applying to college compared to White students. Hispanic students had significantly higher odds of applying to college (OR = 1.77, $p = .002$), attending college (OR = 1.61, $p = .001$), and not enrolling in college (OR = 1.35, $p = .033$) compared to White students. Asian students had significantly higher odds of applying to college (OR = 2.87, $p = .003$) and attending college (OR = 2.11, $p = .004$) compared to White students. Black/African American students had significantly higher odds of applying to college (OR = 1.78, $p = .005$) compared to White students. As SES increased, students had increasingly higher odds of applying to college (OR = 2.05,

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$p < .001$), enrolling in college ($OR = 1.18$, $p = .020$), and attending college ($OR = 2.50$, $p < .001$).

Discussion

As college and career readiness continues to be an important education policy goal (CCD, 2019; Falco & Steen, 2018), understanding factors that impact students' post-secondary outcomes remains critical. Research has found that high school students who have high academic aspirations are more likely to be in A.P. courses and spend more time on college preparation (Griffin et al., 2007) and that students who are uncertain about their career aspirations are more likely to drop out of college (CCD, 2019).

However, no research has explored the impact of career uncertainty and academic aspirations on students' transition into postsecondary education and their postsecondary outcomes on a national level. Using a nationally representative data set and binomial regression analyses, we investigated the relationship between high school students' career uncertainty and academic aspirations on their college outcomes. Specifically, we examined the odds of

students applying to college or not, enrolling in college or not, attending college or not, and declaring a major in college or not. Academic aspirations were a significant predictor of all college outcomes, and career uncertainty was a significant predictor of students' plans to enroll in college. Considering the

background and demographic variables, students' race, gender, SES, and parental involvement were significant predictors of students' college application, enrollment, and attendance status. These findings were consistent with Bryan et al.'s (2021) findings of the impact of student background, contextual, and demographic variables on college outcomes using the School Counseling College-Going Culture

(SCCGC) Model.

Our findings suggest that students who aspire to attain a graduate degree are more likely to apply to college than students who do not have a postsecondary education aspiration, aspire to attain a high school diploma or less, and aspire to attain some college degree. Furthermore, students who aspired to attain a graduate degree were more likely to enroll in and attend college than their peers who



“Our findings suggest that students who aspire to attain a graduate degree are more likely to apply to college than students who do not have a postsecondary education aspiration, aspire to attain a high school diploma or less, and aspire to attain some college degree.”

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aspired to have some college degree or less. These findings further reinforce previous research showing that students' academic aspirations impact college attendance and enrollment (Gutman et al., 2012; Kim et al., 2019; McCulloch, 2017). Our findings provide important evidence suggesting that students' general academic aspirations matter and that the level of education they expect to attain also influences students' postsecondary outcomes. Khattab's (2015) assertion that high academic aspirations impact students' achievement and educational behavior may speak to this finding. Aspiring to graduate school can be classified as having high aspirations, as graduate school requires additional work, academic achievement, and commitment after bachelor's degree completion. It appears that when students have high expectations of themselves, it influences their postsecondary transition behaviors.

Interestingly, significant differences in plans to declare a major only existed when comparing students who aspired to attain a graduate degree to students who aspired to attain some college degree or high school diploma. There was no significant relationship with plans to declare a major for students who were not sure about their academic aspirations. Furthermore, students' career uncertainty significantly predicted students' plans to enroll in college. Students who were uncertain of their career aspirations were 1.5 times more likely to not enroll in college than their peers who were certain of

their career aspirations. This finding is consistent with research showing that career certainty impacts students' postsecondary outcomes (Porfeli & Lee, 2012; Yates et al., 2011).

Though not the focus of this study, our findings suggest that students' background and demographic variables significantly predict their college outcomes, consistent with previous studies establishing this claim (Wang, 2013; Wells & Lynch, 2012). Specifically, Black/African American, Asian, and Hispanic students all had significantly higher odds of applying to college compared to their White peers; meanwhile, Indigenous students had significantly lower odds of applying to college. Furthermore, Hispanic students were less likely to enroll in college but more likely to attend college compared to their White peers. Our findings that Hispanic students are more likely to apply to and attend college but less likely to enroll suggest that there are experiences that disrupt Hispanic students' ability to enroll in college even if they submit an application. This finding might speak to previous research showing that while Hispanic students rely heavily on social networks to make college decisions (Acevedo-Gil, 2017; Clark-Ibáñez, 2015), they often have inadequate access to mentors within their school (Farmer-Hinton, 2008; Irizarry, 2012), and do not have the same access to college readiness resources as their White peers (Griffin & Birkenstock, 2022). Additionally, perhaps this finding speaks to Taggart and Paschal's (2019) report

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that discrimination and inequitable treatment served as barriers to Hispanic students' prospects of enrolling in postsecondary education.

Additionally, Asian students were significantly more likely to attend college compared to their White peers. As related to gender, male students were less likely to apply, enroll, and attend college compared to their female colleagues, consistent with previous research showing that male students generally had lower academic aspirations compared to their female peers (Barrington et al., 2016; Gutman et al., 2012; McCulloch, 2017; Rothon et al., 2011). Moreover, our findings suggest that as students' socioeconomic status increases, students are more likely to apply to, enroll in, and attend college, which is also consistent with previous research showing that students' academic aspirations are influenced by SES (McGaha & Fitzpatrick, 2010; Rothon et al., 2011; Wang, 2013). Interestingly, the only college outcome that was impacted by parental involvement was whether students attended college. Students whose parents did not meet with the school counselor while the student were in 9th grade were more likely to attend college compared to their peers whose parents met with the school counselor. However, students whose parents did not talk to the counselor specifically about postsecondary admission were less likely to attend college than their peers whose parents talked to the school counselor about it. These findings are consistent with Bryan et al.'s (2021) findings

that parental engagement with school counselors can predict a student's likelihood of applying to and enrolling in college.

Implications

Findings from this study point to a few implications for teachers, counselors, college access professionals, and other K-12 practitioners as they support the postsecondary transitions of high school students. Students who aspire to graduate school have an increased likelihood of applying to, enrolling in, attending, and declaring a major in college. Knowing this can help support college and career conversations that happen in schools. Our findings suggest that in addition to helping students develop postsecondary goals, helping them understand all the educational requirements for their potential career aspirations – including the need for a graduate degree when indicated and appropriate – might improve students' college outcomes. Practitioners can partner with programs like McNair Scholars that are dedicated to helping racially minoritized college students continue their postsecondary education into graduate school. Such partnerships can help students better understand graduate school requirements while fostering their career maturity and decision-making abilities. Moreover, with the research linking career certainty to postsecondary decision making and attainment (Sabates et al., 2011), adulthood income, and job satisfaction (Porfeli & Lee, 2012; Staff et al., 2011), findings

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from this study suggest that career certainty impacts college enrollment has long term implications for students' success.

Practitioners must intentionally implement career development interventions to increase students' career certainty. Practitioners can account for students' cultural and economic contexts as they implement these interventions. Specifically, postsecondary outcome differences by race and SES revealed in this study point to the need for practitioners to create career development interventions that improve the cultural, social, and economic values and needs of students from minority groups (Howard et al., 2008). School-based interventions – like virtual and in-person career fairs, classroom-based lessons, and so on – that expose students to information about the world of work and careers that may not be readily available in their communities or society will be important for fostering certainty in students' career aspirations.

Practitioners working with young people can leverage career development interventions to dismantle societal stereotypes around careers and foster students' certainty in whatever career path they choose to follow while providing them with information about the educational requirements for their aspirations. Previous research (Alliman-Brissett & Turner, 2010; Falconer & Hays, 2006; Wyatt, 2009) has highlighted the importance of mentors and familial support for promoting the career development of

students from racially minoritized groups. Access to social capital from mentors and family members can often provide students from racially minoritized groups with protective factors against the negative impact of racism on career development (Alliman-Brissett & Turner, 2010). Knowing this, practitioners must be intentional about including parents and guardians in the career development of students from racially minoritized groups. Practitioners can send home monthly newsletters that update family members on the career development activities happening in the school and provide family members with prompts for engaging their children in discussions about their career aspirations. In addition, school counselors can host family events in which family members are invited to the school to join their child in using the internet and community resources to find information about their desired careers. Practitioners can work with parents from minoritized groups and invite them to come into the school to speak about their different careers and utilize parents' networks to find other diverse professionals that can serve as guest speakers.

Limitations and Future Research


The nature of a secondary data set is such that assessing complex constructs is limited to the data set, which may not always be accurate measurements of the construct of interest. For example, academic aspirations and career certainty are measured by a single item which may not capture the complexity of both

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constructs. Furthermore, for enrollment and major declaration status, students were asked about their plans to enroll in college and declare a major, which may not reflect students' actual behavior. Finally, our decision to exclude missing data from the analysis may result in missing data bias. These limitations highlight opportunities for future research. In the future, researchers should explore the impact of students' academic aspirations and career certainty on objectively measured college outcomes instead of self-report. Additional research is needed to understand why significant differences exist for students who aspire to graduate school compared to their peers with other academic aspirations. Furthermore, qualitative research to understand why Hispanic students are less likely to enroll in college even though they apply is needed to develop culturally responsive interventions for Hispanic students. Finally, our finding suggests that students whose parents did not meet with the school counselor were more likely to attend college than their peers whose parents met with the school counselor begs further research. Additional research is needed to understand how conversations between parents and school counselors impact students' college outcomes.

Conclusion

The findings of this study extend the literature surrounding the impact of student performance and background variables on their college outcomes – particularly using a

nationally generalizable dataset. The literature and findings highlight the critical role students' beliefs about their college and career outcomes have on their actual college outcomes and present an opportunity for targeted interventions. Suppose schools and college access programs support students' academic aspirations and career certainty. In that case, they may be able to increase the rate at which students apply to, attend, enroll in and declare a major in college. 

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A National Investigation on the Effect of College Readiness Counseling on Postsecondary Outcomes



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ABSTRACT

The current study utilized the High School Longitudinal Study of 2009, from the National Center for Education Statistics, to conduct a longitudinal investigation into how access to school counseling impacts postsecondary outcomes. Findings indicate that school counselor time spent college readiness counseling, in addition to lower student socioeconomic status and identifying as multiracial, were predictive of lesser odds of college attainment and persistence. The results of the current study offer practice, policy, and training implications.

Keywords: college readiness, school counseling, equity, postsecondary outcomes, longitudinal outcome studies

Access to school counseling services, specifically college readiness counseling, is directly related to outcomes such as college persistence and attainment (Dunlop-Velez, 2016; Hurwitz & Howell, 2013; Poynton & Lapan, 2017). Having equal access to school counselors during high school years that provide college readiness counseling is an equity and social justice issue because of the direct correlation between college readiness counseling and postsecondary education outcomes. In order to promote positive college and career development, school counselors design and implement their comprehensive school counseling programs (CSCP) to positively affect student learning

and behavioral outcomes (Carey & Dimmitt, 2012). Unfortunately, there are persisting inequities in postsecondary attainment and persistence outcomes of students. Educational opportunity gaps exist and are widening for underserved students in the United States, such as students of color, low-income students, and first-generation students (FGS; Dyce et al., 2013). Hence, school counselors must seek to use transformative school counseling services to help all students meet their goals upon graduation. The current study focuses on how access to school counseling services (i.e., college readiness counseling and school counselor caseload), person inputs and background environmental characteristics, and self-efficacy impacts longitudinal outcomes in college persistence and attainment.

College Persistence and Attainment

College persistence and attainment for the current study is defined as either an individual continuing through their postsecondary education program without withdrawing from the college or completing their postsecondary degree program. The value of postsecondary education is reflected in its relationships to higher earnings, greater



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likelihood of employment, access to health insurance, and a healthier lifestyle (Baum et al., 2013). Its relationship to quality of life indicators make access and support to college attainment an advocacy, social justice, imperative for all providers supporting K-12 students. However, despite the importance of all students who seek to obtain postsecondary degrees having the opportunity to do so, the educational opportunity gap seems to be widening with societies already vulnerable populations being the most impacted by disparities.

For example, low-income and FGS are twice as likely to leave postsecondary education without attaining a degree within three years of enrolling, compared to students who were not low-income or FGS (Cahalan et al., 2019). Cahalan and colleagues (2019) note the estimated bachelor's degree attainment rates differ significantly by family income quartile; with 62% of students in the highest quartile earning a bachelor's degree by the age of 24 in 2017, compared to only 13% in the lowest quartile (Cahalan et al., 2019). FGS status also influences college persistence and attainment. Statistics show students who are low-income and FGS graduate with a bachelor's degree within six years of enrolling at the lowest rates (41%), compared to students who are low-income and not FGS (56%), or neither (73%; Cahalan et al., 2019). While the rates of Black and Hispanic students earning a degree has increased since 1980, students from these racial and ethnic groups continue to be underrepresented relative to their

representation in the general population in 2017 (Cahalan et al., 2019). American Indian and Alaskan Native students are also underrepresented in degree completion compared to their representation in the general population (Cahalan et al., 2019). The distribution of associate's and bachelor's degrees showed that Asian, multiracial, and White degree recipients were overrepresented compared to the general population (Cahalan et al., 2019). Finally, women have higher six-year graduation rates than men (63% versus 57%; National Center for Education Statistics [NCES], 2019). The school counselor is the leader in ensuring equitable access to support through college readiness counseling. One target area of college readiness counseling is student self-efficacy.

Self-efficacy and College Outcomes

Self-efficacy is one's belief in the ability to influence and control events to obtain desired performances (Bandura, 1994). College self-efficacy is a person's belief in their ability to successfully engage in college-related behaviors (Gore et al., 2006). College self-efficacy is related to persistence in college (Baier et al., 2016; Brady-Amoon & Fuertes, 2011; Vuong et al., 2010; Wright et al., 2013). It appears that self-efficacy and college self-efficacy as mediators are widely applicable to all college students and an important area to target for increasing persistence in college. College self-efficacy can begin forming before enrollment and is often referred to as "college-going self-efficacy." Within college-going self-efficacy, students hold beliefs about their:

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attendance, concerns about finances, abilities, decision-making, family responsibilities, life skills, and general feelings about starting and persisting in college (Gibbons & Borders, 2010). College readiness begins in PK-12 education, and those working within education systems (e.g., school counselors) must seek to build students' knowledge, skills, and self-efficacy which lead to success in their higher education endeavors, as well as remove barriers (United States Department of Education, 2010). School counselors are in a unique position to address college readiness and self-efficacy through college readiness counseling efforts.

School Counselors and College Readiness Counseling

Providing college readiness counseling is an important role within the school counselor's repertoire under the American School Counselor Association (ASCA) National Model (ASCA, 2019). The National Association for College Admission Counseling (NACAC) notes college readiness counseling activities include: (a) encouraging students to pursue the most challenging curriculum that results in enhanced postsecondary educational options; (b) identifying and satisfying student requirements for college access; and (c) assisting students in navigating financial aid, college choices, and components of college applications and admissions (Clinedinst & Koranteng, 2017). Other college readiness counseling tasks include reducing student

anxiety, admission essay assistance, writing excellent letters of recommendation, creating and maintaining professional networks with admission officers, and creating a college-going culture (Gilfillan, 2018; McDonough, 2005). Further, school counselors can enhance college-going self-efficacy through their individual and group counseling, as well as classroom lessons, since self-efficacy can be bolstered through experiential learning, setting goals, and affective processes (Chemers et al., 2001).

Benefits of College Readiness Counseling

Researchers have suggested the effectiveness of college readiness counseling. Using the High School Longitudinal Study of 2009 dataset (HSL:09; NCES, 2020a), Dunlop-Velez (2016) found high school students who meet with a school counselor are statistically more likely to complete their Free Application for Federal Student Aid (FAFSA), attend college, and attend a 4-year college. Research has also shown that an additional counselor causes a 10-percentage point increase in four-year college-going rates for students (Hurwitz & Howell, 2013). While these are two promising studies regarding college readiness counseling and access to college (i.e., enrollment), they do not show longer outcomes of school counseling access. Furthering the study of the impact of college readiness counseling, Poynton and Lapan (2017) reported students who had a personalized relationship with their school counselor and met more often for college assistance and creating direction were more

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likely to persist into college in their second year of college (Poynton & Lapan, 2017). College counseling is not only helpful for all students, it may also be especially important for students underrepresented in higher education (i.e., FGS, students of color, students from low socioeconomic backgrounds; Gilfillan, 2018). In another study which utilized the HSLS:09 (NCES, 2020a), researchers found FGS, compared to their peers, were 2.48 times more likely to self-report their school counselors as the most helpful resource in their college planning process (Cholewa et al., 2015). The Cholewa and colleagues (2015) study also discovered African American students were 1.85 times more likely than White students to list their school counselors as the most influential source of information about post-secondary education. There are many benefits for students due to college counseling; however, students need access to counseling to obtain these benefits.

Access to College Readiness Counseling

School counseling access for the purposes of the current study is defined as a student having a school counselor with the ASCA recommended school counseling ratio (i.e., 250:1) and that spends at least the national average of percentage of time spent college readiness counseling (i.e., 21%). While 21.3% is the national average, this percentage of time spent college readiness counseling differs by school characteristics; private school counselors spend more time, as enrollment increases time spent decreases, and when

more students receive free-and-reduced lunch, less time is spent (Clinedinst & Koranteng, 2017).

Barriers to Providing College Readiness Counseling

There are barriers to school counselors' ability to enact transformative college readiness counseling with students, including limited time and large caseloads (McKillip et al., 2012). Despite ASCA's declaration of appropriate and inappropriate duties for school counselors, school counselors in the United States are often tasked with job requirements that fall outside of the role of the school counselor (O'Connor, 2018). Additionally, large caseloads can inhibit school counselors' opportunity to work with students surrounding college readiness. Smaller school counseling caseloads have been related to a school counselor spending more than 50% of work time on college readiness counseling, and higher rates of four-year college enrollment for students (Engberg & Gilbert, 2014; Hurwitz & Howell, 2014). Larger caseloads relate to students being less likely to speak with a counselor about college, plan to attend college, take the SAT, and enroll in a four-year college (Woods & Domina, 2014). A meta-analysis of school counseling caseload outcome studies highlighted that school counselor caseload has been associated with achievement outcomes, one being college enrollment, on a small scale, but the researchers noted that more research across school and student populations is needed (Kearney et al., 2021). In summary, college readiness counseling and

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school counseling access are related to positive student postsecondary education outcomes, at least initial college enrollment and first-year retention, as evidenced by multiple research studies. However, the combined studies above have not yet looked into longer-term postsecondary persistence and attainment as related to access to school counseling and student characteristics. Social Cognitive Career Theory guided the current study to investigate this gap.

Theoretical Framework

Social Cognitive Career Theory (SCCT) offers a career development theory focused on both individual and systemic factors (Lent et al., 1994). SCCT emphasizes human agency in career choice and development, but also acknowledges the influences of an array of personal and environmental influences in this process (Lent, 2005). For example, sociostructural barriers and supports can strengthen or weaken agency in career development (Lent, 2005). Self-efficacy is of utmost importance in the SCCT model, and forms continuously within the context of gender, race and ethnicity, and socioeconomic status, among other qualities of individuals and environments (Lent, 2005). Thus, SCCT can account for external factors, known as proximal environmental influences in SCCT (e.g., school counseling access), and individual characteristics (e.g., personal inputs, background characteristics, and self-efficacy) within long-term career development formation. The importance of

school counselors viewing their role in improving student achievement within a broader framework, where student outcomes are a function of multiple intersecting systems, has been noted (Goodman-Scott et al., 2018). This leads to the current study, which builds upon previous SCCT school counseling and postsecondary persistence and attainment studies, to investigate the long-term impacts of school counseling access.

Purpose of Study

School counselors can and should support traditionally underrepresented students in their pursuit of postsecondary education through targeted, research-based interventions (Mau & Li, 2018). However, without a congruent model connected to a nationally representative sample and longitudinal outcomes, school counselors are missing important data to inform and support their programming decisions and advocacy efforts. Research has shown school counselors make a difference in the college readiness of their students (Gilfillan, 2018; Mau & Li, 2018). A better understanding of the factors and characteristics that contribute to positive postsecondary attainment and persistence will further enable their ability to intentionally develop their programming and advocate for their roles (Whiston et al., 2011). This study contributes to the literature by providing information about the long-term effects of person inputs and background environmental characteristics, self-efficacy, and proximal environmental influences (e.g., school counseling access) on high school

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student college readiness using a national longitudinal dataset. While the existing research on the positive, short-term impacts of school counseling on students is important, this focus on how college readiness counseling helps students beyond the college application process into the latter college years is necessary because we want students to persist through their postsecondary programs once they are admitted. It also could offer empirical support for how school counselors make a lasting impact through their work with students.

Method

A quantitative, multivariate, longitudinal research design was utilized for the current study. Cheng & Phillips' (2014) steps to secondary analysis of existing data guided data analysis. A quantitative design provided a numerical understanding of what contributes to the opportunities in college attainment and persistence for students. The use of a nationally representative dataset provided generalizability to the findings for students in the United States. Thus, the current study sought to answer the call to assess the long-term impact of access to comprehensive school counseling programs (Whiston et al., 2011).

Participants and Sampling

The High School Longitudinal Study of 2009 (HSL:09) is a nationally representative, longitudinal study of over 23,000 ninth graders from 944 schools administered by the

National Center for Education Statistics (NCES, 2020b). Follow-up surveys occurred with student participants in 2012 and 2016; there was also a brief 2013 update survey (Duprey et al., 2018). It is an appropriate dataset and sample, given its inclusion of student variables, school counseling variables, and variables on postsecondary outcomes. Approximately 900 high school counselors were surveyed for the study to provide information on their school counseling departments, including school counselor caseload and percentage of time spent college readiness counseling.

Constructs and Variables

The included variables are from the HSL:09 (NCES, 2020a) dataset. They were selected to cover the research questions within the current study and fit within the theoretical framework of SCCT (Lent et al., 1994). The variables fall under the following SCCT concepts: person inputs and background/environmental characteristics (i.e., student-level personal and contextual information), self-efficacy variables, proximal environmental influences (i.e., a student's access to resources in the environment, in this case, their access to school counseling), and performance domains and attainment (i.e., the student's outcomes).

Person Inputs and Background

Environmental Characteristics Variables (Independent Variables)

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Person inputs and background variables included: FGS status, sex, socioeconomic status, and race/ethnicity. This data was collected at baseline.

First-Generation Student Status.

The FGS status variable refers to the highest level of education achieved by either parent/guardian in the participant's home. For the current study, the variable was recoded into a dichotomous/dummy variable; either the student has a parent/guardian in the home who has a bachelor's degree or a more advanced degree, or the student does not have a parent/guardian in the home who has a bachelor's degree. This matches the federal definition for FGS officially developed for TRIO program acceptance and to determine eligibility for Pell Grants (Center for First-Generation Student Success, 2017).

Race/Ethnicity.

Race/ethnicity information was provided through dichotomous race/ethnicity composites but was recoded into one categorical variable for the current study. The designations are: (a) American Indian or Alaskan Native, (b) Asian, (c) Black, (d) Hispanic, no race specified, (e) Hispanic, race specified, (f) more than one race, (g) Native Hawaiian/ Pacific Islander, and (h) White. For the current study, the two Hispanic categories were combined into one designation.

Sex.

This variable referred to the sex of the participant (male or female). The researchers are aware that not all people identify into a gender binary of female and male (Lips, 2020), however the current study utilized the publicly available data, not the restricted use dataset which did have a more expansive gender identity variable.

Socioeconomic Status (SES).

Socioeconomic status was a composite variable created from five components obtained from the parent/guardian questionnaire. The variable was created through: (a) the highest education among parents/guardians in the two-parent family of a responding student, or the education of the sole parent/guardian; (b) the education level of the other parent/guardian in the two-parent family; (c) the highest occupation prestige score among parents/guardians in the two-parent family of a responding student, or the prestige score of the sole parent/guardian; (d) the occupation prestige score of the other parent/guardian in the two-parent family; and (e) family income. In the continuous version of the variable utilized in the logistic regression analysis, the values ranged from -1.82 to 2.57.

Self-Efficacy Variables

Self-efficacy expectations in the current study include college self-efficacy and overall GPA. SCCT theorists emphasize learning experiences and prior accomplishments are an

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important part of developing self-efficacy, hence overall GPA was included here (Lent et al., 1994). College self-efficacy data was collected during the baseline, while GPA information was collected at the 2013 update.

College Self-efficacy.

This is assessed by a student's response on a Likert scale to the question, "Whatever your plans, do you think you have the ability to complete a bachelor's degree?" Responses were measured on a 4-point Likert scale, from 1- "definitely not" to 4- "definitely".

Overall GPA.

Overall GPA, an interval variable, was computed during the 2013 update, through high school transcript composites. Overall GPA values range from 0.25 to 4.

Proximal Environmental Influences (Independent Variables)

In the current study, these variables were related to school counseling access, and included: school counselor caseload and school counselor percentage of time spent college readiness counseling.

School Counselor Caseload.

Data was derived from a question on the school counselor questionnaire which read: "On average, what is the caseload for a counselor in this school? Students per counselor". Students per counselor ranged from 2 to 999.

School Counselor Percentage of Time Spent College Readiness Counseling.

This was assessed through one item on the school counselor questionnaire which read, "Last school year (2008-2009), what percentage of work hours did your school's counseling staff spend assisting students with college readiness, selection, and applications?" Responses were reported according to the following categories: 5% or less; 6%-10%; 11%-20%; 21%-50%; and more than 50%.

Performance Domains and Attainments Variables (Outcome/Dependent Variable)

College Attainment and Persistence.

The HSLS:09 data provided a categorical variable to indicate attainment (i.e., graduated with a degree) and persistence (i.e., enrollment) in college during the second follow-up survey in February 2016 (i.e., approximately 3 years post-high school graduation). The labels included: (a) attained bachelor's degree; (b) attained associate's degree; (c) attained certificate; (d) no degree, enrolled at a 4-year; (e) no degree, enrolled at less than 4-year; (f) no degree, not enrolled. For the current study, the variable was recoded into a dichotomous variable, the participant is enrolled or persisted in college (yes or no).

Data Analysis

G*Power 3 (Faul et al., 2007) was utilized to determine the sample size needed for the desired power in the regression analyses, and

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a-priori sample sizes for the logistic regression analysis confirmed the recommended sample size was met. Next, following Cheng & Phillips' (2014) steps to secondary analysis of existing data, frequency tables and cross-tabulations of all variables provided information about the use of the coding pattern for each variable to allow for transformation of the distribution of variables. After completing these steps, descriptive statistics were collected. Inherent in many lengthy assessments are missing data, however, in the HSLs:09 dataset, "the variables in general did not suffer from high levels of item nonresponse" (Ingels & Dalton, 2013, p. A-6). The HSLs:09 developers did utilize imputation of values when necessary (Ingels & Dalton, 2013). Imputation affords more power for statistical tests and allows analyses results to be less biased than if there was unaccounted missing data (Ingels & Dalton, 2013). The NCES also provided analytic weighted variables, and replication weights associated with those main sampling weights. The analytic weights make estimates from the sample data nationally representative of ninth grade students in 2009-2010, through accounting for differential selection probabilities and nonresponse bias (Duprey et al., 2018). Replication weight variables address standard error concerns. Within the HSLs:09, replication weights are run through the Balanced Repeated Replication (BRR) method (Duprey et al., 2018). Finally, preliminary analysis also included bivariate correlations of all variables in the study and examining the correlation

matrix to determine collinearity and investigate relationships between the variables.

The primary data analysis for the current study was a sequential logistic regression. Sequential logistic regression is when the researcher specifies the entry order of predictor variables into the model (Tabachnick & Fidell, 2013). This is appropriate for the research question, given the large sample size and the theoretical grounding of the study (Sperandei, 2014). Model (1), the baseline model, represented person inputs and background environmental influences. It included the following variables: FGS status (non-FGS as reference category), race/ethnicity (White as reference category), sex (male reference category), and socioeconomic status (continuous). Model (2) represented self-efficacy, after controlling for person inputs and background environmental influences. Self-efficacy variables included college self-efficacy ("Definitely" as reference category) and overall GPA (3.0-4.0 GPA as reference category). Model (3) examined school counseling access, after controlling for the variables in the previous three models. School counseling access variables are school counselor caseload (continuous) and school counselor percentage of time spent college readiness counseling (re-coded into a dichotomous variable, with 20% or less as reference category).

Results

Preliminary analysis included running descriptive statistics and a correlation matrix. A total of 56.4% (n = 9,468) of the valid sample were FGS, and 43.6% were non-FGS (n = 7,314). A total of 50.9% (n = 11,973) of the sample were identified as female, and the remaining 49% (n = 11,524) as male. The continuous socioeconomic status variable was standardized to 0, and ranged from -1.93 to 2.88, with a mean score of M = 0.05 (SD = 0.78). The SES quintile variable, which is an interval variable of student SES, has the following percentages: (1) First quintile/lowest = 14.6% (n = 3,434); (2) Second quintile: 15.8% (n = 3,705); (3) Third quintile: 18% (n = 4,233); (4) Fourth quartile: 19.4% (n = 4,553); and (5) Fifth quintile/highest: 23.5% (n = 5,519). Overall GPA of the participants ranged from 0.25 through 4.00, reported in 0.25 intervals, M = 2.71 (SD = 0.86). For information on participants' race/ethnicity, see Table 1.

The college self-efficacy variable was an ordinal variable assessing the participants' beliefs about ability to complete a bachelor's degree, with possible values of 1 "definitely not", 2 "probably not", 3 "probably", and 4 "definitely". A total of 1.5% (n = 322) of participants chose "definitely not". Then 6.7% (n = 1,415) of the participants chose "probably not". Following, 42.6% (n = 8,937) chose "probably". Finally, answer choice "definitely" was the most endorsed response, with 49.1% (n = 10,297) of the sample selecting this answer choice.

Table 1
Participant Race and Ethnicity Variables.

Race/Ethnicity	Valid Percentage	Valid n
American Indian and Alaskan Native	0.7%	165
Asian	8.7%	1,952
Black/African American	10.9%	2,450
Hispanic	16.9%	3,797
More than one race	8.6%	1,941
Native Hawaiian and Pacific Islander	0.5%	110
White	53.7%	12,082
Total	100%	22,497

The school counselor caseload in the current study had a mean score of M = 347.65 students (SD = 130). The median was 350. The 25th percentile was 270, the 50th was 350, and the 75th percentile was 420. This variable's values ranged from 2- 999 students per school counselor caseload. The school counselor percentage of time spent college readiness counseling was an ordinal variable. The scores ranged from 1-5, M = 3.37 (SD = 0.95). A total of 2.3% (n = 484) chose 1, indicating "5% or less". Next, 16.2% (n = 3,389) of the

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sample chose 2 indicating “6-10% of time.” A total of 33.8% (n = 7,094) indicated 3, “11-20%”; followed by 37.5% (n = 7,867) choosing 4, indicating “21-50%”. Finally, 10.2% (n = 2,132) of the sample chose 5, indicating “More than 50%.” See Table 2 for a graphical representation of the percentage of time spent college readiness counseling variable.

For the college attainment and persistence variable, 80% (n = 10,331) of the valid sample was enrolled or attained a degree as of February 2016, and 20% (n = 2,587) were not enrolled or had never attained a degree as of February 2016.

The bivariate correlation matrix indicated no concerns regarding multicollinearity. School counseling caseload and percentage of time spent college readiness counseling are inversely related ($r = -.181, p < .01$). School counselor caseload is negatively significantly

Table 2.
College Readiness Counseling Variable
Frequencies.

Percentage of Time Spent College Readiness Counseling	Valid Percentage	Valid <i>n</i>
5% or less	2.3%	484
6-10%	16.2%	3,389
11-20%	33.8%	7,094
21-50%	37.5%	7,867
More than 50%	10.2%	2,132
Total	100%	20,966

correlated to: SES, Overall GPA, and college self-efficacy. School counselor percentage of time spent college readiness counseling is positively significantly correlated with: SES, Overall GPA, and college self-efficacy. See Table 3 for the full results of the correlations.

For the sequential logistic regression, statistical assumptions of the model were assessed by the researcher. Tolerance (0.32) and VIF values (mean VIF = 1.33) indicated no concerns regarding multicollinearity. The Box-Tidwell test indicated the assumption of a linear relationship between continuous predictors and the logit transform of the outcome variable was met, with non-significant *p* values. Utilizing the BRR variance estimation method, 17,993 observations were included in the regression model, with a population size of 2,121,472 and 188 replications.

Model 1 included person inputs and background environmental influences (i.e., FGS status, race/ethnicity, sex, SES). Model 1 was significant, $F(9, 186) = 19.37, p < .001$,

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Table 3.
Bivariate Correlations.

Variables	1. SES	2. GPA	3. College Self-efficacy	4. School Counseling Caseload	5. % of Time Spent College Readiness Counseling
1. SES	-				
2. GPA	.407**	-			
3. College Self-efficacy	.254**	.324**	-		
4. School Counseling Caseload	-.152**	-.094**	-.040**	-	-
5. % of Time Spent College Readiness Counseling	.150**	.105**	.053**	-.181**	-

Note. SES = socioeconomic status; GPA = grade point average

** = $p < .01$.

McFadden's R Square = 0.0577. This model indicated that SES significantly predicted college attainment and persistence ($\beta = 0.47$, $p = .019$). In addition, female students ($\beta = .40$, $p < .001$) were more likely than males, and Asian ($\beta = 0.72$, $p < .001$) students were significantly more likely than White students to report college attainment and persistence. Black ($\beta = -0.35$, $p < .05$) and students of more than one race ($\beta = -0.55$, $p = .001$) were significantly less likely than White students to report college attainment and persistence. FGS were significantly less likely than their non-FGS peers to report college attainment and persistence ($\beta = -0.41$, $p < .001$).

Model 2 examined two self-efficacy variables, which were college self-efficacy and overall GPA, after controlling for the variables in the previous model. Model 2 was significant, $F(13, 182) = 24.52$, $p < .001$, McFadden's R Square = 0.1063. GPA significantly predicted college attainment and persistence, with students with GPAs ranging from 0.25-2.50 being significantly less likely to report college attainment and persistence compared to students with GPAs of 3.00- 4.00 ($\beta = -1.14$, $p < .001$). College self-efficacy was not significant. SES, female sex, and students who were more than one race, remained significant; while Black/African American

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race and FGS status were no longer significant.

Model 3 examined school counseling access, including school counselor caseload and percentage of time spent college readiness counseling, after controlling for the variables included in the other models. Model 3 was significant, $F(15, 163) = 20.28, p < .001$. For Model 3, the Archer Lemeshow test of goodness-of-fit was not significant and the adjusted Wald test was significant, indicating good model fit. McFadden's R^2 was 0.1111, indicating that the model explains 11.1% of the variance outcomes. For Model 3, school counselor percentage of time spent college readiness counseling predicted student college attainment and persistence, with 21% or more time spent on college readiness counseling being more likely to result in the outcome compared to 20% or less time spent college readiness counseling ($\beta = .23, p < .05$). School counselor's caseload was not significant. SES, female sex, more than one race identity, and GPA all remained significant predictors in the final model. The model correctly classified 81.60% of the cases, with higher sensitivity (98.21%) than specificity (7.58%). Table 4 contains the results of the logistic regression analysis.

Discussion

This purpose of this study was to understand the relationships between and contributions of school counseling ratios, percentage of time spent college readiness counseling, person

inputs and background characteristics (i.e., race/ethnicity, gender, socioeconomic status, FGS status), and self-efficacy on post-secondary attainment and persistence, three years post-high school graduation. The first model in the sequential logistic regression solely examined what are known as person inputs and background variables in SCCT (Lent et al., 1994). FGS had lower odds of attaining a postsecondary degree or persisting in postsecondary education compared to non-FGS students and Black/African American students also had lower odds, both of which are aligned with previous research on opportunity gaps (Cahalan et al., 2019). However, these results did not hold in the next two models when self-efficacy was held constant, indicating that self-efficacy plays a large role in underrepresented students' college persistence and attainment. Results also indicated that students of more than one race had lower odds of college attainment and persistence compared to White students. This is not similar to previous research which stated multiracial students graduate at higher rates than students of other races, with the exception of Asian students (Calahan et al., 2019). Other researchers have noted the inadequate attention and 'difficulties' in assessing multiracial outcomes in research (Berzenski, 2019), which suggests the multiracial student population's education outcomes and experiences are not well understood by educational researchers. Female students compared to male students, Asian students compared to White students, and students with higher SES status were

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Table 4.
Logistic Regression Model Predicting College Attainment and Persistence

	Model 1			Model 2			Model 3 (Full Model)		
Predictor	B	SE	OR (CI)	B	SE	OR (CI)	B	SE	OR (CI)
FGS	-0.41**	0.13	0.66 (0.51-0.86)	-0.29	0.15	0.75 (0.56-1.00)	-0.28	0.16	0.75 (0.56-1.03)
Race/Ethnicity									
American Indian or Alaskan Native	-0.14	0.63	0.87 (0.25-3.00)	1.21	0.83	3.35 (0.65-17.32)	1.29	0.88	3.63 (0.64-20.52)
Asian	0.72*	0.30	2.06 (1.13-3.75)	0.50	0.33	1.64 (0.85-3.16)	0.58	0.38	1.79 (0.85-3.80)
Black/African American	-0.36*	0.18	0.70 (0.49-0.99)	-0.06	0.20	0.94 (0.63-1.39)	0.07	0.20	1.07 (0.72-1.60)
Hispanic	-0.03	0.14	0.97 (0.73-1.28)	0.23	0.17	1.26 (0.90-1.76)	0.14	0.17	1.15 (0.83-1.60)
More than one race	-0.55**	0.16	0.58 (0.42-0.80)	-0.46**	0.17	0.63 (0.46-0.88)	-0.39*	0.17	0.68 (0.48-0.94)
Native Hawaiian / Pacific Islander	0.55	1.02	1.73 (0.23-12.97)	0.91	1.01	2.48 (0.34-18.08)	1.02	1.08	2.78 (0.33-23.42)
Sex	0.40***	0.09	1.49 (1.24-1.80)	0.30**	0.11	1.35 (1.09-1.67)	0.32**	0.12	1.37 (1.09-1.73)
SES	0.48***	0.09	1.61 (1.34-1.93)	0.44***	0.11	1.56 (1.27-1.93)	0.43***	0.11	1.54 (1.24-1.91)
College Self-efficacy									
Definitely not				-1.14	0.64	0.32 (0.09-1.14)	-0.99	0.67	0.37 (0.10-1.41)
Probably not				0.30	0.30	1.35 (0.75-2.45)	0.46	0.33	1.59 (0.82-3.06)
Probably				-0.08	0.14	0.92 (0.70-1.20)	-0.12	0.15	0.89 (0.67-1.18)
Overall GPA				-1.15***	0.12	0.32 (0.25-0.40)	-1.19***	0.12	0.30 (0.24-0.39)
School counselor caseload							-0.00	0.00	0.99 (0.99-1.00)
% of time spent college readiness counseling							0.24*	0.12	1.27 (1.00-1.60)

See Table Note on next page.

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Table 4 Note. Model 1 = person inputs and background environmental influences (first-generation student [FGS], race/ethnicity, sex, socioeconomic status [SES]), without any controls; Model 2 = person inputs and background environmental influences, and self-efficacy variables (college self-efficacy and overall grade point average [GPA]); Model 3 = full model: person inputs and background environmental influences, self-efficacy variables, and proximal environmental influences (school counselor caseload and percentage of time spent college readiness counseling).

Reference categories: FGS = non-FGS; Sex = male; Race/ethnicity = White; College self-efficacy = "Definitely"/4; Overall GPA = 3.0 - 4.0 GPA; % of time spent college readiness counseling = Less than 21%.

* $p < .05$. ** $p < .01$. *** $p < .001$

more likely to attain a degree and persist in postsecondary education. These findings are aligned with previous research (Cahalan et al., 2019; NCES, 2019).

The second model extended the investigation of predictors of college attainment and persistence to include self-efficacy variables (i.e., college self-efficacy and overall high school GPA), in addition to still accounting for the person inputs and background variables. Female students were still more likely to attain and persist, and students of more than one race and students of lower SES status remained having lower odds of attaining and persisting. College self-efficacy was not significant in this model. This is an interesting finding, because within the SCCT framework (Lent et al., 1994), and previous research studies, various forms of self-efficacy including college self-efficacy and general self-efficacy, were significant influences on and predictors of academic and career outcomes (Baier et al., 2016; Brady-Amoon & Fuertes, 2011; Vuong et al., 2011; Wright et al., 2013). Perhaps one reason for the lack of significance in this study is that college self-efficacy was measured with one item asking about the

student's college self-efficacy, assessed when they were in the ninth grade. Self-efficacy is often assessed through a scale which provides more sensitivity in scores than one-item assessments (Bandura, 2006). Overall GPA was included as part of the self-efficacy model, as learning experiences and prior accomplishments are an integral part of forming self-efficacy (Lent et al., 1994). Overall GPA was significantly predictive of the outcome (i.e., higher GPA is higher odds of the outcome), and this is aligned with SCCT researchers' assertion that while self-efficacy is important in career and academic outcomes, ability is also an important and irreplaceable component of career performance (Lent & Brown, 1996).

In the final model, all previous variables were included and accounted for, and the two school counseling access variables were also added: (a) school counselor caseload and (b) school counselor percentage of time spent college readiness counseling. Variables that remained significant in the final model included: (1) identity of more than one race (i.e., lower odds of the outcome), (2) sex (i.e., female students had higher odds of the

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outcome); (3) SES (i.e., as SES increased, odds of the outcome increased); and (4) overall GPA (i.e., as GPA increased, odds of the outcome increased).

The results showed that the school counselor caseload variable was not significant in the final model. However,

school counselor percentage of time spent college readiness counseling was a significant predictor of college attainment and persistence. Students who had access to a school counselor who spends at least the national average of time college readiness counseling (i.e., 21% or more), were more likely to attain a postsecondary degree or persist in college three years after high school graduation. Results indicated that students

with school counselors who spent 21% or more time college readiness counseling had 27% higher odds of persisting or attaining a college degree. This finding supports previous research that details the importance of college readiness counseling and its positive impact on student outcomes (Dunlop-Velez, 2016). Further, it is the first study to our knowledge which investigates the impact of college readiness counseling longer than one year after high school graduation.

It is important to note that even when controlling for school counselor percentage of time spent college readiness counseling and various other variables (e.g., college self-efficacy, overall GPA), students of lower SES status and students identifying as more than one race still had lower odds of persisting in

college and attaining a degree. These results suggest that the opportunity gap with students of low SES and multiracial students needs to be addressed beyond what is currently being offered by college readiness counseling. School counselors and school counselor educators must learn evidence-based and culturally responsive interventions and incorporate them into their work (Berbery & O'Brien, 2018; McMahon

et al., 2017).

Despite school counseling ratio not being a statistically significant predictor of college attainment and persistence, it is important to note that school counseling ratio in the current study's bivariate correlation analysis showed school counselor caseload was negatively statistically correlated with percentage of time spent college readiness counseling. This means that a school



“Students who had access to a school counselor who spends at least the national average of time college readiness counseling (i.e., 21% or more), were more likely to attain a postsecondary degree or persist in college three years after high school graduation.”

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counselor with a larger caseload spent a smaller percentage of time on college readiness counseling in the current sample. Additionally, prior research has also shown a school counselor's distribution of time spent in college readiness counseling is influenced by school counseling ratios, with higher caseloads resulting in less time spent on college readiness counseling (Clinedinst & Koranteng, 2017; Engberg & Gilbert, 2014).

Implications

The findings of the current study highlight that college readiness counseling has an impact on students' long term college attainment and persistence. It is imperative that school counselors advocate for increased time for college readiness counseling, especially in schools with higher percentages of students with low SES. The implications of the current study include practice, policy, and training implications.

Practice

School counselors have been called to engage in college readiness counseling within their role in career development within the ASCA National Model (ASCA, 2019; Gilfillan, 2018). The results of this study provide further evidence of the importance of these activities for longitudinal student outcomes, and also provide a quantitative perspective on best practices in this endeavor. These results have highlighted how students who have access to a school counselor who spends 21% or more time on college readiness counseling show

increased odds of persisting in postsecondary education or attaining a degree, three years post-high school graduation. School counselors can strive to spend 21% of their time on career and college readiness programming. Within their CSCP, school counselors can engage in best practices of college readiness counseling as outlined by various frameworks. For example, The NACAC provides guidelines and suggestions for college readiness counseling that school counselors can use (Clinedinst & Koranteng, 2017).

The results also highlighted the importance of equity in school counselors' college readiness counseling services. Despite the great strides underrepresented minorities have made in increased representation in higher education (Cahalan et al., 2019), the current study found that multiracial individuals had lower odds of persisting and attainment compared to their White peers. Further, as participants' SES composite score decreased, so did their odds of persisting and attaining a degree. The ASCA National Model designates school counselors as educators who promote equitable college opportunities for students (ASCA, 2019). Equity and equality are not interchangeable terms; in order to achieve equity in higher education student outcomes, a school counselor's CSCP requires tailored policies and procedures for students (Mason et al., 2013). While a CSCP serves to help all students in the career development domain, a school counselor may supplement their college readiness counseling efforts with

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students of lower SES status and multiracial identity.

This may include increased attention to assisting students in connecting to monetary resources, and incorporating culturally relevant discussion in college planning. School counselors should seek training on financial aid and how to make college accessible for all, and incorporate discussions about financial aid and scholarships in their college readiness counseling services. The school counselor can utilize the Competencies for Counseling the Multiracial Population (Kenney et al., 2015) to guide their career development work with multiracial students, including assisting their multiracial students with exploring career/college choices that best facilitate identity formation and satisfaction, and linking students with racially and culturally open individuals who can serve as mentors. This is mandated by ASCA's position statement that school counselors should expand their personal multicultural and social justice advocacy, awareness, knowledge and skills (ASCA, 2021). While the results were positive in terms of the connection between access to school counseling and long-term outcomes, not all students benefited in the same ways, and school counselors must seek to close opportunity gaps.

Policy

The policy implications resulting from the current study are two-fold: providing support for proper allocation of time and duties for

school counselors, and providing support for lower school counseling ratios. There is a national call for equitable access to postsecondary education for all students (ASCA, 2019; McKillip et al., 2012). The results of this study indicate the connection between access to school counselors and college readiness counseling's impact on college outcomes, but often it is school counselors who are the first to get cut due to budgeting in K12 schools (Hanna, 2019). NACAC and ASCA work together on policy advocacy, such as the Secondary and Elementary School Counseling Act. This act calls for two five-year renewable grant programs to staff elementary and secondary schools with school counselors, psychologists and social workers effectively by providing federal grants to states to disburse to school districts. The current results are further evidence for the need for this collaboration, and support of the recent passing of this act (H.R.4381). School counselors personally can use the data in their self-advocacy in district-level and state-level policies. As college/career readiness is a national imperative, they can advocate to their administration, school board, and state department of education for lower school counselor-to-student caseload ratios and proper allocation of time through lessened administrative duties, using the results from the current study as evidence for the importance of their work doing college readiness counseling. Further, higher caseloads are more likely to lead to school counselor burnout (Barhoshi & Um, 2021), which also negatively impacts

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their work with students. Policy has an impact on school counselors' ability to effectively work with students; high caseload numbers and non-counseling duties inhibit their ability to work directly with students on college readiness (McKillip et al., 2012). The caseload average in the United States still remains at 482 students, and school counselors are still tasked with inappropriate duties (NCAC & ASCA, 2015; O'Connor, 2018).

Training and Education

The current study's results suggest that career counseling course content tailored to increase knowledge and skills in college readiness counseling for school counselors-in-training could benefit these students as they enter the field. This content could include frameworks provided to conceptualize and guide college readiness counseling (e.g., Clinedinst & Koranteng, 2017) as well as discussions around the current research surrounding school counselors and college readiness counseling (e.g., Gilfillan, 2018). Experiential activities, supervision discussions, and assignments tailored to increase school counseling students' self-efficacy regarding college readiness counseling are other examples of incorporating college readiness counseling fluency into the curriculum. This is supported by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) Standards (CACREP, 2015). Previous research has suggested increased attention to developmental career counseling in school counselor preparation programs is needed, as school counselors are

often entering the field unprepared to engage in college readiness counseling in their schools (Parikh-Foxx et al., 2020).

Limitations and Future Research


While the current study makes contributions to the school counseling literature regarding college readiness counseling, there are limitations. As mentioned previously, a scale measurement of the college self-efficacy variable would provide sensitivity. Further, when a researcher utilizes large datasets for secondary analysis of data, the researcher's bias can influence which input and outcome variables are selected out of the many provided to study a phenomenon. Future research can look at other variables in the HSLS:09 dataset for creating a predictive model, such as more school-level variables, which are available in the restricted use dataset. Additionally, future research with individuals who identify as multiracial/more than one race about their college persistence and attainment influences and outcomes is needed, as current research often does not include multiracial individuals in their analysis (Berzenski, 2019; Museus et al., 2015). Multiracial student career development in relation to school counseling needs to be explored, as there are unique counseling competencies when working with multiracial counseling clients (Alvarado et al., 2015). This research is especially needed as the current results indicated a different pattern than previous studies that suggested students of more than one race have increased odds of postsecondary attainment (Calahan et al.,

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2019). This line of research will investigate how we are and are not supporting the unique needs of multiracial students in their college experiences (Museus et al., 2015) Finally, previous quantitative research by Parikh-Foxx and colleagues (2020) found school counselors had difficulty implementing their career and college readiness services, and self-efficacy in delivering these services was related to training experience and opportunities. Continued research connecting school counselors' career and college readiness counseling self-efficacy, but in relation to long-term student outcomes, is needed.

Conclusion

The current investigation advanced current research by examining personal inputs, background variables, self-efficacy, proximal, and environmental influences on college attainment and persistence three years post high school graduation. Results signify the importance of interrogating the system in which students are prepared. For example, college readiness counseling impacts college persistence and attainment; however, the system in which the student is a part of will determine the amount of access to college readiness counseling. In addition, historically underserved students were also the most neglected as reflected by results showing that students with low SES and multiracial students had lower odds of college attainment and persistence. These results collectively call for increasing school counseling resources within schools that have higher levels of

vulnerable students. In addition, school counselors must utilize their data to examine their progress toward supporting the postsecondary goals and academic achievement of their students. It is not enough to engage in college readiness counseling, they must also interrogate who has access to that counseling, how much time is spent with each group of students and start to navigate innovative ways to reach vulnerable and marginalized students. 

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Book Review:

Early Colleges as a Model for Schooling: Creating New Pathways for Access to Higher Education



Authored by
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The Third Space of Schooling

I have been working with early and middle colleges since my second admissions director role as we have many of them in Michigan. Since I find them fascinating, I was thrilled to be able to review this new publication from Harvard Education Press.

As I expected, the book opens up with a student story and testimonial about an early college experience and the outcomes. We learn about Jaleesa’s enrollment, support systems, and her graduation. It sets the stage for an overview about the role of early colleges in the U.S. The book revolves around the experiences of three students: Jaleese, Guadalupe and Darius.

I appreciated that the authors disclosed that this book was motivated by “wasted human potential,” as they put it. Essentially, it’s their version of “no child left behind.” The authors, who have been studying early colleges for 15 years, take an idealistic and optimistic approach in presenting their case. I also appreciated the mindset that postsecondary

education is for everyone, that it is necessary for earning a living wage in the U.S., and is a benefit to society overall. The authors believe that the “early college model addresses economic, societal and individual needs by merging high school with college” (p. 12).

The introduction describes the current state of higher education and postsecondary attainment rates, while also describing early colleges. This is especially helpful for the person who knows little about early colleges. The book refers to early colleges as a “third space” beyond the traditional high school and collegiate environments (p. 7). The authors also state that the largest barrier is the “educational system divided between secondary schools and college” (p. 7).

An early college enrolls students in college courses while in high school so that when the student earns their high school diploma, they



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can also earn their associate degree with the hope that the first two years of college are complete. The authors advocate for a “more seamless system” of education to address what they refer to as a “leaky pipeline to postsecondary education (p. 19).

What first drew me into this book was its nine chapters. The first two chapters set the foundation about the early college model and the case for this new educational system. Then four chapters are dedicated to each of the primary college access barriers: academic barriers, cultural barriers, logistical barriers, and financial barriers. The book concludes with thoughts on scaling up and needed policies.

The authors define academic barriers as rooted in the difference between the transmission of knowledge (high school approach) and using knowledge for critical thinking (college approach). Cultural barriers focus on the differences of expectations between high schools and colleges. Logistical barriers primarily pertain to the myriad of steps required to apply to and enter college. Financial barriers include the cost of college since public high schools are free.

One of my favorite parts of the book was the history of the American high school system. For example, did you know about the 1892 “Committee of Ten” that produced a report that indicated the “core purposes of secondary education was to prepare students for college through a classical

curriculum...” (p. 23)? The first junior colleges were formed as part of high school before eventually separating. Some educators in California experimented with a 6-4-4 plan (6 years of primary school, four years of middle school (grades 7-10) and four years of high school (grades 11-14). We learn in chapter two about the 1974 concept of “middle college” developed by Dr. Janet Liberman of LaGuardia Community College. It wasn’t until 1993 that the Middle College National Consortium was founded to support middle colleges with a set of core design principles. And there’s more historical details provided within the book.

The chapter that fully describes the early college model was very persuasive at stating why early colleges are important. The fundamental basis is this question: “what would it take to have all students in the school earn a postsecondary credential?” (p. 33). Outside of early colleges, ALL high schools should be answering that question and addressing their own barriers (but that’s for another commentary.)

The chapter on academic barriers discusses course taking, instructional strategies, bridging academic gaps, and academic supports. The chapter on cultural barriers addressed expectations, college-ready mindsets and student aspirations. The chapter on logistical barriers focused on six specific steps of the college enrollment process. In particular, that chapter missed the opportunity to reference the recent test

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optional movement. The chapter on financial barriers primarily highlighted the cost savings of earning so many college credits without a financial burden to the student and their family. That chapter also missed discussing how perhaps financial literacy was present (or absent) in the early colleges model.

I valued the extensive two-page table of early college definitions and policies showcased from four different states. The authors heavily cite David Conley's work on college readiness since there are a lot of intersections. I appreciated the authors' statement that "early college is not simply dual enrollment on steroids" (p. 124), which is an important reminder for readers who may associate them as one in the same.

Chapter seven is dedicated to three approaches for scaling up early colleges: increasing the number of them, creating a school-within-a-school model, and transforming a high school into an early college. A table in this chapter offers a good summary of six structural components associated with each of the three approaches. Chapter eight is quite extensive in discussing all of the six primary policies needed for scaling early college. In particular, this chapter includes a table on the pros and cons of four funding models. This chapter also revisits the six design features that comprise an effective early college operation. This chapter gets into the weeds in covering eligibility requirements, information/advising, staff policies, transfer of credits,


providing support, postsecondary partnerships, technical assistance, networks, advocacy and more. I felt that this chapter could become the follow-up book to this text. The book concludes with its shortest chapter that is a 30,000 foot re-cap of the entire text. Those five pages are ideal for the K-12 or higher education leader who does not have time to read the entire book. Give them these pages as an introduction for discussing early colleges.

Overall, this book offered the historical context and evolution of the early colleges movement. It highlighted statewide early college initiatives, chronicling the funders involved, the existing legislation, state policies and consortiums in this field. My only major criticism of this book is that it primarily takes a one-sided, supportive approach of early colleges, rarely mentioning their shortcomings. The addition of that would have enhanced the credibility of this piece. Also missing was the role of college admissions operations in all of this. Having dealt with how to work with early college students in the college admissions process (how they're coded, scholarships eligibility, etc.), it is an incredibly important piece that was not covered.

Despite that, I still highly recommend this text. It is perfect for newcomers to the field of early colleges and for those who want an in-depth review of early colleges. This will also make an excellent early college textbook for a graduate course in K-12, higher education or

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college access.

Onward to creating more third spaces in the American education system! 

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Commentary:

College Access after COVID



Authored by
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College admissions was thrown for a series of losses over the last two years, requiring colleges to rethink everything from on-campus tours to high school visits to testing policies to how classes were run, and if they were run. For a profession known for making changes at a glacial pace, admissions offices took on a nimble approach to admissions that college access advocates hoped would benefit their clients.

In many ways, that's exactly what happened. Improvements in online tours and communications tools led to a greater individualization of the college recruitment process, an attribute especially important to many individuals in groups underrepresented at college. Their individual needs and histories are often vastly different from that of the "typical" college applicant, requiring more time, consideration, and assessment than colleges are used to giving an application. With COVID throwing so many traditional practices out of kilter, the time had come to consider if perhaps there was a better way to go about college admissions for underrepresented students, if not applicants

as a whole.

COVID is still with us, but a vast number of policy makers and colleges feel circumstances are right to return to normal. Most college admissions offices are still holding on to what they see as improvements to the process COVID required them to make, but these changes are, as a whole, taking a back seat to business as usual.

That's unfortunate for two reasons. Many of the changes made due to COVID raised the value of nontraditional applicants, an issue college access leaders have long advocated. It's sometimes hard to explain just where the lines of demarcation among "typical" applicants and "nontraditional" applicants were created, but it was clear that many of the COVID-related changes to admission were levelling the playing field, if only a little. With many colleges now convinced the coast is clear, the admissions approaches benefitting nontraditional students are now relegated to a lower status – and, arguably, the students they serve as well. This return to "normal" then, is likely to have an effect on efforts to expand opportunities for



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nontraditional students, and slow college access efforts.

This change is also unfortunate for reasons admissions offices have known about for at least 12 years. Well before COVID, admissions offices were looking at a steep decline in the birth rate, starting as early as 2025. Admissions offices have weathered these dips before, but it's never easy, especially when the decline is as steep as this one is. Combined with the number of students who are now turning to technical training to meet their postsecondary needs, it would be difficult to see why four-year colleges would be returning to a series of admissions practices that narrowed both diversity and access.

Still, early discussions suggest that's exactly what's happening. One general rule in the world of commercial sales is that the best way to maintain market share in a declining market is to expand the pool of clientele—in other words, if a cereal company can anticipate a decline in the number of typical clients, a reasonable first step is to reach out to those not in the typical pool, and convince them of the value of your product. This requires a different approach to recruitment of clients for many reasons, not the least of which is the need to first convince them that cereal in general is a good thing, then tell them why your cereal is the best option among all cereal options.

Colleges don't seem to be taking this approach. Discussions with admissions

officials suggest strategies for meeting the need for more applicants will be focused on increasing retention and completion of current students, and increasing accessibility for transfer students.

Improvement in these areas is sorely needed, but will it be enough to maintain enrollment and current levels in the face of such a significant drop in the number of traditional college-bound students? Would a college not be better off to engage in these practices, while also increasing its efforts and tightening its outreach message to better target the interests and needs of students who aren't considering college at all, or who have, but need more help getting there? Many colleges and states are trying to improve college enrollment numbers with more generous offers of aid, largely paid by COVID grants from the US government. This is a good first step, but even those generous grants will ultimately fade—and money does not address a student's interest in, or ability to do, college for four years.

COVID has taught admissions offices a great deal about what to do to make things work when things aren't what they used to be. The effects of COVID may suggest the college-going environment has returned more to normal, but long-standing birth-rate data suggests another unusual admissions environment awaits soon. As was the case with COVID, colleges would do well to consider a way to weather that storm. Increasing the size of the interested applicant pool is a logical first step. 