Complete Issue

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Journal of College Access

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About the Journal

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 Associate Dean for College Counseling at Kingswood Cranbrook School in Bloomfield Hills, Michigan and is chairperson of the Board of Directors for the Michigan College Access Network (MCAN). Tremblay the Director of Strategic Engagement at MCAN.

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

Affiliations
JCA is affiliated with the Michigan College Access Network and the Center for Postsecondary Readiness and Success (CPRS).

The goal of the Center for Postsecondary 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 will create an aligned system, 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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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.

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JCA Editorial Board

From the Editors

JCA

Authored by
Dr. Laura Owen
Dr. Patrick O'Connor
Dr. Christopher W. Tremblay

Welcome to the start of our sixth year and our fifth issue, the largest issue to date and the first one to share more than 100 pages of research!

Since launching, our articles have been downloaded nearly 12,000 times.

This edition of the *Journal of College Access* begins with a close-up look at some of the essential elements of the college selection process.

General Mark Brown begins this discussion with a look at the future of financial aid, an essential element of the college access discussion.

Matt Giani and David Walling then discuss another issue closely related to low-income students, when they study the role a student-facing tool can use to reduce undermatching in college application decisions.

Social-emotional factors are an often-undervalued element of the college admissions decision. Catherine Millett and

Marisol Kevelson remind us of the importance of this practice, by taking us through a look at its key role in the college selection process.

Zachary Taylor takes us into the world of English Language Learners with a study analyzing college access for students based on English as their primary or secondary language.

Laura Owen, Timothy Poynton, and Raeal Moore present findings on how and from whom high school seniors prefer to receive their college and career information.

Alexis Arocho offers a review of a different kind of language issue, as she studies the relationship between the world of technology and college access, a challenge that must be overcome by students and advisers on a daily basis.

This edition of the *Journal* ends with several book reviews designed to guide readers to a wide array of topics. From the role racism plays in college admission, to a paradigm of college decision-making that has a lifelong purpose, to a review of pre-college programming, to a rethinking of the role of the school counselors, these reviews offer a glimpse into vital elements of the college access construct.

We hope you enjoy this edition of JCA!

Guest Perspective:
Next Gen FSA — Stay in the Fight!

These remarks were delivered by Gen. Mark Brown, Chief Operating Officer for Federal Student Aid on September 19, 2019 at the 2019 National College Access Network (NCAN) Conference in Indianapolis, Indiana. Gen. Brown granted JCA permission to reprint his remarks.

JCA Authored by
Gen. Mark Brown *(Federal Student Aid)*

I t's indeed a pleasure for all of us to be part of this national conference. You know, one of the best parts of making presentations like this one today, is learning about the host organization.

Getting to know you, NCAN, by way of the seeds you sow throughout the higher education community and the work you produce has been a great joy for me. I'm aware that there are many times during our longstanding relationship that NCAN helped FSA roll out changes and new programs to the millions of people who rely on financial aid. Through your "Form Your Future" campaign, your organization drove more than 150,000 clicks to fafsa.gov. And you've provided free resources to nearly 4,000 college access and success professionals helping students complete the FAFSA form.

Without question, the strength of the NCAN-FSA partnership is our common understanding of "why" we must bring our best efforts and all the talent we can find together to address the complex, worsening challenge of college affordability. Your recent white paper aptly entitled, *The Growing Gap*, contains a few conclusions that grabbed my interest. In fact, after reading your paper, I

wondered if, somehow, you had an advance copy of FSA's next five-year strategic plan. Or, maybe even this speech that you hadn't yet invited me to give.

I could not agree more with your study's conclusions. The cost of college HAS far outpaced any other economic factor of comparison, including wages. Most colleges CANNOT pass your affordability test. We collectively must address the financial literacy and public issues that have fueled the current state.

By now, I hope it's not a secret that there's a major transformation underway across Federal Student Aid. We call it Next Gen FSA. I'm eager to share with you more about Next Gen, but before I tell you where we are and where we're headed, let me first look back … back to where we started … and back to WHY we're doing what we do.

Next Gen FSA

We need to remind ourselves that at FSA we are NOT politicians, not bankers, not lobbyists—we are public servants for a greater cause. I apologize if you've heard this before—certainly you have if you've heard me speak—but it is foundational to what I believe to be our—the government's and your—collective purpose.

As debates rage on about higher education financing, we must stop, take a deep breath, and remind ourselves why this is still worthy of our best efforts.

To amplify my focus on FSA's "*why*," I made a slight adjustment to our mission statement. I added the phrase, "Keeping the Promise," to the original statement "Funding America's Future, One Student at a Time."

Simply put, we have a promise to keep to America's students—a promise made more than 50 years ago. Let me explain.

Use your imagination, if you will, to look back to America in 1965. Close your eyes if that helps … that's what I do sometimes. Please allow me to set the scene for just a moment because I think context matters, and it's a good way to establish the importance and urgency of the work to which you and I must commit ourselves.

> **JCA**
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> **"As debates rage on about higher education financing, we must stop, take a deep breath, and remind ourselves why this is still worthy of our best efforts."**

The setting is clear: It's 1965, and LBJ is almost ready to sign the *Higher Education Act*; he has decided to do so at a public gathering at a university at a dusty gymnasium in his home state of Texas.

But the greater importance was what was happening around the country. At the time, roughly one in 10 Americans graduated college, 19 percent of American families lived in poverty, and the median income stood just above $6,000. The average annual cost of one year at a public college was almost $1,000 and completely out of reach for many Americans.

More than 50 years ago, like NCAN, LBJ recognized the college affordability GAP for many Americans. LBJ had a vision, and that day in 1965, he announced his plan for a greater society where, no child will go unfed, and no youngster will go unschooled.

LBJ wanted to help lift the masses of society by providing financial resources for Americans' higher education goals.

Today, the average household income is $58,000; poverty has been cut almost in half; 35% of Americans have four or more years of college; and the price tag for one year of education at a public four-year school is $19,000.

Still, the GAP exists, like your study says. I cite these statistics because right now, our country is having a public debate about the value of an education, the cost of an education, who should pay for it, and how they should pay for it. And, while it is not my position to opine on this political debate, it is important that we bring some facts to these issues.

As your white paper points out, the cost of higher education continues to climb, well-outpacing the median income. More students and families have turned to loans and savings to cover the gap. This trend has created what Education Secretary DeVos has called a crisis in higher education. She has highlighted the fact that it took 42 years—from 1965 until 2007—for the student loan balance to grow to $500 billion—although, it only took six years for the loan balance to double to $ 1 trillion in 2013.

There are a number of factors that have contributed to the rapid growth of federal student loan debt, such as states reducing funding for higher education and the rising cost of tuition. Either way, the average American is bearing an unreasonable burden to educate our children.

The fact, as supported by your GAP study, is that millions of Americans are struggling to effectively, and responsibly manage their student loan debt. They could benefit from better information, tools, and resources to help them PLAN for success, long before they take out loans.

Let me share another story. Earlier this summer, I spent time with three panels of students from various colleges in Atlanta, Georgia. These students were all recipients of various forms of federal student aid, and some of them already had substantial student loan debt. One student was in graduate school.

After some meetings, I asked them about their decision-making as it related to college. In one example, a young lady attending a private, liberal arts school told me that costs were about $28,000 per semester. This out-of-state student received about $8,000 in aid, including earning as much as possible in federal work-study funds. Each semester, she had a $20,000 GAP for which she was responsible and no scholarships to cover.

This young woman is an English major with aspirations to be a writer. I estimated she was accumulating more than $200,000 in debt over four years. I did not include room and board or a dining hall card. She said she was not getting help from home. This is real business, folks. These decisions are huge! The impact is amplified in communities that have historically been underserved. Amplified in first-generation students. Amplified in low-income households. Amplified amongst minorities.

This is not the vision of LBJ. This young woman needed to better understand her options to make better choices about her college education. Other students I spoke to had similar situations. One young man drove

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for Uber and Lyft and handled luggage for Delta Air Lines over the summer to make ends meet and to save for college expenses.

The time for debate is over. We have to get on with reforming this business of financing a postsecondary education. Cases like the ones I just mentioned are not unique and result in the deep challenges represented in the current federal student aid portfolio.

Last year, FSA processed more than 18 million FAFSA forms, and each year, we provide more than $120 billion in federal loans, grants, and work-study funds … to approximately 12 million students—attending nearly 6,000 institutions.

Today, FSA holds nearly $1.5 trillion in outstanding loans. Only 24 percent of our more than 42 million borrowers currently is paying down both principal and interest. And, nearly 20 percent of all student loans are delinquent or in default—roughly seven times the rate of delinquency on credit card debt.

I know NCAN and its partner organizations are primarily focused on initiatives that increase access and federal student aid dollars to the students that need them most. I mention these repayment data points because I'm convinced we can dramatically improve repayment outcomes by ensuring that students start their higher education journey

not only with greater access and more dollars, but by being better informed—up front—and having better tools to understand how their journey could or will come to a successful end.

To keep the promise LBJ envisioned, we must do more to help prepare students BEFORE they begin college or career school, while they are in school, and certainly after they leave.

JCA

"...we must do more to help prepare students BEFORE they begin college or career school, while they are in school, and certainly after they leave."

At FSA, we're doing more to provide information, tools, and resources for practical planning that will lead to better borrowing—when savings, scholarships, and grants aren't enough. We have been vocal advocates for strengthening the Pell Grant Program because—as your "Growing Gap" study points out, you recognize the power a college education has on the life trajectory of the students who benefit the most from Pell Grants. Because we realize that students and their families are digitally connected in virtually every aspect of their lives, including education, we're meeting students and families where they are.

We're providing a platform that allows our customers to easily learn about, apply for, receive, and repay federal student aid in a digital way. Long gone are the days when a phone was mounted on the wall in our kitchens—when "to go" meant you came to the restaurant to pick it up.

Next Gen FSA

Today, many of us are using phones to hail rides, get food delivered, find a life partner, and book vacations. Students and parents have a justified expectation that their experience with student aid will be no different than the other digital experiences in their lives. It's true, students are not exactly like us; they have changed, and the federal student aid experience must come into the 21st century. You'll hear more from Wendy about this, but last fall, we successfully launched—on-time—the redesigned, mobile-responsive but "still free" FAFSA form. The form is available today on the StudentAid.gov website and our mobile app: myStudentAid.

Since October, more than 2.1 million people have used a mobile device to apply for federal student aid to start school this fall. Without question, the myStudentAid mobile app makes it easier for students and parents to complete their FAFSA form. We're continuing to build out the app with content and tools that assist our customers all the way through to repayment.

Starting this fall [2019], we're going to build on the functionality of the myStudentAid mobile app to give students and parents personalized information and tools to help them be more-informed borrowers, and ultimately, more productive members of our great society.

Customers will have a one-stop shop for their federal student aid needs, accessible online at StudentAid.gov or through the myStudentAid mobile app. And this will be a

consistent FSA-branded experience on the device of our customers' choice.

In the coming months, we'll consolidate multiple customer-facing websites into StudentAid.gov.

And, in the new year, we'll move these enhancements to our mobile platform to provide robust, self-service options to our customers.

Additionally, we're about to begin a pilot program to provide students a no-cost way to receive their credit balance refunds. The Payment Vehicle Account Program pilot is a limited test intended to help us learn whether with easy, integrated access to our mobile app and increased financial literacy, we can drive better repayment outcomes and minimize excess borrowing. All at no cost to students or schools.

We're further committing to yet another pilot program—known as Project Success—with the goal of improving retention rates, graduation rates, and cohort default rates at minority-serving institutions. This initiative—aimed directly at student success—is not unlike the many that you have championed. For students to be successful, colleges and career schools must ensure that students leave their campuses with a full understanding of their financial obligations and are equipped to enter profitable vocations to meet those obligations.

JCA

Next Gen FSA

Secretary DeVos—who is just an hour down I-65 today visiting Jefferson High School in Lafayette, as part of the "Rethink School" Tour—often emphasizes that it's important to value paths to the workforce outside of four-year degrees. Your "Growing Gap" study makes some important comparisons between two- and four-year institutions.

In fact, many positions in today's job market don't require bachelor's degrees, and students and their families should be aware of all of their options not only to FUND their education, but also the different credentials they can attain for economic success.

At FSA, we're going to encourage students—like the ones I met in Atlanta–and families to take practical steps that lead to better borrowing. Practical planning starts with asking some critical questions, such as:

- What college can I afford?
- Would community college, career, or technical school get me to my goals?
- What are all of the ways I can fund my education?
- How much, if any, should I borrow?
- What salary can I expect?

Much of our Next Gen efforts have been focused initially on the "learn about" and "apply for" parts of our customers' journey. But in addition to what's coming this fall, the Next Gen transformation also includes: a single portal sign-on that makes self-service the norm for our customers 24/7. I like to say that the bank never closes, but how many of you still physically go to a bank anyway? FSA will operate the same way.

We'll also have a single telephone number for our customers. Additionally, we're working to improve schools' experience with Federal Student Aid. Before the end of the year, we look forward to previewing some of the enhancements for financial aid administrators at nearly 6,000 school partners.

> **JCA**
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> **"For students to be successful, colleges and career schools must ensure that students leave their campuses with a full understanding of their financial obligations and are equipped to enter profitable vocations to meet those obligations."**

To be effective—to keep the promise to America's students—Federal Student Aid needs strong partners, including schools—and college counselors, mentors, and access professionals like you all. Our collective efforts should be leveraged to educate students and their families about all of their options to fund their educational dreams—innovative tools and resources to assist them—and we must collaborate on programs that result in better repayment outcomes.

I began our conversation by looking back to 1965 and a promise that was made to America's students. I told you about the students in Atlanta, their GAP challenge, and I'll end by reaffirming that keeping the promise should drive everything we do. And why? Because of students.

Speaking of students, you may have heard one of my favorite student stories, but it's powerful in its message, and I continue to be in awe of this amazing young woman.

Last fall, I was honored to meet a young woman named Shyla Hutchins. And at the time, she was a senior at Tuskegee, my alma mater. But, four years before that, Shyla's story was quite different. She's from Alexander City, Alabama. The average income is about $31,000. The population is about 15,000.

Shyla is from a single-parent home with one other sibling. Her older brother's college aspirations did not work out but left her mother in significant debt. In Shyla's words, when it was her turn for college, she had to go it alone.

Shyla understood the programs available at Federal Student Aid as well as any of the employees who work with me. Shyla's education was her path to a different life, and she took full advantage of everything available—completing two internships with Fortune 500 companies and diving deep into her mechanical engineering studies. All of this paid off.

When I met her, she had three job offers—two with major aerospace companies and one within the petroleum industry. Because of federal student aid and her work ethic, education may have changed the trajectory of her entire life. In fact, it may have changed the trajectory of her entire family for generations to come.

I'm happy to report that Shyla graduated Summa Cum Laude this past May debt-free. DEBT-FREE! She's now working for a petroleum company in Houston, and in June, she bought her first house.

This is LBJ's promise. Shyla and many others like her define our "why" at Federal Student Aid. Our journey to transform federal student aid won't be easy, and it won't happen overnight, but it will bring extraordinary rewards for students like Shyla, her parents, and the taxpayers we serve.

I often conclude events like these with the phrase, "Stay in the fight!"

As many of you know, I spent more than 30 years in the United States Air Force, and that phrase—Stay in the fight!—was common.

It's a battle cry, a motivating call—meant to remind us that no matter what obstacles we face, we must persevere to our ultimate goal. You may lose a battle; you may lose a scrimmage, but you never lose the larger goal, the war. Keeping the promise. In the military, it's used to remind airmen—and I include

women in that moniker — that today's mission is part of a bigger picture.

NCAN: "Stay in the fight!" in this budget or next, is intended to remind us — all of us — that the size of Pell Grants may not be what we think they should be — or the Federal Work-Study Program may not reach as many students as we'd like. But don't give up. The work we are doing together is noble and making a difference for the students we do serve.

"Stay in the fight!" should remind us to press on — to keep helping low-income, first-generation students know about the FAFSA form and the myStudentAid mobile app. Because we know — despite our best efforts — there will always be another Shyla who believes they cannot pursue their educational dreams because of lack of money. Stay in the fight. We must prove them wrong.

So, I'd like to thank you for the part you play in keeping the promise to students and their families. Thank you for your time today. And **stay in the fight**! JCA

Will I Get In? Using Predictive Analytics to Develop Student-Facing Tools to Estimate University Admissions Decisions

JCA

Authored by
Matt S. Giani (*University of Texas at Austin*)
David Walling (*University of Texas at Austin*)

ABSTRACT

A sizeable number of low-income high school graduates enroll in colleges less selective than their academic qualifications would allow or forgo postsecondary altogether despite being college-ready. One potential cause of this "undermatching" is that some students have limited access to information about their college options. We hypothesize that providing students with more and better information about the relationship between their academic preparation and college options may promote college-going. The purpose of this study was to develop a predictive model of admissions to public 4-year institutions using data from Texas' statewide longitudinal data system in order to build a student-facing tool that predicts admissions decisions. We sought to include only variables for which students have some control over, namely academic characteristics, but compared the predictive accuracy of this reduced model to more complex models that include demographic variables commonly used in higher education research. We show the reduced model successfully predicts admissions decisions for approximately 85% of applications. The addition of demographic variables, despite showing a statistically significant better fit of the data, do not substantively change the predictive accuracy of the model. We include a demonstration of a data visualization tool built on this predictive model using the open-source *R* statistical software that can be used by students, parents, and educators. We also discuss causes for both optimism and caution when using predictive modeling to develop student-facing tools.

Keywords: admissions, predictive modeling, student-facing

The United States has made considerable progress in increasing college access rates for all racial and socioeconomic subgroups since the Civil Rights era (National Center for Education Statistics, 2016), but there is evidence that baccalaureate completion rates have actually declined over time (Bound, Lovenheim, & Turner, 2010) and disparities in baccalaureate attainment have remained stubbornly persistent (NCES, 2016). A common explanation of this phenomenon is that many high school graduates may not be academically prepared to access and succeed in college, and disparities in "college readiness" may contribute to inequitable attainment outcomes (Adelman, 1999, 2006; Cabrera & La Nasa, 2000, 2001; McPherson & Shapiro, 1998; Terenzini, Cabrera & Bernal, 2001). However, a growing body of literature has also identified the issue of "undermatch," in which students enroll in postsecondary institutions that are less selective than those for which they are qualified or forgo postsecondary enrollment altogether (Bowen, Chingos, & McPherson, 2009; Roderick et al., 2008; Hoxby & Avery, 2012; Roderick, Coca, & Nagaoka, 2009; Smith, Pender, & Howell, 2012).

Will I Get In?

Researchers continue to investigate the diverse causes of undermatch, but a compelling hypothesis is that students with limited access to information about their college options may be more likely to undermatch. Indeed, studies have found that high-achieving students are less likely to apply to and enroll in selective colleges if they attend small or rural high schools with fewer high achievers (Hoxby & Avery, 2012), and interventions that provide high-ability students with greater information about institutions which they are qualified for have been found to significantly increase the likelihood that they apply to selective colleges, are admitted, and matriculate (Hoxby & Turner, 2013). These studies suggest that providing students with more accurate information about their college options may be an effective strategy for increasing college-going overall and decreasing equity gaps in college access. Towards this end, the purpose of this study is to use predictive modeling to develop a student-facing tool designed to estimate the likelihood of university admission using data from Texas' longitudinal student data system. The goal was to include only variables for which the student has some control over, namely variables tied to their academic achievements. These include variables such as GPA, SAT/ACT scores, the high school graduation plan a student completes, and the number of advanced and dual-credit courses passed in high school. We explicitly desire to exclude variables for which the student does not have control, such as race, sex, and parents' socioeconomic status. However, such

variables are commonly used in higher education research. Thus, in order to justify their exclusion from our modeling approach, we must first verify that their influence does not greatly affect the predictive performance of our reduced model. We show this by comparing a full model combining the desired academic variables and the control variables to a reduced model containing only the variables of interest. We demonstrate that the reduced model performs as well as the full model and correctly predicts admissions decisions for roughly 85% of public university applications in Texas.

Academic Resources, Information, and Undermatch

There is broad consensus in the literature that academic resources influence college access and completion rates, readiness for college is unequally distributed across racial/ethnic and SES groups, and disparities in academic preparation at least partially explain inequities in baccalaureate attainment (Adelman, 1999, 2006; Cabrera & La Nasa, 2000, 2001; Kim, 2004; McPherson & Shapiro, 1998; Terenzini, Cabrera & Bernal, 2001). However, a growing body of research has highlighted the magnitude and significance of "undermatch," or the phenomenon in which students enroll in postsecondary institutions significantly less selective than those for which they are qualified or forgo postsecondary enrollment altogether despite being college-ready (Bowen, Chingos, & McPherson, 2009; Roderick et al., 2008; Hoxby & Avery, 2012; Roderick, Coca, & Nagaoka,

2009; Smith, Pender, & Howell, 2012). Although some studies suggest there may be risks of "overmatching" given that students who overmatch may be surrounded by peers with greater academic qualifications than them (Sander & Taylor, 2012; Thernstrom & Thernstrom, 1997), the majority of studies in this vein have concluded that overmatching increasing the likelihood of attainment (Alon & Tienda, 2005) or, conversely, under-matching decreases the odds of attainment (Bowen, Chingos, & McPherson, 2009).

Studies have shown that low-income students are significantly less likely to apply to a four-year institution compared to their high-income peers, even when controlling for academic readiness (Cabrera & La Nasa, 2001; Author, 2015; Hurtado, Inkelas, Briggs, & Rhee, 1997; Pallais & Turner, 2006). In their analysis of students' pre-college pathways using data from NCES' National Education Longitudinal Study of 1988, Cabrera and La Nasa (2001) identified the rates at which students from different SES backgrounds became "college-qualified," graduated from high school, and applied to postsecondary institutions. Out of the pool of college-qualified high school graduates, the authors noted that only 65.5% of student from the lowest-SES background applied to a four-year institution, 16% below the national rate for college-qualified students and 22% below the rate for college-qualified students from the highest-SES background. In other words, only two out of three college-qualified low-SES graduates applied to a four-year institution, compared to nearly nine out of ten high-SES

graduates who were college-qualified. However, the authors concluded that the chances of lowest-SES students enrolling in a four-year institution "improve dramatically to the point of closely resembling the national average and the rate for highest-SES students" once low-SES students complete the task of submitting an application to a four-year college or university (p. 121).

Hoxby and Avery (2012) reached similar conclusions when analyzing the rates at which very high achievers, or students with an SAT score in the top ten percent of the national distribution and who had at least a 3.5 GPA in high school, applied to selective colleges. The authors found that "a large number--probably the vast majority--of very high achieving students from low-income families do not apply to a selective college or university" (p. 1). However, these low-income high-achievers exhibited different application patterns. The group of high-achieving low-income students the authors defined as "income-typical" had low application rates and rarely applied to selective institutions, while "achievement-typical" students applied to more colleges and more selective colleges, mirroring the application patterns for high-income high-achievers. Put differently, very few high-achieving low-income students apply to a broad range of schools, many of which are selective, which is the common application behavior for high-income high-achievers. The authors also found that income-typical students were more likely to attend high schools with few other high achievers and which had a weak history of graduates

attending selective colleges. In other words, despite being high-achieving, these students were less likely to have the information and support need to promote their college aspirations and application behavior. Subsequent interventions designed to identify these high-achieving low-income students and provide them with greater information about their college options have been found to significantly increase these students college application rates, rates of application to selective institutions, and the total number of applications they submitted (Hoxby & Turner, 2013). More importantly, high-achieving low-income students have been found to the admitted to selective colleges at rates roughly equivalent to their high-income peers (Hoxby & Avery, 2012), and these interventions did in fact increase the selectivity of institution that low-income students matriculated to (Hoxby & Turner, 2013). These findings suggest providing greater information to high-achieving low-income students about their college options may not only promote their college application rates and the selectivity of colleges to which they apply, but may also promote their college enrollment, decrease undermatching, and potentially reduce inequities stemming from socioeconomic background in the selectivity of colleges students enroll in.

Although this line of research is promising, the proportion of low-income students that fall into the high-achievement category as defined by Hoxby and Avery (2012) is quite small – they estimate between 25,000 and 35,000 students in each national cohort of high

school graduates fall into this category. While encouraging high-achieving low-income subgroup's college aspirations and applications is important, focusing exclusively on students with the academic qualifications needed to gain access to the most selective schools in the country may be an overly narrow approach. However, it is also much easier to design interventions like the one piloted by Hoxby and Turner (2013) for a few thousands students rather than the millions who graduate high school each year. This problem motivated the current study. We sought to develop a tool to accurately estimate students' likelihood of college admission that could be used by educators, students, and students' families to make more informed decisions about applying to college. Our goal was to make this tool useful to all students, not just very high achievers. And we also believed more generally that providing students with better information about the relationship between their academic performance and their likelihood of admittance into specific colleges and universities might motivate students to pursue a more challenging high school curriculum, earn better grades, and the like. However, this tool would only be useful if it was a valid and reliable predictor of students' admissions decisions. The sections to follow describe our methodological approach for building and validating the underlying statistical models which the tool is founded upon.

Methods

Data Source and Access
The data used in this study was made available by the Texas Education Research Center (ERC) at The University of Texas at Austin. The ERC houses several datasets collected from the Texas Education Agency (TEA), Texas Higher Education Coordinating Board (THECB), and Texas Workforce Commission (TWC) and makes it securely available for scientific inquiry and policy making purposes. Access to the data can be acquired by submitting a research proposal to the ERC Joint Advisory Board, which reviews proposals based on whether data needed to address the research questions is available in the ERC, the strength of the proposed methods, and the potential benefits of the research to the state of Texas. Access to the data can also be granted directly by the Texas Legislature, as is the case for the current study.

Data collected by THECB through the ApplyTexas application system was used to document students' applications and admissions decisions. All public universities in the state are required to use ApplyTexas to accept applications from Texas high school graduates (see applytexas.org). Community colleges also use ApplyTexas but are not required to report data on applications to the state, preventing us from analyzing applications to community colleges. This dataset contains a record for every application students submitted through ApplyTexas, the admissions decision of the institution, and a host of other background demographic and academic variables. Specifically, data on high school ranking and SAT/ACT scores (discussed below) are collected through this system. It is important to note that in addition to ApplyTexas, institutions may offer additional application systems, such as the Common Application or institution-specific admissions processes, and students who apply to universities through those systems are not recorded in the ApplyTexas dataset. However, anecdotal evidence suggests that the vast majority of Texas high school graduates who apply to Texas public universities use ApplyTexas.

Our cohort was defined using the Texas Education Agency's (TEA) high school graduation data. This dataset includes a record for every student who completed high school during a particular year. Data on students' high school transcripts was collected by TEA. This data source includes information on the title of each course students attempted in high school, whether the course was advanced, whether the course was dual-credit, the subject of the course, whether the student passed the course, and the number of credits the student earned from the course. One idiosyncrasy of the dataset is that numerical course grade information was collected and reported during the 2010-11 and 2011-12 school years but for no other years before or after. Given our use of a 2014 cohort of high school graduates (sample described below), we had data on grades for students' freshmen and sophomore years of high school but not their junior or senior years.

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Additionally, the dataset only contains information for courses taken through Texas high schools, so students who transferred into Texas during high school would not have their prior course taking recorded in the data. The TEA data also contains a file with detailed information on students' demographic backgrounds. This dataset was used to determine students' race/ethnicity, sex, and economic background (free-or-reduced lunch eligibility). Although the ApplyTexas dataset also contains information on students' socio demographic backgrounds, certain variables appear to have significant amounts of missing data whereas the TEA data was far more complete.

Sample

The sample used in the current study is a cohort of students who graduated from a Texas high school in 2014 and who applied to at least one public university in the state of Texas for admissions during the fall 2014 semester. Of the 302,269 students in the graduating class, 103,860 students (34.36%) submitted at least one application, and 200,973 individual applications were submitted. Demographically, the sample was 6.1% Asian, 15.0% Black, 41.7% Hispanic, 33.0% White, and 4.1% other (Native American/Alaskan Native, Native Hawaiian/Pacific Islander, and multiracial students were combined into this category due to their small sample sizes), 55.1% female compared to 44.9% male, and 41.3% economically disadvantaged compared to 58.7% non-disadvantaged.

From the original sample of applications, we excluded all instances where the students withdrew their applications since they did not receive an admissions decision in that case, as well as applications where the student was admitted under the top ten percent policy. This was done for two reasons. First, all students in the top ten percent receive automatic admission, meaning there is no variation in the outcome variable for this subgroup. A predictor variable representing whether students were in the top ten percent would therefore be dropped from the statistical model. Second, because these students are guaranteed admission, the tool we developed would be irrelevant to this population. Excluding top ten percent students, withdrawn applications, and a small percentage of students with missing data (discussed below) left 110,620 application records. We further split this sample into training and test sets at a ratio of 80/20, with the test set used to analyze the performance of the models developed on the training set.

Variables

The outcome variable in the study is whether students were admitted to a public university in Texas to which they applied. The university applications dataset includes a variable that indicates the admissions decision for each application. This variable has seven possible values: 1) accepted and ranked in the top 10% of graduating class; 2) accepted and ranked in the 11-25% of graduating class; 3) accepted on provisional basis, met requirements; 4) accepted on provisional basis, did not meet requirements; 5) accepted based on other

criteria; 6) rejected; 7) student withdrew application. As mentioned above, students accepted through the top ten percent rule and those with withdrawn applications were excluded. The original admissions decision variable was converted into a dichotomous variable, with the rejected (6) value being recoded into not admitted ("0") and the values of 2-5 being recoded as admitted ("1"). The five academic variables of interest included in the models are the student's high school GPA, ACT/SAT score, number of advanced courses, number of dual credit courses, and high school graduation level. Of the primary variables, GPA was the only one to present particular difficulties. As mentioned above, grade data was only available for the years 2011 and 2012, years when our cohort would have been freshman and sophomores, and it was from these values that GPA was calculated. Because some of the cohort were not attending a Texas school during these years, GPA was missing for those application records (n = 2,766, or 2.4% of sample) and were dropped from the analysis.

SAT/ACT scores were recorded in the ApplyTexas application. Some students only reported an ACT score, some reported an SAT score, some reported both, and some reported neither (14,621 application records, or 7.3% of the total sample of 200,973 applications). In order to include a single variable in the model, SAT scores were converted to the ACT score range of 11-36 using SAT-ACT concordance tables (College Board, 2016). It is also noted that multiple applications from the

same student may contain different values for this variable, indicating the student retook the given test and submitted improved scores. We used the SAT/ACT score the student submitted to the institution she or he applied to, rather than the highest score they submitted across institutions. Applications without SAT/ACT scores were dropped from the sample.

The number of advanced and dual-credit course variables are measured by counting the number of credits students earned for courses indicated as advanced or dual-credit in the TEA data. A full year course is generally worth one credit in the data but may be broken up into two semester-long courses each worth 0.5 credits, for example. Although schools and districts may have used different criteria for determining whether students passed courses, failed courses were awarded zero credits and were therefore excluded in the calculation of these variables. At the time when this cohort was graduating from high school students could earn one of four different types of high school diplomas: distinguished, recommended, minimum, and individualized education plan (IEP). Roughly 70% of the cohort completed the recommended plan. The distinguished plan included additional rigorous courses and approximately 15% of students earned that diploma. The remaining 15% of students completed the minimum plan or an IEP. Most frequently, students with disabilities complete IEPs. Because of the small number of students earning IEPs, the minimum and IEP categories were collapsed into a single

category. This three-level variable (distinguished, recommended, and minimum/IEP) representing the diploma students earned was included in the models as an additional measure of curricular rigor. There were 35 public universities represented in the original dataset, but four of these were small schools where only a handful of applications were received from our cohort of students. We grouped all schools with < 100 applicants into an 'other' category. The statistical models include institutional fixed effects, which essentially use the institution's overall admission rate to adjust the students' baseline odds of admission.

As our primary purpose was to develop a student facing tool to estimate admissions decisions we desired not to include demographic variables in the models, both because students have no control over their demographic backgrounds and because we would not want students to see their odds of admission change depending on their race, SES, or sex. However, because prior literature has shown students' demographic characteristics at times shape their college-going behavior, we sought to further validate the tool by fitting statistical models that controlled for race, SES, and sex. Race has been grouped into 5 categories: White, Black, Asian, Hispanic and other (American Indian/ Alaskan Native, Native Hawaiian/Pacific Islander, Multiracial, or Unknown). Socioeconomic status was proxied with a binary variable indicating whether students qualified for free-or-reduced price lunch in high school. A dummy variable for males was included with the reference group being

females, as Texas does not allow students to report non-binary gender identities.

Model Validity and Comparisons

In much quantitative educational research, and in particular studies that use some form of regression modeling, the primary interest is often the relationship between independent variables of theoretical import and the outcome. These relationships are assessed through the magnitude and direction of the coefficients, as well as whether the estimates are statistically significantly different than zero at whatever threshold the researcher chooses, most commonly $p < .05$. At times researchers present values such as R^2, the proportion of variance in the outcome explained by the model, or various fit indices to assess how well the model fits the data, but rarely are those statistics the main focus of the research. However, in our case the accuracy and reliability of the model(s) are far more important than the relationship between individual predictors and the outcomes, given our goal of creating a tool students can reasonably rely upon to estimate admissions decisions. We therefore employed a variety of statistical techniques for assessing the validity and performance of these models.

We first checked for potential issues of multicollinearity, or when predictor variables in the model are highly related to each other (Belsley, Kuh, & Welsch, 1980; Greene, 2011), by computing variance inflation factors (VIF) for each of our models. The VIF values represent how much the variance is increased due to issues of multicollinearity. VIF values greater than 10 suggest the possibility that multicollinearity may be affecting the results,

although some statisticians argue that VIF values as high as 40 can still be tolerated without biasing the results (O'Brien, 2007). Nevertheless, all variables had a VIF value less than 10 for all models included in the study, suggesting limited threat of multicollinearity.

We then examined measures of accuracy of the models defined by their Receiver Operating Characteristics (ROC), including their sensitivity and specificity, as well as the related Area Under the Curve (AUC) values (Hosmer, Lemeshow, & Sturdivant, 2013). The ROC measures the accuracy of the model by classifying predictions based on whether they are above and below 0.5 and then comparing the predicted values to the actual outcome. For example, if a student has a 0.75 (75%) predicted likelihood of being admitted to a college but they were not admitted, that prediction would be considered inaccurate. The ROC summarizes the overall accuracy of the model, and predictions can be further classified based on the ability to detect true positives (sensitivity) and true negatives (specificity). The AUC essentially compares the models to one that would randomly classify cases. An AUC value of .5 means the model is no better than chance at predicting the outcome, while an AUC between .9-1.0 suggests excellent fit.
In addition to examining overall accuracy, we use a common metric known as the Brier score to explore other performance characteristics of the models (Brier, 1950; Murphy, 1973). In particular, we are

interested in how well the models are calibrated, or how accurate they are over the entire range of values, i.e. the probability threshold for labeling a prediction for a student as 'accepted'. Two competing models could correctly predict the same number of events overall, but one may over predict events with high probability and correspondingly under predict those with low probability while the other is more accurate over the entire range of values. Brier scores range from 0.0-1.0, with values closer to 0.0 representing better calibration.

With ordinary least squares regression (OLS), the most common measure of model performance is R2, a value representing the amount of observed variability in the outcome explained by the given model. A directly analogous measure of model performance is not possible with logistic regression because the maximum likelihood calculation for logistic regression is not minimizing variance. In lieu of R2, a variety of 'pseudo' R2 values have been developed to provide similar metrics for logistic regression, with several producing R2 like values ranging from 0 to 1, but with slightly different interpretations. While there is no consensus on the best version of pseudo R2 values to use, one of the most common is the adjusted McFadden's pseudo R2, where values of this metric between 0.2-0.4 indicate excellent fit, and roughly correspond to values of 0.7-0.9 of the OLS version of R2 (McFadden, 1974).

Results

The models discussed in the results section are numbered as follows:

Model 1: Reduced
Model 2: Reduced+Sex
Model 3: Reduced+Race
Model 4: Reduced+Econ
Model 5: Reduced+Sex+Race
Model 6: Reduced+Sex+Econ
Model 7: Reduced+Race+Econ
Model 8: Reduced+Sex+Race+Econ

Each model includes all of the primary variables of interest, and differ only in which of the control variables they contain. Lower numbered models are said to be nested within higher models where the higher model contains all the variables of the nested model in addition to others. For instance, model 4 is nested in model 6, but not in model 5 as model 5 does not contain the economically disadvantaged variable. It was our desire to examine each of the possible combinations of the control variables, so automated variable selection such as step-wise methods where not utilized.

Model Summaries

Summaries of each model are provided in Table 1 on page 27. Apart from the predictor variables included in the table, the models also include university fixed effects which are not shown for conciseness. The primary academic variables of interest are statistically significant for each of the models under consideration. Although both advanced and dual-credit courses were found to be positively related to acceptance, of note is that advanced courses had roughly twice the benefit in terms of admissions compared to dual-credit courses.

The demographic control variables were also found to be statistically significant in every model in which they were included. Males had lower odds of admission compared to females, all racial/ethnic groups had lower odds of admissions compared to the reference category of Hispanics (although the coefficient for Whites was not statistically significant in the fullest models), and economically disadvantaged students were less likely to be admitted compared to non-disadvantaged students. We note that the addition of control variables had little effect on the estimated coefficients of the primary variables of interest.

Whereas the results showed that the variables included in the models were significantly related to students' odds of admission, of greater importance is the validity of the models. Table 2 presents the ROC statistics, including the overall accuracy of the models as well as their sensitivity and specificity, calculated using 10-fold cross validation. The results show that the models correctly classify roughly 84.0% of students overall, although the models are better at classifying true positives (91.1-91.2%) than true negatives (69.2-69.6%). Put differently, roughly 9.0% of students who did get into the institution they applied to would have been told that they would not get in (the false negative rate),

while roughly 30.0% of students who were not admitted would have been told that they would be (the false positive rate). Importantly, neither the overall accuracy of the models or their sensitivity and specificity vary appreciably regardless of the demographic variables controlled for, suggesting the model would be just as valid excluding demographic characteristics.

Table 2.
ROC Tests

	Accuracy	CI Lower	CI Upper	Sensitivity	Specificity
1	0.8375	0.8332	0.8418	0.9107	0.6917
2	0.8378	0.8334	0.8420	0.9112	0.6915
3	0.8386	0.8343	0.8429	0.9115	0.6935
4	0.8383	0.8340	0.8425	0.9117	0.6921
5	0.8383	0.8339	0.8425	0.9113	0.6927
6	0.8388	0.8345	0.8431	0.9116	0.6939
7	0.8384	0.8341	0.8427	0.9116	0.6926
8	0.8399	0.8356	0.8441	0.9123	0.6956

Table 3 provides the adjusted McFadden pseudo-R2, AUC, and Brier score values for all eight models. All three statistics provide strong support for the models' validity. The high pseudo-R2 and AUC values suggest strong accuracy of the models, and the relatively low Brier scores suggest the models are reasonably well calibrated across the range of predicted values. Again we see that the difference in performance for the most complex model versus the most parsimonious one is practically negligible, even when the demographic variables added to the models may be statistically significant given the large sample size.

Table 3.
Predictive Admissions Tool

	Adj.McFadden	AUC	Brier Scores
1	0.5097	0.9339	0.1920
2	0.5102	0.9340	0.1922
3	0.5106	0.9341	0.1919
4	0.5101	0.9341	0.1913
5	0.5111	0.9342	0.1916
6	0.5106	0.9341	0.1917
7	0.5108	0.9342	0.1914
8	0.5113	0.9342	0.1912

Finally, we have developed a prototype of an interactive visualization tool driven by our model. This tool allows students and counselors to explore the impact of academic performance and high school course-taking decisions on admissions rates to their selected colleges. A screenshot of this prototype is provided in Figure 1 on page 28. A web-link to this tool and the code used to generate the tool from the underlying statistical model is available upon request to the corresponding author.

Discussion
Low-income and URM students have been found to be significantly more likely than their high-SES peers to apply to and enroll in colleges that are significantly less selective than those for which they are qualified or forgo postsecondary altogether (Bowen, Chingos, & McPherson, 2009; Roderick et al., 2008; Giani 2015; Hoxby & Avery, 2012; Roderick, Coca, & Nagaoka, 2009). This is despite the fact that the vast majority of high school students aspire to attend a 4-year college, regardless of socioeconomic background and race/ethnicity (Author's

calculations using NCES' Datalab). Preliminary interventions providing high-achieving, low-income students with more and better information about the types of universities they are likely to gain admission to and the cost of attendance of these institutions have shown promising in increasing college application rates and reducing undermatch (Hoxby & Turner, 2014).

There are surely diverse causes of undermatch, but a compelling explanation is that students who undermatch may have limited information about their college options. Hoxby and Avery's (2012) analysis showed that what distinguished high-achieving, low-income students' college application patterns was the types of high schools they attended. "Achievement typical" students were more likely to attend high schools with other high achievers and where previous graduating cohorts had attended selective colleges, while "income typical" students were relatively isolated from other high achievers and attended high schools without a strong history of sending students to selective institutions. It is possible, then, that these students have insufficient knowledge about the types of institutions for

which they are qualified, despite being academically prepared to succeed in college. Our goal in this paper was to develop a tool that estimates students' likelihood of admission into specific colleges and universities to which they might apply. Our view was that this type of tool could be a means for educators, students, and their families to gain more accurate information about their chances of going to college, which may in turn encourage students to apply to colleges that they may not have been considering before. However, we believed this tool would only be useful if it was a valid and reliable predictor of universities' admissions decisions.

> **"The results from our statistical models show that students' admissions decisions can be estimated with a high degree of accuracy with a limited set of variables related to students' academic preparedness and controlling for the specific institution they applied to."**

The results from our statistical models show that students' admissions decisions can be estimated with a high degree of accuracy with a limited set of variables related to students' academic preparedness and controlling for the specific institution they applied to. The models we developed correctly classified roughly 84% of applications and accurately identified roughly 91% of students who were indeed admitted to college. The models did not perform as well as identifying true negatives; approximately 30% of students who were not admitted would have been told that they would be admitted using this tool. We argue that the

risk of incorrectly telling students they will be admitted is less of a concern than incorrectly telling students that they will not be admitted, as the latter might deter students from applying to institutions they would be admitted to.

Equally important, the results show that controlling for students' demographic backgrounds did not improve the accuracy of the models in any appreciable way, despite these variables being statistically significantly related to the outcome given our large sample size. This finding is important for three reasons. First, the results show that the risk of decreasing model accuracy by excluding demographic controls is minimal. Second, given the ethical concerns of including demographic variables in the interactive tool, which would allow students to see how their race/ethnicity, sex, and economic status influence their likelihood of admissions, the results justify excluding these variables in the interactive tool as well. Third, while debates continue in research, policy, and the courts over affirmative action and how students' demographic backgrounds relate to their odds of admission, our findings suggest that students' demographic characteristics matter little to their likelihood of admission, at least across the full range of public 4-year institutions in Texas.

Most importantly, the statistical models were used to build an interactive tool to demonstrate to students their odds of admission. Given that existing literature has shown many students, and particularly low-income and first-generation students, have limited information about their odds of admission, this tool could be used to help close that information gap. Students who are unsure about their college aspirations or the selectivity of college they aspire to attend may feel encouraged to see first-hand that their academic experiences give them strong chances of admission to a college they are interested in. This predictive admissions tool could therefore be used to increase the selectivity of colleges that low-income and first-generations apply to, and hopefully enroll in, thereby reducing the extent of academic undermatch found consistently in the literature.

There are a number of ways in which the model we have developed could be broadened. For example, variables such as the highest level of math taken in high school, the number of advanced, dual-credit, and other courses taken by their subject, scores on separate components of standardized tests, and others could easily be added to the model. However, as an initial prototype we opted for the simplest model possible, with positive results. Future research could explore the extent to which more complete and complex models affects their predictive accuracy.

Additionally, further work is need to ensure our model is valid over time. We chose the most recent cohort available at the time we initially began creating the analytic dataset. Replicating this approach with additional cohorts could address a number of intriguing

Table 1.
Results of Logistic Regression Models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Dependent Variable:				
				admit_fct				
Constant	-28.119***	-28.042***	-28.258***	-28.386***	-28.181***	-28.307**	-28.442***	-28.363***
	-0.212	(0.212)	(0.214)	(0.215)	(0.214)	(0.214)	(0.217)	(0.217)
gpa9_10	2.978***	2.942***	3.000***	2.997***	2.964***	2.961***	3.009***	2.973***
	(0.033)	(0.034)	(0.034)	(0.033)	(0.034)	(0.034)	(0.034)	(0.034)
act	0.491***	0.497***	0.499***	0.499***	0.505***	505***	0.504***	0.509***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
gradtype_fctRegular	0.694	0.691***	0.697***	0.692***	0.694***	0.689***	0.695***	0.693***
	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)	(0.097)
gradtype_fctHonors	0.969***	0.957***	0.963***	0.960***	0.951***	0.948***	0.959***	0.947***
	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)	(0.101)
num_adv_course	0.138***	0.136***	0.137***	0.135***	0.136***	0.133***	0.136***	0.135***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
num_dual_credit	0.064***	0.063***	0.062***	0.063***	0.061***	0.062***	0.061***	0.060***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
male_fct1		-0.164***			-0.165***	-0.163***		-0.164***
		(0.020)			(0.20)	(0.020)		(0.020)
ethnic_group_fctAsian			-0.407***		-0.409***		-0.379***	-0.381***
			(0.046)		(0.046)		(0.047)	(0.047)
ethnic_group_fctBlack			-0.056*		-0.058*		-0.046	-0.049
			(0.030)		(0.030)		(0.030)	(0.030)
ethnic_group_fctOther			-0.431***		-0.431***		-0.403***	-0.404***
			(0.059)		(0.059)		(0.060)	(0.060)
ethnic_group_fctWhite			-0.126***		-0.129***		-0.075***	-0.078***
			(0.027)		(0.027)		(0.029)	(0.029)
econ_dis_fct1				0.162***		0.160***	0.136***	0.134***
				(0.022)		(0.022)	(0.023)	(0.023)
Observations	110,620.00	110,621.00	110,622.00	110,623.00	110,624.00	110,625.00	110,626.00	110,627.00
Log Likelihood	-33,627.06	-33,594.23	-33,565.44	-33,600.41	-33,532.26	-33,568.12	-33,548.41	-33,515.85
Akaike Inf. Crit	67,330.13	67,266.46	67,214.89	67,278.81	67,150.53	67,216.25	67,182.82	67,119.70

Will I Get In?

Figure 1.
Predictive Admissions Tool Dashboard
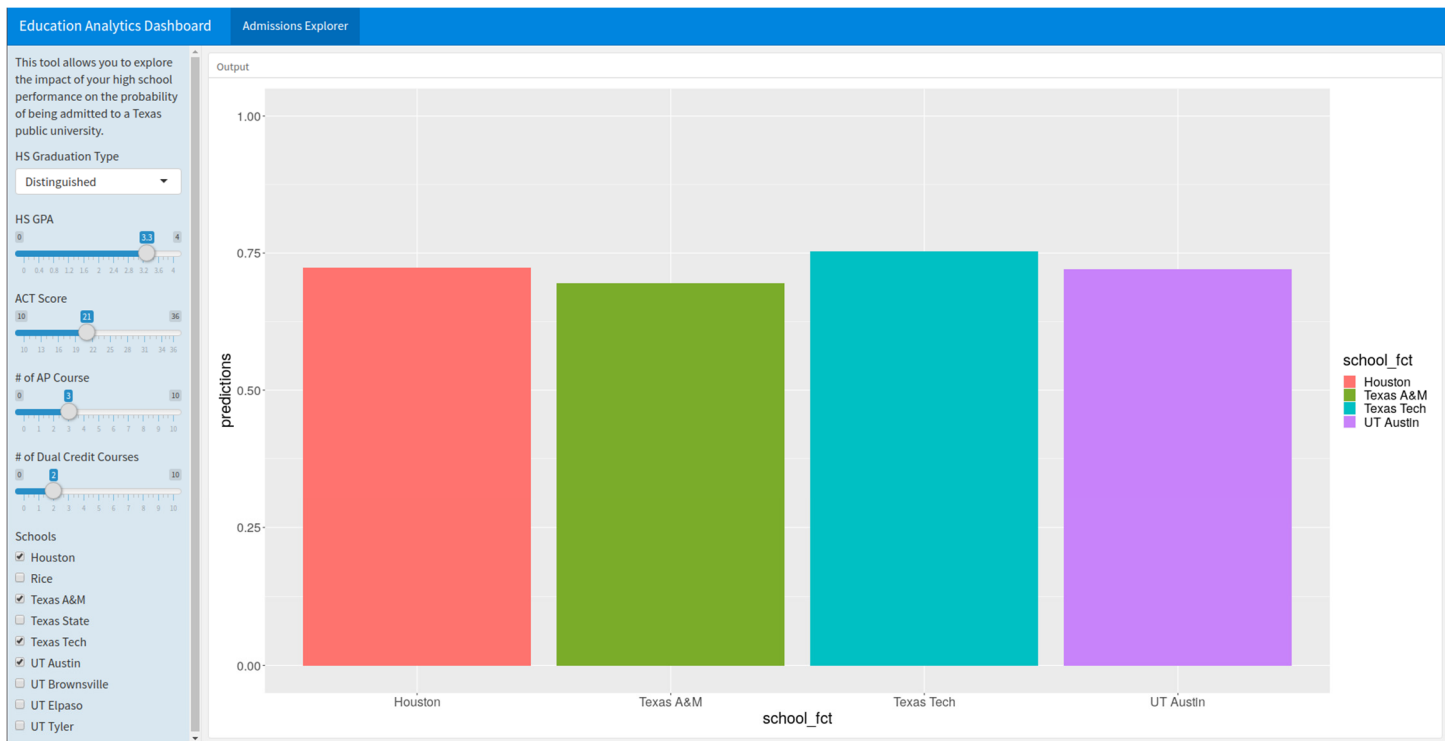
research questions, such as whether the model is more or less accurate for other cohorts, whether the relationship between specific academic variables and university admissions has changed over time, and whether demographic variables are more or less impactful during other periods. ⓙⒸⒶ

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JCA

Integrating Social Emotional Skill Development throughout College Access Program Activities:
A Profile of the Princeton University Preparatory Program

JCA

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ABSTRACT

In a prior study (Millett & Kevelson, 2018a), we demonstrated that college access program participants have positive views of the extent to which the program supports the development of their social and emotional skills and related college help-seeking behaviors in college. In this follow-up study, we explore the extent to which participant views vary by length of participation in the program in high school (i.e., dosage) and the extent to which alumni enrolled in college differ from college graduate alumni in their perceptions of the influences of the college access program. Results reveal that a multi-year college access program may influence different social and emotional skills over the course of the program, and dosage may matter. Moreover, alumni perceptions may differ depending on the stage of life they are in. Overall, the study findings reiterate that college access programs may help low income, high-achieving students develop social and emotional skills and prepare program alumni to successfully navigate college life.

Keywords: social and emotional skills, soft skills, non-cognitive skills, college access, college access programs, access to higher education, minority students college, low-income students college

DISCLAIMER

There is growing recognition that being college-ready requires more than just academic preparation. Social and emotional skills are increasingly viewed as essential for success in school and beyond (Denham & Brown, 2010; Heckman & Kautz, 2013), and in some cases are seen as equally or even more important than academic skills (Gutman & Schoon, 2013). Also known as "noncognitive skills," "21st century skills," and "soft skills" (Duckworth & Yeager, 2015), social and emotional skills—such as persistence, motivation, engagement, time management, and collaboration—are seen as vital for success in colleges and in 21st century workplaces (Shechtman, DeBarger, Dornsife, Rosier, & Yarnall, 2013) and may actually predict academic and career achievement (Duckworth & Seligman, 2005). The social and emotional skills of teamwork and collaboration, and the cognitive skills of critical thinking and problem solving, are cited by employers as critical in the modern workplace (Casner-Lotto & Barrington, 2006). In fact, social and emotional skills are also viewed as intertwined with academic skills, and thus should be supported concurrently (Jones & Kahn, 2017).

Intervention programs are one way to support social and emotional learning (SEL) (Jones & Bouffard, 2012), and this study highlights the potential usefulness of an SEL intervention integrated into the Princeton University Preparatory Program (PUPP) college access program. In our prior study of PUPP, participants reported that PUPP

positively influenced their academic skills and SEL and helped them to gain admission to and successfully matriculate at selective colleges and universities (Millett & Kevelson, 2018a). This study explores the extent to which perceptions of the contributions of the PUPP intervention to participants' SEL and certain cognitive skills vary by length of time in the program. It also explores the extent to which college graduate PUPP alumni differ from PUPP alumni currently enrolled in college in their perceptions of PUPP's influence on SEL and related skills. Prior scholarship highlights the potential for intervention effects to vary by "dosage" (Diamond & Ling, 2016; Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011) and to persist or fade out over time (Bailey, Duncan, Odgers, & Yu, 2017).

Benefits of SEL Interventions

Many social and emotional skills are responsive to interventions designed to improve educational outcomes, which can result in long-term effects (Durlak, 2015; Taylor, Oberle, Durlak, & Weissberg, 2017). One review of more than 200 K-12 school-based SEL programs revealed that they can have significant impacts on social and emotional skills, behavior, attitudes, and academic performance, and reduce emotional distress and conduct problems (Durlak et al., 2011). A meta-analysis of 82 school-based SEL intervention studies found that program participants developed stronger social and emotional skills than control group members and had stronger indicators of well-being

(Taylor et al., 2017). These findings were the same regardless of student race, socioeconomic status or school location, and impacts were found from 1 to 3.75 years after program participation. Other studies have found stronger effects for racial minorities or lower-income individuals (Gutman & Schoon, 2013; Taylor et al., 2017), or for those with lower baseline social and emotional skill scores (Bierman et al., 2014; Gutman & Schoon, 2013).

Skills Associated with College and Career Readiness

Prior scholarship has established that students' decisions to enroll in and persist through college are associated with social and emotional skills (Heckman & Kautz, 2013; Heckman, Stixrud, & Urzua, 2006). As noted earlier, social and emotional skills may be inextricably linked to academic skills, (Jones & Kahn, 2017) and social and emotional skills, such as goal setting, perspective taking, interpersonal problem solving, conflict resolution, and decision making, along with cognitive skills, are the "means by which students master academic content and translate knowledge into action" (McGarrah, 2015. p. 1). In addition to academic ability, social and emotional skills—including academic self-confidence, motivation, and time management—are correlates of college persistence and performance (Lotkowski, Robbins, & Noeth, 2004). Colleges have been encouraged to adopt an integrated approach that "addresses the social, emotional, and academic needs of students" (Lotkowski et al.,

2004, p. 22).

Despite the evidence that suggests college students utilize social and emotional skills to persist in college, employers highlight a need for additional development of this skillset. Employers are concerned that college graduates have insufficient social and emotional skills to succeed in the workforce (Kyllonen, 2013). Some studies indicate that college graduates lack skills such as problem solving, communication, adaptability, and critical thinking (Casner-Lotto & Barrington, 2006).

PUPP aims to positively influence students' social and emotional skills associated with college and career readiness (Garcia, 2014; Nagaoka et al., 2013). These include communication, collaboration, leadership, "grit," time management, and academic self-efficacy (Nagaoka et al., 2013). First-generation college students are more likely to have lower levels of academic self-efficacy than students whose parents attended college (Smith, 2010). Academic self-efficacy has a positive relationship with student grade point average and number of credits earned in the first year of college, and predicts intent to persist to college graduation (Smith, 2010).

Behaviors Associated with College Success

Low-income[1], first-generation college students are less likely to be engaged in academic and social experiences that foster success in college, such as study groups, support services, extracurricular activities,

and even interacting with faculty and other students (Engle & Tinto, 2008). They are also less likely than more affluent students to engage in the help-seeking behaviors that support success in college (Phillips, Stephens, Townsend, & Goudeau, 2016). Whereas more affluent students tend to be comfortable accessing supports, low-income, first-generation college students may avoid seeking help because they believe that appearing to need it is an indicator of their own failings (Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). In addition, low-income students are less likely to pursue relationships with faculty, teaching assistants, and administrators, but differences in high school experiences also shape the skills necessary to pursue these relationships (Jack, 2016). Both middle class and low-income students exposed to adequate opportunities to develop these skills were able to adjust to an elite college environment. In contrast, low-income students who had not been given similar opportunities struggled to adjust to the new environment (Jack, 2016). More affluent children are often trained to assert themselves and question authority, while poor and working class children are more often taught not to ask for help, question, or share opinions with authority, for fear of negative consequences (Lareau, 2011). Unfortunately, these different sets of beliefs

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[1] Although exact income level cutoffs may vary by study, low-income generally refers to individuals and households with earnings in the lower third, fourth, or fifth of the income distribution, or to individuals and households with earnings below the federal poverty threshold (Czajka, 2010).

may lead low-income, first-generation students to be less successful in college and to withdraw from academic and social activities (Phillips et al., 2016). Academic and social engagement during college has been found to affect early career and labor market earnings, highlighting the lasting influence of college student engagement (Hu & Wolniak, 2013).

College Access Programs

College access programs vary in their format and specific foci, however, in general they exist to help high-achieving low-income students gain access to a college education by providing counseling and support for rigorous course taking as well as college application assistance (Gandara & Bial, 2001; Engle & Tinto, 2008). At their heart, college access programs focus on the academic and financial tools that students and their families need to access a college education (Gandara & Bial, 2001; Engle & Tinto, 2008). Some college access programs, such as the one that is the focus of this study, PUPP, provide supports not only for academic skill development but also for SEL. To address the importance of SEL for college readiness and success, PUPP was designed to ensure that participants have the social and emotional skills they need to engage fully in college academic and social experiences (Nagaoka et al., 2013). This study investigated the perceived SEL outcomes of PUPP.

The Princeton University Preparatory Program

PUPP is a time-intensive three-year program that exposes participants—known as "Scholars"— to the level of rigor students may experience in college, particularly in courses at more selective colleges (Millett & Kevelson, 2018a). Scholars participate during summers and academic years between the end of ninth grade and the summer after high school. Approximately 23-24 low-income rising tenth grade high school students are selected from local high schools each year through a competitive application process. Programming is consistent across the three years in its focus on key academic skills and subjects as well as social and emotional skills and arts and cultural activities; exposure to and support for the college application process increases as students progress through the program.

The program couples intensive academic preparation with arts and cultural activities, and all activities are infused with opportunities for social and emotional skill development. PUPP staff set high expectations for students not only to be successful academically but to have strong character and a sense of social responsibility (Millett & Kevelson, 2018a). They model and teach appropriate behaviors for various academic and cultural contexts and foster discussions around navigating new experiences and interacting with people from diverse backgrounds; such mentoring is shown to be effective (Bedsworth, Colby, &

Integrating Social Emotional Skill Development

Table 1.

PUPP Priority Skills (PPS)

Construct	Skills
Knowledge Acquisition	Study skills and other learning behaviors
Critical Thinking	Analysis, research, numeracy, and argumentation skills
Communication	Making presentations, sharing ideas, and listening
Internal Attitudes and Behaviors	Working independently, time management, and grit/perseverance
External Attitudes and Behaviors	Leadership and risk-taking

Source: PUPP (2015); for updated details on the PPS, see

Doctor, 2006). Small class sizes provide numerous ongoing opportunities for students to develop their communication, leadership, and presentation skills in a supportive environment, practices aligned with prior research (Gandara & Bial, 2001).

PUPP leaders select students with high potential for college success and integrate support for social and emotional skills into all program activities using the PUPP Priority Skills framework comprised of skills critical for college success (Millett & Kevelson, 2018a; see Table 1). While knowledge acquisition and critical thinking are cognitive skills, the remaining three PUPP Priority Skills are social and emotional skills (Jones & Kahn, 2017). All five Priority Skills are important for academic and career outcomes (Shechtman et al., 2013).

Scholars have reported that PUPP contributed to their SEL and helped them develop skills important for college and career success, including time management, communication skills, achievement motivation, intellectual engagement, and sociability (Millett & Kevelson, 2018b). Alumni reported that their PUPP experiences supported social and emotional skills that helped them to be successful in college, such as communication skills, leadership, critical thinking, achievement motivation, and collaboration (Millett, & Saunders, & Kevelson, 2018). Program alumni also cited the importance of the program's support for their SEL, noting how the increased self-confidence and communication skills they developed enabled them to be successful in college. Program alumni also reported influences on their ability to seek help when they need it in college—a related skill important for college success (Phillips, et al., 2016). Not only do PUPP alumni enroll in selective colleges and universities at a high rate, the college completion rate of PUPP alumni, approximately 70% for the first 5 cohorts, is much higher than the 50% college completion rate of first-generation college students within 6 years (DeAngelo, Franke, Hurtado, Pryor, & Tran, 2011; Princeton University Preparatory Program, 2017).

Integrating Social Emotional Skill Development

Based on the literature on dosage effects and the persistence of program effects over time (Durlak et al., 2011; Taylor et al., 2017), we explore the extent to which Scholars' perceptions of their own use of social and emotional skills and of PUPP's contribution to their skill development varied by length of time in the program and the extent to which alumni had different perceptions of PUPP's influence on their SEL and related skills. Among alumni, we were interested in whether there may be differences between the perceptions of those who were enrolled in college at the time of the survey and those who had already graduated and moved on to other activities. We theorized that those who had completed an undergraduate degree may have benefitted from additional experiences supportive of their SEL, and of their related help seeking behaviors, that may have influenced their perceptions of PUPP's support for these skills and behaviors.

In short, our research was guided by three questions:

How do Scholars' ratings of their SEL vary by their tenure in PUPP?

How do Scholars' perceptions of PUPP's contributions to their SEL and cognitive skills vary by their tenure in the program?

How do PUPP alumni's perceptions of PUPP's contributions to their SEL and help-seeking behaviors vary by their college enrollment or completion status?

Data & Methods

Sample & Procedures
We analyzed data from the PUPP Scholar Survey and the PUPP Alumni Survey, developed and implemented during the evaluation of PUPP we conducted from June 2015 through July 2016. The data used in this study were drawn from the 71 Scholar Survey participants, the 52 Alumni Survey respondents currently enrolled in college, and the 66 Alumni Survey respondents that had already graduated from college, for a total of 189 participants (see Table 2). The overall Scholar Survey response rate was 100%, and we used data from all respondents. To study the effects of college, we limited our alumni participants to those who were in college or had graduated, thereby eliminating the six percent of alumni survey respondents not in either group. Therefore, while the overall Alumni Survey response rate was 51% of the 248 PUPP alumni graduating from the program between 2005 and 2013 (N=126), we used data from 118 Alumni Survey participants, or 48% of all surveyed alumni. PUPP participants as a whole are a racially diverse group (see Table 2). Just under half of the total sample identified as Hispanic, while just over one-third identified as Black. These proportions were similar among active Scholars; however, the majority of alumni currently enrolled in college were Black and the majority of college graduate alumni were Hispanic. Sixty-five percent of the sample was female; greater proportions of Alumni Survey respondents than Scholar Survey respondents (100% of active Scholars) were female.

Table 2.

PUPP Scholar Survey and PUPP Alumni Survey Respondent Profile

	Current Scholars (N=71)		College Enrollee Alumni (n=52)		College Graduate Alumni (n=66)		Total (n=189)	
	N	%	n	%	n	%	N	%
Gender								
Female	39	54.9	37	71.2	47	71.2	123	65.1
Male	32	45.1	15	28.8	19	28.8	66	34.9
Race/Ethnicity*								
Asian or Asian-American	†	†	†	†	†	†	†	†
Black or African-American	22	32.4	30	65.2	33	55.9	85	49.1
Hispanic/Latino	33	48.5	16	34.8	15	25.4	64	37.0
Native Hawaiian/ Other Pacific Islander	†	†	0	0.0	0	0.0	†	†
White	6	8.8	†	†	11	18.6	17	10.0
Other/Multi-racial	7	10.3	†	†	†	†	7	4.0
Cohort Year Group								
2004-2007	0	0.0	†	†	32	48.5	32	17.2
2008-2011	0	0.0	6	12.2	34	51.5	40	21.5
2012-2015	0	0.0	43	82.7	0	0.0	43	23.1
2016 (Seniors)	23	32.4	0	0.0	0	0.0	23	12.4
2017 (Juniors)	24	33.8	0	0.0	0	0.0	24	12.9
2018 (Sophomores)	24	33.8	0	0.0	0	0.0	24	12.9

* Note: Multiple responses were allowed on this question
† Cell counts of 5 or less are not reported to protect anonymity.

Instruments

All materials developed for the PUPP evaluation were approved by an Institutional Review Board. See Millett & Kevelson, 2018b and Millett, Saunders, & Kevelson, 2018 for additional details on the Scholar and Alumni Surveys, respectively.

Scholar Survey. The 27-item Scholar Survey addressed topics that included experiences in program activities and the perceived impacts of PUPP on Scholars and their families. Our analysis included data from 15 Scholar Survey items asking Scholars the extent of their agreement regarding their use of social and emotional skills related to achievement motivation, time management, intellectual engagement, working with others, sociability, and work ethic[2]. These items were used to present a measure of Scholar's skill levels at the time of the survey, using response frequencies for those who selected "agree" or "strongly agree" in response to each SEL item. The next set of survey items included in the analysis, 14 items addressing SEL related to the PUPP Priority Skills, asked Scholars to rate the extent to which their PUPP experiences contributed to various skills on a five point scale from "not at all" to "very much." Our analysis presents response frequencies for those who selected "quite a bit" or "very much" regarding PUPP's contribution to each social and emotional skill, as well as means and standard deviations for the full set of responses[3].

Response frequencies[4] for both sets of survey items were calculated for the full group of 71 Scholars and for each of the three grade-level groups of Scholars participating in PUPP at the time of the survey: the PUPP graduating cohorts of 2016 (N=23), 2017 (N=24), and 2018 (N=24), who had participated in PUPP for one, two, or three years, respectively.

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[2] These items were part of a broader set of SEL survey items developed during a prior evaluation of PUPP also conducted by Educational Testing Service. The items were piloted with a sample of high school age students and cognitive interviews were conducted regarding the meaning of the items.

[3] Prior to the PUPP evaluation in 2016, the Scholar Survey was piloted with a subgroup of PUPP Scholars to obtain feedback on Scholars' understanding of the survey items. It was determined that items were interpreted as meaning what they were intended to mean.

[4] Note that it was not possible to combine the items representing each construct using factor analysis, given the small sample size. Therefore, we opted to compare frequencies for items within each construct. Statistical tests could not be conducted due to the small sample size and the need to use individual survey items, rather than composites or scales.

Alumni Survey. The 90-question Alumni Survey[5] was administered online to PUPP alumni who graduated from the program between 2005 and 2013[6]. Items used in our analysis included eight items assessing the extent to which alumni found college activities and behaviors easy or difficult (using a five point scale from "very difficult" to "very easy"), 11 items assessing alumni perceptions of how well PUPP prepared them for college (using a five point scale from "very poorly" to "very well"), and 10 items asking alumni to rate the extent to which their PUPP experiences contributed to various social and emotional skills and cognitive skills (on a five point scale from "not at all" to "very much"). For this study survey item response frequencies for those who selected the positive survey response options ("easy" or "very easy"; "quite a bit" or "very much", respectively) were compared between alumni enrolled in college at the time of the study and alumni that had already graduated from a four-year college. Results tables also present means and standard deviations for the full set of responses.

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[5] PUPP Alumni Survey items were drawn from previously developed surveys, including the surveys administered previously to PUPP alumni as part of the prior evaluation and the Princeton University 2011 Graduate School Survey.

[6] The evaluation team conducted two pilot tests of the PUPP Alumni Survey. The pilot sessions included three activities designed to elicit feedback from pilot participants: 1) participants responding to survey questions for approximately 30 minutes, the expected survey completion time; 2) participants sharing their own observations about the survey overall and on specific questions; and 3) participants reviewing particular questions for clarity and the appropriateness of the response options.

Results

Current Scholars' Reports of their Social and Emotional Skills since Applying to PUPP

We used Scholar Survey data to address our first research question, on the extent to which Scholars' ratings of their social and emotional skills vary by their tenure in the program. In general, PUPP Scholars tended to respond favorably regarding their achievement motivation, time management, intellectual engagement, collaboration skills, sociability, and work ethic (see Table 3). Ratings of these skills varied by length of PUPP participation for some of the underlying survey items, but not for others.

Notable differences by PUPP tenure included differences in time management skills, which may decrease over time or may simply be more challenging for older students because they are juggling more academic and college preparation activities and thus have less time to work ahead. Similarly, fewer older students agreed with items related to their work ethic, which may reveal a decrease over time, but may also be due to the less time and energy students have to devote to assignments as demands on their time increase during their junior and senior years of high school. Slightly fewer PUPP seniors agreed with statements regarding skills related to working with others; comfort with disagreements may vary by PUPP experience and by differences in personal characteristics and backgrounds, including differences in cultural norms, between grade-level cohort members. More

Table 3.
PUPP Scholar Survey SEL Items[1]

	Mean	SD	Percent in Agreement			
			Grade 10 n=16[a]	Grade 11 n=16[a]	Grade 12 n=20[a]	Total N=52[a]
Time Management						
I am a very organized person.	3.77	0.97	66.7%	58.3%	73.9%	66.2%
I leave tasks until the last minute.	3.11	1.08	20.8%	33.3%	40.9%	31.0%
Achievement Motivation						
I do more than what is expected of me.	4.01	0.69	75.0%	79.2%	78.3%	77.5%
Hard Working						
I work hard to complete assignments.	4.46	0.65	100.0%	83.3%	91.3%	91.5%
I take responsibility for what happens.	4.37	0.62	91.7%	91.7%	95.7%	93.0%
I check over my work.	4.19	0.69	83.3%	79.2%	78.3%	80.3%
Working With Others						
I am inclined to forgive others.	3.99	1.06	78.3%	87.5%	60.9%	74.6%
I respect others.	4.72	0.45	100.0%	100.0%	100.0%	100.0%
I do not like when people challenge my opinions.	2.68	0.92	20.8%	12.5%	26.1%	19.7%
Intellectual Engagement						
In dealing with difficult problems, it is very important to evaluate as many pieces of information as possible.	4.42	0.67	87.5%	95.8%	95.7%	93.0%
I like to know the news of the world.	3.94	0.98	70.8%	83.3%	60.9%	71.8%
I am interested in learning about different cultures.	4.48	0.67	95.8%	100.0%	91.3%	95.8%
Sociability						
I joke around a lot.	3.55	1.01	54.2%	54.2%	60.9%	56.3%
I say what I think.	3.62	1.03	66.7%	54.2%	50.0%	56.3%
I make friends easily.	3.66	1.12	54.2%	66.7%	60.9%	60.6%

Source: Author's calculations using PUPP Scholar Survey data
[1] Percentages were calculated for "Strongly Agree" and "Agree", "Neither Agree nor Disagree", and "Disagree" and "Strongly Disagree"; however, only the first category is presented to highlight agreement.
[a] Depending on the survey item, ns range from 16-24 for Grade 10, 16-24 for Grade 11, 20-23 for Grade 12, and 52-71 for the total sample.

juniors than sophomores, but fewer seniors, agreed with items related to intellectual engagement, possibly indicating a level of fatigue arising by the senior year of high school (commonly referred to as "senioritis" [Blanchard, 2012]). Perhaps, not surprisingly, then, slightly more seniors agreed with the sociability item "I joke around a lot." More juniors or sophomores agree with the other two survey items addressing sociability.

Scholars' Perceptions of PUPP's Contributions to their Social, Emotional, and Cognitive Skills by Tenure in the Program

Our second research question was addressed by an analysis exploring grade-level variations in perceptions of PUPP's contributions to SEL, using data from Scholar Survey items on the extent to which PUPP contributed to the PUPP Priority Skills of external attitudes and behaviors, internal attitudes and behaviors, communication skills, and critical thinking skills (see Table 4). On most items, the majority of Scholars in all three grade-level groups reported that PUPP contributed to their skill development "quite a bit" or "very much."

Differences by length of PUPP participation varied for external attitudes and behaviors. More seniors than juniors and sophomores indicated PUPP had helped them develop leadership skills, perhaps due to the additional leadership opportunities they had been afforded during their longer tenure in PUPP. At the same time, while the majority of all Scholars indicated PUPP had helped them to learn to work well with others, fewer seniors than juniors and sophomores felt this way.

Perceptions also varied by student grade regarding PUPP's influence on skills related to internal attitudes and behaviors. Nearly 90% of all respondents, but fewer seniors than juniors or sophomores, felt that PUPP contributed "quite a bit" or "very much" to their ability to produce high-quality work. Similarly, more sophomore Scholars than junior and senior Scholars reported that PUPP contributed quite a bit or more to the important skill of perseverance.

While approximately three-quarters of all active PUPP Scholars reported that PUPP contributed "quite a bit" or "very much" to their communication skills, including writing and presentation, more seniors than junior and sophomores felt this way. The majority of PUPP Scholars reported that PUPP contributed to their development of critical thinking skills including numerical problem-solving skills, the ability to assess the value of information, and the ability to break information down into its basic elements. Whereas fewer senior respondents than junior respondents felt PUPP helped them learn to break information down or assess the value of information, many more seniors than sophomores and juniors reported that PUPP contributed to their numerical problem-solving skills.

Table 4.
Scholar Survey Items on the Extent to Which Scholars' PUPP Experience Contributed to PUPP Priority Skill Development

	Mean	SD	Percentage Responding "Quite a bit" or "Very Much"			
			Grade 10 n=22[a]	Grade 11 n=22[a]	Grade 12 n=19[a]	Total N=64[a]
External Attitudes and Behaviors						
Leading an extra-curricular group or activity	3.65	1.12	47.8%	68.2%	71.4%	62.1%
Leading my classmates/peers in academic settings	3.76	1.00	60.9%	60.9%	66.7%	62.7%
Working collaboratively toward a goal	4.25	0.88	82.6%	82.6%	76.2%	80.6%
Working with people from diverse backgrounds	4.32	0.99	91.3%	86.4%	70.0%	83.1%
Being open to new ideas	4.27	0.83	82.6%	82.6%	81.0%	82.1%
Internal Attitudes and Behaviors						
Learning effectively on my own	3.98	1.04	72.7%	82.6%	75.0%	76.9%
Persevering to the end of a difficult assignment	4.03	0.94	87.0%	78.3%	61.9%	76.1%
Producing high-quality work	4.39	0.94	95.5%	91.3%	81.0%	89.4%
Communication Skills						
Writing clearly	3.97	0.86	72.7%	73.9%	76.2%	74.2%
Speaking clearly	4.06	0.90	69.6%	78.3%	76.2%	74.6%
Presenting to a group	4.22	0.95	65.2%	78.3%	85.7%	76.1%
Critical Thinking Skills						
Solving numerical problems	3.42	1.05	34.8%	52.2%	75.0%	53.0%
Breaking down information into its basic elements	3.75	0.89	52.2%	63.6%	57.9%	57.8%
Assessing the value of information	3.77	0.94	60.9%	65.2%	55.0%	60.6%

Source: Author's calculations using PUPP Scholar Survey data.
[a] Depending on the survey item, ns range from 22-23 for Grade 10, 22-23 for Grade 11, 19-21 for Grade 12, and 64-67 for the total sample.

Alumni Perceptions of PUPP's Contributions to their Social and Emotional Skills, Cognitive Skills, and College Help-Seeking Behaviors

Our third research question, on alumni perceptions of PUPP's impacts on social and emotional skills and its helpfulness for college experiences, was addressed using data from the alumni survey. Disaggregating survey data by those enrolled in college ("enrolled alumni ") and those that had already earned a bachelor's degree ("college graduate alumni") revealed that those in each group held different perceptions of PUPP's influences. Significantly more college graduate alumni than enrolled alumni reported that PUPP made communicating with faculty "easy" or "very easy" (71% versus 44%, respectively). More college graduate alumni than enrolled alumni reported that PUPP made it easier to do things including seeking help, getting along with others, making new friends, and participating in social events (see Table 5). Enrolled alumni were more likely than college graduate alumni to report that PUPP had supported their time management skills or prepared them to develop their leadership skills (see Table 6). Over 73% of enrolled alumni and over 48% of college graduate alumni reported that PUPP prepared them to be in control of their own schedules. Similarly, over 75% of enrolled alumni and nearly 58% of college graduate alumni reported that PUPP helped to develop their leadership skills. More enrolled alumni than college graduate alumni reported that PUPP had prepared them for many college tasks,

including submitting assignments on time, contributing comments and questions to classroom discussions, managing an academic workload, and adjusting to the academic culture of college.

Responses of enrolled alumni and college graduate alumni were also compared for items asking alumni to rate the extent to which PUPP contributed to various other social and emotional skills and cognitive skills (See Table 7). More enrolled alumni than college graduate alumni reported that PUPP had contributed to skills, including speaking clearly and effectively, working with data, thinking critically and solving problems, learning effectively independently, working well with others, producing high-quality work, and designing and executing research.

Discussion

The Influence of PUPP Social and Emotional Learning Supports May Vary by Program Tenure

Our results suggest that the extent of social and emotional skills growth among PUPP participants may vary by tenure in the program, but not in a consistent manner. More senior students (i.e., those with three years of PUPP experience) reported that PUPP influenced their skills related to numerical problem solving and leadership, as well as the communication skills of writing and presenting. Slightly more seniors than sophomores and juniors agreed with a work ethic item "I take responsibility for what

Table 5.

PUPP Alumni Survey Items Regarding Influence of PUPP on Alumni College Activities/Behaviors

	Mean	SD	Percentage of PUPP Alumni Responding "Easy" or "Very Easy"		
			College Enrollees n=51[a]	College Graduates n=66	Total N=117[a]
Seeking help when I needed it	3.49	1.17	51.9%	60.6%	56.8%
Getting along with others	4.20	0.73	80.8%	87.9%	84.7%
Making new friends	3.81	1.08	59.6%	71.2%	66.1%
Communicating with faculty	3.61	0.98	44.2%	71.2%	59.8%
Maintaining family relationships	3.72	1.09	58.8%	60.6%	59.8%
Feeling comfortable where I lived	3.62	1.17	63.5%	62.1%	62.7%
Participating in social events	3.61	1.21	55.8%	63.6%	60.2%
Communicating with staff	3.74	0.93	57.7%	72.7%	66.1%

[a] Depending on the survey item, the N sizes range from 51-52 for College Enrollees and 117-118 for the total sample.

Table 6.

Alumni Survey Items Regarding How Well PUPP Prepared Alumni for College

Percentage Responding "More than Adequately" or "Very well"

	Mean	SD	College Enrollees n=50[a]	College Graduates n=64[a]	Total N=115[a]
Face academic challenges in college	3.97	1.02	62.7%	63.6%	63.2%
Submit all assignments on time	4.20	0.86	82.7%	73.4%	77.6%
Contribute comments and questions to classroom discussions	4.04	0.99	74.0%	60.6%	66.4%
Have a skillset for managing your academic workload	3.98	0.95	74.5%	65.2%	69.2%
Adjust to the academic culture of college	3.96	0.96	66.7%	63.6%	65.0%
Develop your passion for learning	4.26	0.87	80.4%	77.3%	78.6%
Build your self-confidence	3.97	0.92	64.7%	67.7%	66.4%
Be in control of your own schedule	3.81	1.06	73.1%	48.4%	59.5%
Develop leadership skills	3.98	0.96	75.0%	57.6%	65.3%
Show respect for others even in disagreement	4.36	0.83	88.2%	75.0%	80.9%
Develop an individual perspective	4.28	0.88	82.4%	75.4%	78.4%

[a] Depending on the survey item, the N sizes range from 50-52 for College Enrollees, 64-66 for College Graduates, and 115-118 for the total sample.

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Table 7.

Percentage of PUPP Alumni Responding "Quite a Bit" or "Very Much"[a]

	Mean	SD	Percentage Responding "Quite a Bit" or "Very Much"		
			College Enrollees	College Graduates	Total
			n=51[a]	n=65[a]	N=124[a]
Write clearly/effectively	3.48	0.72	88.5%	89.4%	89.0%
Solve numerical problems	2.94	0.90	65.4%	63.6%	64.4%
Speak clearly/effectively	3.33	0.80	84.6%	75.8%	79.7%
Work with data	2.68	0.91	57.7%	54.5%	55.9%
Think critically/problem-solving	3.44	0.81	88.5%	83.3%	85.6%
Use computer technology	2.77	1.02	57.7%	59.1%	58.5%
Learn effectively on your own	3.25	0.90	80.4%	74.2%	76.9%
Work well with others	3.46	0.78	88.5%	83.1%	85.5%
Produce high-quality work	3.48	0.78	88.2%	84.8%	86.3%
Design and execute research	3.06	0.90	76.9%	66.7%	71.2%

Source: Authors' calculations using PUPP Alumni Survey data.

*p<0.05, **p<0.01., ***p<0.001

[a] Depending on the survey item, the n sizes range from 51-52 for College Enrollees, 65-66 for College Graduates and 117-118.

happens." We hypothesize that these responses may be due to the fact that a higher "dosage" of PUPP may increase some social and emotional skills, in particular due to the cumulative exposure to opportunities to develop communication and critical thinking skills, in addition to other cognitive and social and emotional skills.

At the same time, seniors performed worse on other work ethic items, including those on leaving work to the last minute and checking over their work; an intellectual engagement item on interest in the news of the world; and an item on inclination towards forgiveness related to working with others. Furthermore, fewer senior Scholars than sophomore and junior Scholars reported that PUPP contributed to other skills related to working with others, including working collaboratively toward a goal and working with people from diverse backgrounds, and to skills important for a strong work ethic, such as persevering to the end of a difficult assignment and producing high quality work. Based on these results, we postulate that those with more PUPP experience may have stronger SEL in some areas, and less strong SEL, or perhaps more realistic perceptions of their skills, in others.

> ## JCA
> **"...we found that college graduate alumni have more positive perceptions of the extent to which PUPP made communicating with college faculty easier for them."**

We can speculate that some of these differences in SEL were influenced to some extent by PUPP, but many other factors are also at play. These may include cultural and personality differences, as well as the additional time demands faced by many college-bound students during their junior and senior years of high school, when they prepare for and take college entrance examinations and complete college applications. We also cannot discount the possibility of fatigue experienced by senior Scholars, as we noted above, and the potential need for additional supports for seniors and the unique challenges they face.

It is also possible that, although PUPP aims to equally support all of the social and emotional skills it targets for all students each year, some skills may be influenced more in the first, second, or third year. This makes sense, given that the program provides different courses in each of the three years of the program. Another possibility is that first-year Scholars may have a more positive perception of PUPP and its influences on them simply because they are new to the program. In order to better understand grade-level differences in SEL and perceptions of PUPP's influence on them—to address the question of how much dosage matters for SEL building in PUPP and other such programs— qualitative interviews and

focus groups should be conducted with program participants and staff.

Alumni's Perceptions of Social and Emotional Skills May be Shaped by College and Post-College Reflections

Our findings on the varying perceptions of PUPP alumni in college and those who have already graduated highlight that influences on social and emotional skills may be perceived differently as program alumni gain additional life experiences. On one hand, we found that college graduate alumni have more positive perceptions of the extent to which PUPP made communicating with college faculty easier for them. On the other hand, more enrolled alumni than college graduate alumni reported that PUPP supported their time management or leadership skills. The finding that college graduate alumni have an easier time communicating with faculty seems to indicate that college graduate alumni may be more likely to have a positive perception of how their PUPP experiences prepared them to interact with college faculty, perhaps because they had more years of such interactions to reflect on. It could also be that enrolled alumni are more aware of PUPP's influence on their time management skills and leadership capacities, while college graduate alumni have since had other experiences that have supported them in these areas. After all, college certainly provides many opportunities to learn to balance multiple time demands, including coursework, jobs, internships, and student groups, and to lead academic and non

-academic activities.

Conclusion

Our findings highlight the extent to which perceptions of social and emotional skills and of the influence of PUPP supports for social and emotional skills vary by length of time in the program (i.e., dosage). They also reveal the extent to which perceptions of the influence of PUPP on SEL-related college engagement and help-seeking behaviors vary between enrolled and college graduate alumni.

Limitations

This follow-up study is not without its limitations, which include the fact that it is a descriptive study and not experimental; thus, we cannot make any conclusions about causality (Schneider, Carnoy, Kilpatrick, Schmidt, & Shavelson, 2007). Moreover, a bias in favor of PUPP may be found in the Alumni Survey; the 51% response rate is better than many online survey response rates, but it still leaves many voices unheard. It is also possible that active Scholars were swayed by social desirability bias (Grimm, 2010) or a sense of obligation to the program to respond favorably to the survey questions. Prior findings from the PUPP evaluation highlight that active and alumni Scholars tend to report positive influences of PUPP on their social and emotional skills, making it difficult to detect variations within subgroups. Finally, the small size of the three cohorts compared in our analyses provide exploratory results on

the topic of dosage of SEL supports within a college access program. The comparisons across cohorts provide insights into how dosage influences social and emotional skill development within the context of a college access program, setting the stage for future research using a larger sample size overall and within cohorts.

Implications

Overall, based on our study findings, we can conjecture that PUPP programming may support the development of different social and emotional skills over time, that the extent to which PUPP successfully supports SEL development may vary by multiple factors, and that PUPP alumni college graduates retain fairly positive perceptions of PUPP's support for SEL and related college help-seeking behaviors and experiences. This confirms prior findings on the importance of SEL for college success (Conley, 2015; Heckman & Kautz, 2013; Heckman, Stixrud, & Urzua, 2006) and highlights the great potential of college access programs to support the development of critical social and emotional skills. In fact, it suggests that college access programs not only could support SEL, but they should do so to support the college success of their participants. The study results also suggest that program dosage may matter for some or all targeted social and emotional skills, as other studies have found (Durlak et al., 2011; Taylor et al., 2017); further research could reveal more precisely why and how dosage matters for specific skills. Takeaways for college access

program leaders include that dosage may matter for SEL activities, and that ideally activities should be incorporated into the full program rather than provided as a standalone or short-term module within the larger program. As we noted earlier, it may also be particularly important for college access programs to support the social and emotional skills of first-generation students, as PUPP does, given the many challenges they already face successfully navigating college (Hsiao, 1992) and the importance of SEL for college and career readiness and success (Brunello & Schlotter, 2011; Casner-Lotto & Barrington, 2006; Garcia, 2014; Nagaoka et al., 2013; Shechtman et al., 2013). JCA

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JCA

College Admissions for L2 Students: Comparing L1 and L2 Readability of Admissions Materials for U.S. Higher Education

JCA

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ABSTRACT

Advancements in computational linguistics have allowed educational researchers to examine large amounts of text and assess the reading difficulty of that text for speakers whose first language is English (L1), and speakers whose first language is not English (L2). Considering L2 students exploring higher education, extant research suggests these L2 students do not access United States (U.S.) higher education at the same level as their L1 peers. Using popular measures of L1 and L2 readability, the current study analyzes admission instructions from 341 randomly-selected four-year U.S. institutions of higher education. Results suggest L2 readability is more difficult (30.9) than L1 readability (37.7) and differences in means are statistically significant (*p*=0.001) across the entire sample and each institutional sector (public, private non-profit, and private for-profit). These findings may help explain the postsecondary achievement gap experienced by L2 students in the United States.

Keywords: admissions instructions, higher education, readability, access, equity, linguistics

For decades, two separate but related bodies of research have attempted to explain why non-native English speakers do not access U.S. higher education at the same level as native English-speaking peers. One body of literature has focused on English-language learners (ELLs), or students whose native language is not English but who are learning English (Kanno & Cromley, 2013). The other body of literature has focused on students participating in English as a second language (ESL) programming and whether placement in such programming results in K-12 ESL students attaining higher levels of academic achievement and earning admission to a postsecondary institution (Callahan, Wilkinson, Muller, & Frisco, 2009; Kanno & Varghese, 2010).

A growing population, ELLs comprise nearly four million elementary and secondary students in United States (U.S.) schools, with California educating a nearly 25% ELL student population, and other states such as New Mexico, Nevada, and Texas educating a nearly 20% ELL student population (Sanchez, 2017). Although increasingly larger numbers of elementary and secondary U.S. students are ELL, these students have not been represented in U.S. higher education. A large, longitudinal body of research has demonstrated ELLs do not access U.S. institutions of higher education at the same level as their English-proficient peers or native speakers of English, as only one in eight ELLs earn a bachelor's degree (Kanno & Cromley, 2013). To explain this achievement gap, researchers have pointed to the systemic screening of ELLs from college preparatory courses in high school (Kanno & Kangas, 2014), inaccurate placement of ELLs in elementary and secondary remediation courses (Flores & Drake, 2014), a lack of culturally-responsive schooling (Lee, 2012), and an absence of college counseling in high

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school (Cook, Pérusse, & Rojas, 2012). The second body of literature has focused on students participating in English as a second language (ESL) programming and whether placement in such programming results in K-12 ESL students attaining higher levels of academic achievement and earning admission to a postsecondary institution (Callahan, Wilkinson, Muller, & Frisco, 2009). In a large study of postsecondary access and achievement, Kanno and Varghese (2010) explained the majority of ESL college access research has focused on academic literacy and college composition courses and not specific linguistic hurdles facing ESL students pursuing U.S. higher education. This finding led Kanno and Varghese (2010) to assert, "Compared with other groups of underrepresented students, we know very little about the challenges involved in ESL students' access to and success in college" (p. 312).

More recently, educational linguists have adopted a different approach and interrogated the language of U.S. higher education, specifically admissions materials. In separate studies, Taylor found only 4.9% of a random sample of 325 four-year U.S. institutions translated admissions materials into Spanish (2018a) and only 9% of a random sample of 335 four-year U.S. institutions translated international undergraduate admissions materials into any other language but English (2018b). These findings suggested that two groups of prospective postsecondary students may be at a distinct disadvantage

when attempting to access U.S. postsecondary information online: native Spanish speakers (Taylor, 2018a) and non-native English speakers aspiring to attend a U.S. institution as an international student (Taylor, 2018b).

Considering the persistent postsecondary access and achievement gaps experienced by ELL students (Kanno & Cromley, 2013; Kanno & Kangas, 2014) and ESL students (Callahan et al., 2009; Kanno & Varghese, 2010), this study seeks to expand upon prior work (Taylor, 2018a, 2018b; Taylor & Hartman, 2019) and delve deeper into the language of U.S. postsecondary admissions. Specifically, this study will use a catch-all term—L2 students or "students whose first language (the language to which they were exposed in the home as young children) is not English" (Ferris, 2009, p. 4)—and apply L1 and L2 readability tests to a large number of U.S. postsecondary admissions materials to learn whether admissions materials are easier to read for L1 than L2 students, possibly helping explain postsecondary access gaps. Employing the L1 Flesch Reading Ease (Flesch, 1979; Kincaid, Fishburne, Rogers, & Chissom, 1975) and the L2 Miyazaki English as a Foreign Language Readability Index (Greenfield, 1999, 2003), this study sought to answer two questions pertinent to L2 college access in the United States:

How difficult are U.S. higher education admission materials to read for L1 students and L2 students?

Are there statistically significant differences between the readability of admissions materials for L1 and L2 readers?

Answers to these questions may help explain the postsecondary achievement gap experienced by L2 students in the United States. In addition, practitioners working in postsecondary admissions offices could learn how to translate and simplify admissions materials for L2 students and their support networks, facilitating expanded access to postsecondary education in the United States.

Method

Prior work has explored the differences between admissions and financial aid communication (Taylor & Hartman, 2019) and the difficulty of a wide range of higher education communication meant for student audiences (Taylor, 2018a, 2018b, 2018c). This study will build upon this prior work by adopting many of the same methods to explore U.S. admissions instructions and how difficult these instructions are for L1 and L2 readers. The following sections detail how a sample size was identified, how data was gathered and analyzed, and how limitations were addressed in this study.

Population and Sample
This study examined admissions materials at four-year U.S. institutions of higher education: This limitation will be addressed in the limitations section of this study. Using the Integrated Postsecondary Education Data System (IPEDS) (National Center for Education Statistics, 2018), I identified 2,907 four-year U.S. institutions of higher education . As Internet information can change frequently, I decided to employ a random number generator to assign 341 institutions to the study to ensure the study could be completed in a timely manner. This sample of 341 institutions represents a 95% confidence interval, strong enough for the statistical analyses of this study. A description of this study's sample can be found in Table 1 below:

Table 1.
Description of sample, by institution type (n=341)

Institution type	n	% of sample
Public	114	33.3%
Private, non-profit	179	52.3%
Private, for-profit	48	14.4%

Data Collection
Once a sample was identified, I extracted each institution's homepage URL (hyperlink) from IPEDS, along with the institution's type (public, nonprofit private, and for-profit private). Using institutional hyperlinks, I employed each institution's embedded search tool (i.e., Google) to locate each institution's undergraduate admissions materials. I used each institution's embedded search tool to mitigate the risk of using a web browser's search tool, whose search history and cookies could have influenced the search results.

Employing the search terms "apply for admission," "undergraduate admissions," and first-year student admissions," I located each institution's admissions materials without issue. Once I located these admissions materials , I used Readability Studio—a computational linguistics tool—to extract only the admissions materials from the webpage and calculate the word count of each set of admissions materials. The toolbar, menus, and footer information located at the bottom of the webpage was not extracted, as this information was not directly related to the process of applying for undergraduate admission. A database of admissions materials for all 341 institutions is available upon request, including all hyperlinks and linguistic data.

Linguistic Analysis

Once I gathered admissions materials, I uploaded each set of admissions materials into Readability Studio. Readability Studio is a quantitative and computational linguistics software tool to analyze large numbers and amounts of text much more quickly and comprehensively than human analyzers (Taylor, 2018a, 2018b, 2018c). I analyzed the reading difficulty of the admissions materials using one L1 readability measure—the Flesch Reading Ease (Flesch, 1979; Kincaid et al., 1975)—and the Miyazaki English as a Foreign Language Readability Index (Greenfield, 1999, 2003).

The Flesch Reading Ease (FRE) is a readability measure used to measure the L1 reading difficulty of technical information and non-fiction, developed by Rudolf Flesch (1979). The FRE is a standard used by many U.S. government agencies, including the U.S. Department of Defense, to ensure that government communication is written at levels readable by the general public (Kincaid et al., 1975). The FRE is one of the most widely used L1 readability measures in existence, having been being built into all Microsoft Word programs for decades (Microsoft, 2019). Educational researchers have also used the FRE to analyze a wide range of higher education communication, including financial aid information (Taylor & Hartman, 2019) and sexual assault reporting guidelines (Taylor, 2019c). The FRE calculates the number of words per sentence, syllables per word, and total number of sentences of a text, assigning a scaled score to a text out of 100. The FK is calculated thus: $I = (206.835 – 84.6*(B/W)) - (1.015*(W/S))$; I = index score, W = number of words, B = number of syllables, S = number of sentences (Flesch, 1979; Kincaid et al., 1975). An explanation of the FRE scale can be found in Table 2 on page 57.

College Admissions for L2 Students

Table 2.

Flesch Reading Ease Test (FRE) index score to grade-level correspondence table with text examples, adopted from Flesch (1979)

FRE	Grade-level	Text examples
90 to 100	5th grade	Comics, children's books
80 to 90	6th grade	Consumer advertisements
70 to 80	7th grade	*Seventeen, Movie Screen*
60 to 70	8th to 9th grade	*Reader's Digest, Sports Illustrated*
50 to 60	10th to 12th grade	*Time, Newsweek*
30 to 50	13th to 16th grade (college)	*New York Times, Harvard Law Review*
0 to 30	17th grade+ (college graduate)	Standard automobile insurance policies

Flesch (1979) recommended that text meant for public consumption be written at no lower than 60, what he deemed "plain English" (p. 180) or the 8th to 9th-grade reading English reading comprehension level. Speaking to Flesch's (1979) recommendation, recent research suggests the average U.S. adult reads and comprehends at between the 7th and 8th-grade level (Clear Language Group, 2019), and that only 37% of graduating high school seniors in the U.S. can read and comprehend at the 12th-grade level (National Assessment Governing Board, 2019). As a result, text scoring below 60 may not be readable for average members of the U.S. public. Greenfield (1999, 2003) developed the Miyazaki English as a Foreign Language Readability Index (MIYA) during his work with L1 Japanese students who were L2 English students attempting to learn English as a second language during college. Through empirical research, Greenfield (1999) found that traditional, L1 readability measures such as Flesch-Kincaid Grade Level Test (Kincaid et al.,1975) did not accurately measure the difficulty of English-language text for the L2 students he was working with, nor did L1 reading measures correlate with his L2 students reading assessment tasks (Greenfield, 1999). Using the Flesch Reading Ease as a model, Greenfield (2003) manipulated elements of prior readability measures to produce a readability index akin to the FRE on a 100-point difficulty scale. The MIYA is measured thus: $I = (164.935 - ((18.792*(LW)) - (1.916*(WS)))$; I = index score, LW = letters per word and WS = words per sentence (Greenfield, 2003). According to Greenfield's (2003) MIYA, a score of 50 translates to a text of average difficulty for an L2 student learning English as a foreign language at the university level, analogous to Flesch's (1979) assertion that FRE scores between 30 and 50 equate to text appropriate for L1 university-level students. Although the FRE and MIYA are scaled 0 to 100, there has been no study to evaluate specifically how difficult a FRE of 50 for an L1 student would be measured against a MIYA of 50 for an L2 student. Table 3 displays this linguistic

analysis in the Findings section of this study.

Quantitative Analysis

Once FRE and MIYA scores were calculated, these scores were organized into a database and uploaded to R for quantitative analysis. A paired t-test to analyze means was used to determine if differences L1 and L2 scores were statistically significant across the entire sample (n=341) and across each institutional sector separately (public, private non-profit, and private for-profit). Performing t-tests assumes a normally distributed sample, and as a result, Shapiro-Wilk tests were conducted across the entire sample and across each institutional sector to measure the normal distribution of the FRE and MIYA scores.

Results from these tests can be found in the notes for Table 4, along with the results from the paired t-tests.

Findings

Linguistic analyses of admissions materials using the Flesch Reading Ease (FRE) and the Miyazaki English as a Foreign Language Readability Index (MIYA) can be found in Table 3.

Data in this study suggest the longest admissions materials were written by private, for-profit institutions (321.6 words), whereas the shortest materials were written by public institutions (301.6 words). Public institutions

Table 3.

Linguistic analysis of admissions materials using the Flesch Reading Ease (FRE) and the Miyazaki EFL Readability Index (MIYA), by institution type (n=341)

Institution type	Word count	FRE	MIYA
Public (n=114)			
Mean	301.6	39.5	32.4
SD	218.6	9.9	9.3
Private, non-profit (n=179)			
Mean	309.2	38.3	31.4
SD	216.5	12.1	10.4
Private, for-profit (n=48)			
Mean	321.6	31.3	25.6
SD	274.2	16.6	14.5
Total (n=341)			
Mean	308.4	37.7	30.9
SD	225.5	12.4	10.9

also composed the simplest L1 admission materials at an FRE of 39.5 and MIYA of 32.4—even though these scores are simplest across all institutions in the entire sample, these scores equate to text written between a 13th and 16th grade reading level, appropriate for L1 and L2 readers already in postsecondary education, displayed in Table 2. Private for-profit admissions materials were even more difficult for L1 and L2 students, as FRE scores of 31.3 and MIYA scores of 25.6 indicate that admissions materials for these institutions are between the 13th and 16th-grade level for L1 readers and above the 17th-grade level for L2 students. Such difficulty potentially places L2 students at a greater linguistic disadvantage when attempting to read these materials and successfully apply for admission than L1 students. Table 4 on the next page displays paired t-test results comparing means of L1 and L2 readability of admissions materials.

Results from paired t-tests suggest differences in means between FRE and MIYA scores across the entire sample are statistically significant ($p=0.001$), with Shapiro-Wilk tests indicating that the sample was likely normally distributed across both variables (FRE $p>0.05$), MIYA $p>0.05$). The same finding was true across public institutions (n=114), as differences in means of FRE and MIYA measures were statistically significant ($p=0.001$) and the sample was likely normally distributed (FRE $p=0.08951$, MIYA $p>0.05$). Paired t-tests also indicated statistically significant differences in means across both

types of private institutions ($p=0.001$), but Shapiro-Wilk tests indicated that the samples may not have been normally distributed. However, these limitations may be mitigated by the relative size of each private institution sample (179 private non-profit institutions; 48 private for-profit institutions).

After performing paired t-tests, I explored the effect sizes of L1 and L2 readability difficulty of all institutions and each institution type. Effect sizes between L1 and L2 readability measures could be classified as medium across all institutions (Cohen's $d=0.58$), medium-to-large across all public institutions (Cohen's $d=0.74$), medium across all private, non-profit institutions (Cohen's $d=0.60$), and small-to-medium across all private, for-profit institutions (Cohen's $d=0.43$). These results suggest it may be more difficult for L2 students to read admissions instructions than L1 students, possibly rendering it more difficult for L2 students to access U.S. higher education due to being unable to read and comprehend the admissions instructions and successfully completing an admissions application. Specifically, L2 students seeking access to public institutions may find it more difficult to read admissions application instructions than L1 students, possibly helping to explain the postsecondary access gap between L1 and L2 students in the United States.

Table 4.

Results of paired t-tests comparing means of Flesch Reading Ease scores and Miyazaki EFL Readability Index scores of admissions materials, by institutional sector

All institutions (n=341)							
Variable	Mean	SE	SD	95% CI		df	t
Flesch (L1)	37.7	.6743616	12.4	36.41549	39.06838	340	19.6975***
Miyazaki (L2)	30.9	.5927936	10.9	29.81053	32.14254		
Diff	6.8	.343465	6.3	6.089812	7.44098		

*Notes: Shapiro-Wilk test for normality of Flesch Reading Ease scores=(W=0.98, p=6.43e-05), Miyazaki EFL Readability Index scores=(W=0.97, p=3.66e-07); ***p<0.001*

Public, four-year institutions (n=114)							
Variable	Mean	SE	SD	95% CI		df	t
Flesch (L1)	39.5	.9273478	9.9	37.71539	41.38987	113	13.1804***
Miyazaki (L2)	32.4	.8732051	9.3	30.73494	34.19489		
Diff	7.1	.2973473	5.7	6.022344	8.153095		

*Notes: Shapiro-Wilk test for normality of Flesch Reading Ease scores=(W=0.98, p=0.08951), Miyazaki EFL Readability Index scores=(W=0.98, p=0.1962); ***p<0.001*

Private, non-profit, four-year institutions (n=179)							
Variable	Mean	SE	SD	95% CI		df	t
Flesch (L1)	38.3	.9070357	12.1	36.50616	40.08602	178	13.7694***
Miyazaki (L2)	31.5	.7791882	10.4	29.92605	33.00132		
Diff	6.8	.4962028	6.6	5.853205	7.811599		

*Notes: Shapiro-Wilk test for normality of Flesch Reading Ease scores=(W=0.99, p=0.295), Miyazaki EFL Readability Index scores=(W=0.98, p=0.003757); ***p<0.001*

Private, for-profit, four-year institutions (n=48)							
Variable	Mean	SE	SD	95% CI		df	t
Flesch (L1)	31.3	2.405966	16.6	26.53482	36.21518	47	6.0394***
Miyazaki (L2)	25.6	2.095382	14.5	21.40964	29.84036		
Diff	5.7	.952088	6.5	3.834646	7.665354		

*Notes: Shapiro-Wilk test for normality of Flesch Reading Ease scores=(W=0.95, p=0.04645), Miyazaki EFL Readability Index scores=(W=0.94, p=0.02086); ***p<0.001*

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Discussion

Findings of this study suggest L2 readers—specifically students whose first language is not English—may experience more difficulty in reading and comprehending postsecondary admissions materials than their L1, English-fluent peers. This difficulty may help explain the postsecondary achievement gap experienced by both ELLs and ESLs in the United States, elaborating upon Callahan et al.'s (2009) and Kanno and Varghese's (2010) work which reasoned these students may face linguistic barriers on their path toward postsecondary education. In addition, the average U.S. adult reads at the 7th-grade level (Clear Language Group, 2019) and only 37% of U.S. high school graduates read at the 12th-grade level (National Assessment Governing Board, 2019). This study's findings also suggest admissions materials may be too difficult to read not only for L2 students and their support networks, but L1, English-fluent readers as well, echoing to prior research focused on financial aid information (Taylor, 2019; Taylor & Hartman, 2019).

As a result, professionals working in U.S. higher education admissions offices need to embrace L2 text simplification strategies when composing admissions materials meant for a diverse linguistic audience. Specifically, these professionals need to consider how L2 readers process text beyond using word and sentence length readability measures to audit their content. According to Greenfield (1999, 2003), L2 readers may benefit from shorter sentences that employ a relatively small lexicon: Using common words repeatedly helps L2 students read and comprehend English-language texts, also known as lexical overlap. However, what may seem like a common word or phrase to an admissions professional may not seem common to an L2 student seeking higher education. For instance, the term "high school transcript" may seem intuitive to L1 readers and those working in admissions, yet an L2 students may come from a country where their high school or secondary school did not issue a "transcript," and instead, a "high school record" or "grades report" may be a more accurate and simpler way of referring to the appropriate document. As a result, professionals working in admissions should analyze the lexicon of their admissions texts and ensure that sentences are written in ways that include a high level of lexical overlap using simple, widely-understood language.

In addition, L2 students may experience difficulty applying for admission depending on where they apply: Every institution in this study's sample wrote their admissions

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>
> **"...professionals working in U.S. higher education admissions offices need to embrace L2 text simplification strategies when composing admissions materials meant for a diverse linguistic audience."**

application instructions in a different way, and while some instructions were very difficult to read, others were relatively simple. This finding also echoes prior research demonstrating that financial aid communication also varies from institution to institution and is much more difficult for L2 students to read than L1 students (Taylor, 2019). Considering both results from the paired t-tests and Cohen's d tests of effect sizes, results suggest L2 students may have more difficulty reading admissions applications instructions on public institutional websites than L1 students. This result may suggest that, although public institutions published the simpler admissions application instructions than private peers, the L2 reading difficulty of admissions application instructions across all public institutions varies less than private peers. This consistent L2 reading difficulty of public institution admissions instructions may be contributing to the higher education access gaps between L1 and L2 students. However, many different institutions share the same processes for undergraduate to apply for admission (Taylor & Hartman, 2019). As a result, practitioners should explore collaborating with similar institutions and work on standardizing the admissions application instructions, in hopes of simplifying the text that an L2 student encounters on their path to a postsecondary education. Common application systems such as the Common Application, Universal College Application, and the Coalition Application have simplified the college

application process by centralizing information and allowing students to apply to any number of institutions while completing only one application. Related research in financial aid have made similar calls for institutions of higher education to standardize their financial aid application instructions (Taylor, 2019; Taylor & Hartman, 2019). However, this study suggests that each individual institution of higher education writes admissions materials differently, possibly leading to L2 students feeling confused and assuming that different institutions require drastically different admissions materials, whereas the process is actually very similar from institution to institution: Only the text differs.

Ultimately, beyond recent findings suggesting U.S. higher education text is rarely translated into languages other than English (Taylor, 2018a, 2018b, 2018c), findings of this study assert L2 readers may be unfairly and linguistically disadvantaged when learning how to apply to an institution of higher education. Subsequently, professionals in all units working for U.S. institutions of higher education must investigate how pre-admission materials are written and embrace L2 simplification methods to render admissions materials as clear and concise as possible for a diverse audience.

Implications for Future Research

Many of this study's findings yield ample opportunity for future research into how

college admissions processes are articulated to L2 students, beginning with what types of language K-12 students are exposed to when exploring postsecondary education. Cook et al. (2012) argued that a lack of college counseling could be to blame for low numbers of ELLs accessing higher education. Building upon that work and the findings of this study, perhaps future research could address how K-12 teachers, administrators, and support staff discuss postsecondary education with their L2 students beyond mere aspirations: What is the language that is used? Do K-12 faculty and staff explain what admissions deadlines are and when they are? How many L2 students could describe what a high school transcript is and how to attain theirs? Future research could ask L2 students to read a sample of admissions materials from different institutions and explain to an audience how to complete each step in the process—researchers could uncover problematic areas and work to provide specific educational interventions to explain difficult concepts.

Although institutions may not have a monetary or competitive incentive to standardize their admissions materials alongside other institutions, future research should explore how admissions materials differ from institution to institution and whether there are best practices regarding how admissions materials can be written for L2 student audiences and their support networks. As a result, future research could perform a comparative analysis of admissions materials from a large number of institutions

to learn what institutions require in common, when they require the information, and how to best convey this information to diverse language populations. Moreover, as Taylor (2018a, 2018b) and Taylor and Hartman (2019) suggested, perhaps admissions professionals could consider partnering with linguistically diverse individuals on campus—if these individuals do not already work in admissions offices—to translate admissions processes into other common languages spoken in the United States, such as Spanish, Vietnamese, Chinese, Tagalog, Hmong, and Russian. This research would require expansive and culturally-responsive collaboration across language groups which may increase access to higher education for L2 students from many different linguistic backgrounds.

Moving beyond admissions materials, it is entirely possible that L2 students may struggle to comprehend other forms of student communication, such as institutional policies, on-campus housing contracts, course syllabi, and other critical pieces of information necessary for their postsecondary success. Future research could investigate many forms of institutional communication with L2 students to better understand what L2 students do not know and how to best support this student population from institution to institution. College access is half the battle but using complex and unfamiliar language only serves to perpetuate the many equitable outcomes facing L2 students in higher education in the United States.

Conclusion

Echoing prior research (Taylor, 2019; Taylor & Hartman, 2019), this study finds that L2 students may face additional linguistic hurdles to higher education that their L1 peers may not face. From here, institutions of higher education, and their admissions and financial aid professionals, should collaborate to understand how to best communicate with all prospective students, no matter their linguistic background. Taylor (2018a, 2018b) argued that institutions ought to translate higher education communication into the languages of their prospective students—and their support networks—to improve access to higher education in the United States. However, L2 students may not reap the maximum benefit from such an intervention if that communication is overly long and complex in the first place. Mere translation may not be enough.

Ultimately, institutions of higher education should consider methods of simplifying their communication, including admissions application instructions, and then work with native speakers of non-English languages to translate this simplified content. Although decades of research has documented the access gaps between L1 and L2 students seeking higher education in the U.S. (Kanno & Cromley, 2013; Kanno & Varghese, 2010), institutions could adopt a proactive approach and simplify admissions-related content for all prospective students and their support networks. Such a movement toward simplification would signal that institutions

have acknowledged the complexity of their communication and are actively working to increase access to their institutions for all students, regardless of their linguistic identity.

Limitations

This study was limited in two primary ways: sample size and method of analysis. Linguistic and quantitative analysis of admissions materials from all types of U.S. institutions would be ideal. However, gathering admissions materials from nearly 10,000 U.S. institutions of higher education and analyzing these materials in a timely manner was not feasible. Future research could examine the L1 and L2 readability of admissions materials at two-year institutions, trade schools, and other types of institutions. In addition, there exist dozens of readability measures of which researchers can use to analyze the reading difficulty or easability of text. This study employed the FRE and MIYA, as these measures have been used extensively and are two of the only readability measures that allow for a reading difficulty comparison for L1 and L2 readers.

Future research could examine higher education materials using other readability measures and then compare those results to reading comprehension tests completed by L1 and L2 readers. However, given its limitations, this study represents the largest L1 and L2 readability study of postsecondary access materials to date, and this study should provide foundational work for how

educational linguists can investigate how postsecondary materials are written for L1 and L2 audiences. (JCA)

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Student Preferences for College and Career Information

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ABSTRACT

This study examined the preferences of high school seniors (N = 2901) for receiving college and career information, an area not well-studied previously. Key findings are parents and peers are rated to be very helpful sources of college and career information; school counselors are a helpful source of information for first generation and low income students; and the internet is a helpful source of information, but email and one on one are more preferred sources of information. The findings of this study are useful for K-12 education, college access, and higher education professionals to consider when developing policies and programs to provide college and career information to students.

Keywords: college choice, college majors, information, student preferences

Despite decades of attention focused on closing college opportunity gaps, racial and ethnic disparities persist and degree attainment by socioeconomic status continues to widen (ACT, 2015; Bailey & Dynarski, 2011; Farmer-Hinton & Holland, 2008; Gewertz, 2016; Kimura-Walsh et al., 2009). Research has consistently shown that access to information influences students' college decisions, yet many students—especially those from disadvantaged high schools—lack the information needed to make knowledgeable decisions regarding whether or how to pursue a postsecondary education (Bell et al., 2009; Bettinger et al., 2012; Engberg & Wolniak, 2010; Hoxby & Turner, 2015; Oreopoulos & Dunn, 2013; Roderick et al.,

2008). Unsurprisingly, a large number of students choose to forgo college due to inadequate information and confusion surrounding the college admissions process (Bell et al., 2009; Castleman et al., 2012; Chen & DesJardins, 2007).

Students need structured social support, mentoring (Kimura-Walsh et al., 2009; Roderick et al., 2008), and access to accurate and up-to-date college information (Gilstrap, 2016; Hoxby & Turner, 2013) if they are to understand the necessary steps required to navigate the college admissions process (Poynton et al., 2019). Unfortunately, many schools lack consistent mechanisms to channel information to students, leaving those searching for college information on their own to navigate their college path (Bell et al., 2009; Brown et al., 2016; Bryan et al., 2011). Providing college information and guidance does not require a lot of money, but it does demand human capital (developing a college knowledge and infrastructure within high schools) and social capital (interconnected and interdependent schools and families) to ensure that all students have the resources needed to make informed college decisions (Plank & Jordin, 2001; Simmons, 2011). Social and human capital play important roles in

both access to information and connection to valuable sources of support (Mulhern, 2019a; Plank & Jordin, 2001; Robinson & Roksa, 2016). Mulhern (2019b) found that school counselors directly impact student educational attainment, specifically high school graduation and college attendance, selectivity and persistence, by providing students with improved information and personalized assistance.

College Information

College information (formal and informal, stated and unstated) and skills to apply information to students' individual and unique situations are needed to successfully navigate the college decision making process (Brown et al., 2016; Conley, 2010; Hartman, 2014; Poynton et al., 2019; Robinson & Roksa, 2016; Roderick et al., 2009; Savitz-Romer, 2012). Students gather college information through different mechanisms including online searching, informal conversations with peers and family, and through formal interactions with K-12 and postsecondary staff (Kim & Gasman, 2011; Waters & Williams, 2009). How college information is shared and promoted to students and families matters (Brown et al., 2016; Hartman, 2014; Oreopoulos & Dunn, 2013; Perna et al., 2008).

Research has shown that furnishing students with college and financial aid information are effective ways to increase college enrollment (Bettinger et al., 2012; Hoxby & Turner, 2013; Owen & Westlund, 2016) and providing informational nudges on key tasks that students need to complete while connecting

them to support are compelling college access strategies (Castleman & Page, 2015, 2016; Damgaard, & Nielsen, 2018). However, recent studies evaluating nudging interventions at scale have highlighted the need for further refinement to more clearly understand and unpack the mechanisms behind how students prefer to receive information and guidance (Avery et al., 2019; Bird et al., 2019; Gurantz et al., 2019; Page et al., 2019).

Online Information

College admissions information is readily available today, but with the overabundance of mobile applications and online resources, it is unlikely that any two students have the same information when making their postsecondary decisions. Although information is readily available on the internet, it does not mean students have knowledge, access, or understanding of what is available or how to discriminate between accurate, helpful information versus harmful guidance on the internet.

Internet experience is connected to perceptions of information quality and usefulness and corresponds to whether students see the internet as a useful source of information (Fetherston, 2017). Information literacy and proficiency are also important factors in utilizing college information (Andreae & Anderson, 2011; Burek, 2017). Non-native English speakers and college students are more likely to use the internet as their primary source of career and job information (Aydın, 2015; Carver, 2010; Puckett & Hargittai, 2012) and university web

pages are the most used and most trusted source of information by pre-college students (Areces et al., 2016).

Sources of Information

The relationships that students build with their families, communities, neighborhoods, and peers play a significant role in their postsecondary decisions (Aydin, 2015; Tierney, 2006). Family and community support are essential in efforts to increase college access, especially to raise educational aspirations and increase information about financial aid and college opportunity (Long, 2008). Educational and home settings are among the most prevalent sources of information for students seeking college and career information (González Canché et al., 2014). For students who have college educated family members, access to college information begins at a young age, which allows for a more informed path to college (Crosnoe & Muller, 2014). Students with college educated parents tend to have more information about the importance of high school grades, course selections, and elective choices and the impact these have on future college options (Crosnoe & Muller, 2014).

Families are typically the primary source of social capital for students, but schools serve as extrafamilial institutions and provide a crucial source of social capital for K-12 students (Byun et al., 2012; Cabrera & La Nasa, 2000; Holcomb-McCoy, 2007; Perna & Titus, 2005). School based social capital refers to the social relationships and networks in schools that can be used to improve life outcomes (Lin, 2002).

Teachers and other school staff play a more direct role in assisting students as they prepare and plan for college (Martinez & Castellanos, 2018). First-generation students rely heavily on school staff and alumni to make sense of college options and entrance requirements (Duncheon, 2018), and almost exclusively turn to school resources to navigate the college matriculation process (Kimura-Walsh et al., 2009; Perna et al., 2008).

Some high schools are better prepared to support students than others (Brown et al., 2016; Robinson & Roksa, 2016). Ahearn et al. (2016) found that many high schools struggle to support students with information about community college certificates or associate degree programs, and instead focus solely on four year programs and leave many students with fewer postsecondary options. Teachers report needing more information on college and career options, especially for non-traditional students and those who are struggling academically (Ahearn et al., 2016).

High School Counselors

In many schools, school counselors are the primary source of college and career information (Morton et al., 2018) and students benefit when school counselors share information and provide assistance navigating the process (McDonough, 2015; Mulhern, 2019b; Roderick et al., 2009). Using social capital theory as a framework, Ingels et al. (2004) examined data from the 2002 Education Longitudinal Study to investigate if contact with a high school counselor for college information increased college

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application rates and they found that counselor contact was associated with increased application rates. Similarly, Engberg and Gilbert (2014) looked at the number of hours students spent with their high school counselor and found increased time with a high school counselor about college information was a significant predictor of college application rates. They also noted when financial aid information and assistance was offered, students were more likely to attend four-year colleges (Engberg & Gilbert, 2014). Hurwitz and Howell (2014) reported that the addition of one extra high school counselor per high school increased four year college enrollment rates by 10 percentage points. School counselor effectiveness is extremely important for students living in poverty and attending underperforming schools, likely in part due to social capital and the lack of other sources these students have for college information and assistance (Mulhern, 2019b).

Parents who contact the school counselor regarding their child's high school plans receive more college information than their peers whose parents do not contact the counselor (Bryan et al., 2009). Most school counselors believe working with parents concerning college opportunities is a major part of their job (Holcomb-McCoy, 2010), and when they provide college and career information, support, and guidance, opportunity gaps begin to close (Belasco, 2013; Hurwitz & Howell, 2014; Castleman, Owen, & Page, 2015; Owen, 2014; Owen & Westlund, 2016).

Very few published studies have sought to understand, from a student's perspective, how they prefer to receive college information and from whom they prefer to receive advice. Galotti & Mark (1994) reported administering surveys to 322 college-bound high school students to better understand how they made college decisions and they found that students seek college information from parents, friends and college brochures more often than consulting with a school counselor. Johnson and Rochkind (2010) found that students who had a poor relationship with their school counselor were more likely to be unhappy with their college choice. Another study looked at first-time freshman college students from one private and one public institution in the Mid-Atlantic to understand their preferences for college information and found that high school counselors and college websites were the most valuable and the most frequently used information sources (Addington, 2012).

Gallup/Strada Study

The Gallup-Strada Education Network (2017) conducted one of the largest studies to date on preferences for college and career information and advice (Gallup Inc., 2017). To gain a better understanding of information sources, Gallup and Strada's Education Consumer Pulse surveyed more than 22,000 18 to 65 year-old US residents to identify where they received advice about choosing a college major and the perceived helpfulness of the advice given. Respondents identified a number of people and places as sources of information. To better understand the

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findings, the researchers broke the responses down into four broad categories:

- Formal sources
  (*high school and college counselors, media, internet and print*)
- Informal social networks
  (*family, friends and community leaders*)
- Informal school-based networks
  (*high school teachers, high school coaches, college faculty, or miscellaneous staff*), and
- Informal work-based sources
  (*employers, coworkers, people with experience in the field, and military* (Gallup Inc., 2017).

Fifty-five percent of respondents identified friends and family members as their main source for advice when choosing a major. Younger participants (graduated within prior seven years) identified work-based sources and college faculty more often than college and high school counselors. The researchers also noted younger respondents had an increased likelihood of using the internet as an information source for choosing a field of study. Students in four-year programs were more likely to seek advice from their informal social network, whereas first-generation college students and students attending two-year programs are less likely to seek advice from their informal network. Informal work-based sources were rated as the most helpful and formal sources the least helpful, except for first-generation students who regarded formal sources as helpful. However, like the rest of the respondents, first-generation students gave the highest ratings to informal work-based sources of information (Gallup

Inc., 2017).

There were also a few differences by race, ethnicity, and gender. Black and White adults seek out their informal social network equally, whereas Asians are more likely, and Hispanics were less likely to use their informal social network for college major advice. Black and Hispanic adults were the most likely to receive advice from formal sources and Whites were the least likely. Women were more likely to consult formal sources and less likely to use their social network for advice (Gallup Inc., 2017).

Based on the findings from the Gallup and Strada survey, a number of changes to existing high school career advising and counseling practices were recommended. However, high school students under the age of 18 were not included in the survey sample, and many of the adults surveyed were forced to rely on memories of how they felt about advice received many years previously. This study aims to build upon the findings from the Gallup-Strada survey by asking high school aged students similar questions to understand who they prefer to receive college information from, and how they prefer to receive it. The research questions asked were:

How helpful have various people and resources been in helping high school students think about a major/field of study? Who do high school students prefer to receive college and career information from?

How do high school students prefer to receive

college and career information?

Methods

To answer our research questions, we employed a web-administered survey with high school seniors to assess where they received college and career information from, how helpful they found the varied information sources to be, and how and from whom they would prefer to receive college and career information. After the data were collected and our overarching research questions answered, we further analyzed the data to assess the extent to which demographic characteristics such as gender, race, intended major, and parent education level impact preferences for and perceived helpfulness of the varied college and career information sources.

Participants
A total of 2,901 high school seniors (70% female; 30% male) who took the ACT® test in February of 2018 participated. The following were the most frequently self-reported race/ethnicities: White (44%), Black/African American (26%), Hispanic/Latino (18%), Asian (4%), and other/multi-race (8%). This is close to the 12th-grader ethnic composition of February 2018 ACT test-takers (43% White, 28% Black/African American, 17% Hispanic/Latino, 3% Asian, 9% other/multi-race) but statistically different in gender composition (55% female, 45% male). Survey respondents had a higher high school GPA ($M = 3.36$, $SD = .50$) than the population of February test-takers ($M = 3.22$, $SD = .56$) and also had a

higher ACT Composite score ($M = 20.24$, $SD = 5.06$) than the 12th graders who tested that month ($M = 19.04$, $SD = 4.59$). The two groups were the same in composition in terms of family income and parents' educational level relative to the population.

Data collection procedures
An online survey was administered to a random sample of 64,717 students from the 107,868 12th-grade students who had registered to take the ACT in February 2018. Sixty percent of 12th graders were randomly selected to participate in the survey with a 4.5% response rate. Contact information (email addresses) was obtained from ACT's national database of registered test-takers. This contact information was then used to send out an invitation to participate in the study. An invitation to participate in the survey was sent via email in January 2018 and described the purpose of the study, indicated that participation was completely voluntary and would in no way affect students' ACT scores, and stated that survey responses would not be provided to students' chosen universities. The invitation included a survey link unique to the participant and indicated that ACT wanted to know how the student received information related to college and careers. The survey stayed open for two weeks, and no incentives were provided. Students took approximately five minutes to complete the survey. These survey responses were then matched back to the ACT database that includes students' ACT scores (e.g., Composite score and subject specific scores), self-reported demographic information (e.g.,

race, gender), and family background information (e.g., parent's income) provided at the time of test registration.

Measures

Survey of college and career support. The ACT college and career support survey consisted of three sections that measured sources of support in choosing a major, the types of people they preferred to receive support from, and how students prefer to receive college and career information. These constructs are discussed next.

Sources of support. Students were asked "For the questions below, we would like to learn about how helpful various sources of information and advice have been in helping you think about and choose a major or field of study—even if you have not yet decided on a specific one." For each question, respondents were asked to report how helpful, using a five point scale (5= extremely helpful; 1= Not helpful), each source was in helping them to decide on a major or field of study. If the source was not applicable to the student, they were instructed to choose "I did not get information or advice from this source." A total of 15 sources (e.g., teachers, coaches, parents, internet – see Table 1 on page 89) and an open-ended "other" category were provided.

The 15 sources were also classified based on Gallup and Strada's Education Consumer Pulse Survey (Gallup-Strada Education Network, 2017) sources of advice: *formal* (high

school counselor, college admissions counselor, internet, print, radio, and television,), *informal social networks* (parents, siblings, extended family, friends, and faith-based community), *informal school-based* (teachers, coaches), and *informal work-based* (employer, military recruiter). For each category, a mean helpfulness score was calculated. Sources that were identified as not applicable by participants were ignored in the mean score calculation.

Interpersonal preferences. Students were asked "Who would you prefer to receive college and career information from?" A total of 11 sources and an "other" category were provided (see Table 3 on page 91); these were the same information sources provided in the previous measure, with the four choices not related to people removed. Students were then asked, based on the sources they chose, which one they would most prefer to receive college and career information from.

Communication preferences. Students were asked "How would you prefer to receive college and career information?" and instructed to choose from a list of eight sources (e.g., classroom presentations, email, text messaging), including an "other" category (see Table 5 on page 93). Students were then asked, based on the sources they chose, which method they would most prefer to receive college and career information from.

STEM major intentions. At ACT test registration, students were asked to indicate which college major they plan to enter.

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Approximately 200 college majors were provided. These choices were recoded into either having a STEM emphasis or not. STEM college majors included Environmental Science, Business/Management, Quantitative Methods, Computer and Information Sciences, Engineering, and the Biological/ Physical sciences. Examples of non-STEM majors included Liberal Arts and General Studies, Arts: Visual and Performing, and English and Foreign Languages (n = 517 intended to major in STEM; n = 2,384 do not).

Major decidedness. In the survey, students were asked to indicate how likely they were to change their major/field of study with four response options: "very likely," "somewhat likely," "not likely at all," (n = 1422) and "I have not yet decided on a major or field of study" (n = 270). Responses were recoded to collapse the "very likely" and "somewhat likely" response options for analysis into a new "likely to change" category (n = 1208). One respondent did not answer this question.

Major availability. At ACT test registration, students were asked to rank how important a list of factors were in selecting a college. Field of study was one option; type of institution (private/public; 4-year, 2-year); location and tuition were additional response options. Responses were categorized as either choosing field of study as their first option ("most important"; n = 1132) or not ("< most important"; n = 1438). There were 331 respondents who did not answer this question.

Parental income. At the time of registering for the ACT, students were asked to answer the question "To plan for financial aid for entering students, colleges need to know financial background of their students. Please estimate the approximate total combined income of your parents before taxes last year." A nine-point scale was provided, with 1 representing less than $24,000 and 9 indicating more than $150,000. These data were recoded into three income brackets: $50,000 or less ($n$ = 1,195); more than $50,000 but less than $100,000 ($n$ = 726); and more than $100,000 ($n$ = 423) with 557 students choosing not to answer the question.

Parents' educational level. Students, at the time of ACT test registration, were provided two places to indicate the education level of their mother, father, and/or guardian. An eight-point scale was provided ranging from 1= less than high school to 8 = Doctorate or professional degree (Ph.D., MD, JD, etc.). Data were recoded from both of these variables into a single variable to represent the parents' educational level with four categories (some college or less [n = 1,183], Associate degree [n = 325], Bachelor's degree [n = 729], or Graduate degree [n = 466]) reflecting the highest education level among both parents, with 206 students choosing not to answer the question.

Race. Students were also asked to indicate their race and ethnicity when registering for the ACT test. Racial/ethnic options provided included: Black/African American (n = 730); American Indian/Alaska Native (n = 28);

White (n = 1,232); Hispanic/Latino (n = 503); Asian (n = 103); Native Hawaiian/Other Pacific Islander (n = 5); Two or more races (n = 123); and prefer not to respond. For the purposes of this analysis, these options were recoded so that American Indian, Native Hawaiian, and Two or more races were collapsed into a single category (n = 156). This resulted in five racial/ethnic categories. Participants who indicated they prefer not to respond were omitted from analyses when race was disaggregated (n = 177).

Gender. Gender was self-reported by students at ACT test registration with two response options: male (n = 855) or female (n = 2,016).

Data analyses

For each research question, descriptive statistics (means, standard deviations, and sample size) and inferential statistics (Analysis of Variance [ANOVA] or chi-square) were calculated using SPSS. For the omnibus ANOVA results in Research Question 1, when Levene's Test of Homogeneity of Variances indicated the assumption was not met for omnibus ANOVA, Welch's F was utilized. Games-Howell post-hoc tests were used following a significant omnibus ANOVA result to account for unequal group sizes and variances. Effect sizes were calculated for all analyses. Eta squared was used to calculate the overall effect of an independent variable on the dependent variable for all ANOVAs. An Eta squared of .01 is considered small, .06 a medium effect, and .14 is large (Cohen, 1988).

Hedges' g was used to calculate the effect sizes for pair-wise comparisons from the ANOVA analyses, given unequal sample sizes across group comparisons. Hedge's g is interpreted the same as Cohen's d, where .2 or less is considered a small effect, .5 a moderate effect, and .8 a large effect (Cohen, 1988). For chi-square analyses, Cramer's V was used for the overall effect size. With an analysis where the degrees of freedom is 1, a .1 is small, .03 is medium, and .5 is large (Cohen, 1988). Cohen's h used to calculate the effect sizes for pair-wise comparisons from the chi-square analysis, and is interpreted the same as Cohen's d. For all pair-wise comparison effect sizes, a reference category was used and all other categories were compared to it. Given the large number of analyses, a Bonferroni correction was applied to the reported p values for all analyses to control for the Familywise Error Rate and reduce the likelihood of Type I error. Specifically, the reported p values for each omnibus test were multiplied by 7 within each dependent variable to account for multiple comparisons. Missing data were treated as missing in all analyses.

Results

Research Question 1: Sources
For the first research question, we sought to investigate how helpful participants perceived interpersonal and media sources were perceived to be by study participants as they decided which major or field of study to pursue. As indicated in Table 1, parents were the most helpful (M = 3.82, SD = 1.19),

followed by friends (M = 3.26, SD = 1.20) and college admission counselors (M = 3.25, SD = 1.27), while the least helpful sources were recruiters (M = 2.26, SD = 1.36), employers (M = 2.57, SD = 1.33), and coaches (M = 2.74, SD = 1.33). The media-based sources of information rated most helpful by students were the internet (M = 3.70, SD = 1.13) and print (M = 3.21, SD = 1.26), while the least helpful sources were radio (M = 2.04, SD = 1.26) and television (M = 2.45, SD = 1.13).

With the information sources categorized in alignment with the Gallup-Strada Education Network (2017) study, as detailed in Table 1, the Informal Social sources of information were perceived to be the most helpful in navigating the college major decision-making process (M = 3.34, SD = 0.97). Interestingly, these informal sources were perceived to be more helpful than Formal sources (M = 3.18, SD = .93), which consists of people trained to provide such advice. The Informal School-based category of information sources was rated as moderately helpful on average (M = 3.02, SD = 1.13) by study participants. The lowest-rated category of information sources, Informal Work-based, consists of employers and military recruiters (M = 2.52, SD = 1.27).

Next, estimates were generated for respondents by students' demographic characteristics (e.g., gender, race, parent

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>
> **"...Informal Social sources of information were perceived to be the most helpful in navigating the college major decision-making process..."**

income, parent education, stem major, etc.) to determine if they had a differential relationship to perceived helpfulness for the five sources with the highest helpfulness ratings (parents, friends, college admission counselor, extended family, and high school counselor). The helpfulness ratings of these five information sources were employed as the dependent variables in a series of univariate ANOVAs with the selected demographic characteristic serving as the independent variable.

Means, standard deviations, and η^2 are reported in Table 2 for each of the univariate ANOVA's, along with Hedges' g for post-hoc tests. For brevity, ANOVA details (e.g., F, DF) are not provided here, but are available from the first author on request. For gender, the only statistically significant finding was that males rated high school counselors as more helpful than females ($p < .001$). For ethnicity, statistically significant ANOVA findings were obtained for all dependent variables: parents, friends, extended family, and high school counselor all reached the $p < .001$ level, with $p = .007$ for the admission counselor. Notable findings related to ethnicity are: Black students rated the helpfulness of each of the five sources higher than all other ethnicities, with post hoc tests further revealing those information sources to be significantly more helpful to Black students than White students' college

major decision-making; Hispanic and Asian students rated parents as significantly less helpful than Black and White students; and White students rated high school counselors as significantly less helpful than all other ethnicities.

The ANOVAs examining parent income revealed statistically significant findings for admission counselor (p = .031), extended family (p < .001), and high school counselor (p < .001). Students in the lowest income bracket rated each of these information sources to be significantly more helpful in the college major decision-making process than students in higher income brackets. For parent education level, the ANOVAs findings uncovered significant between-group differences for parents (p < .001), admission counselor (p = .009), and high school counselor (p < .001). Parents with bachelor's and graduate degrees were perceived by students to be significantly more helpful than parents with some college or less, with perceived helpfulness ratings increasing in a linear fashion with parent education level. Admission counselors and high school counselors were more helpful to first-generation students (i.e., parent education level = some college or less) than continuing generation students (one parent completed a college degree), with every between-group difference reaching statistical significance except for students with at least one parent holding a bachelor's degree.

The ANOVAs examining major decidedness were significant for parents (p < .001), friends (p = .035), and extended family (p = .035). Students who indicated they had decided on a major and were not likely to change majors rated parents as significantly more helpful than students not yet decided on a major and students likely to change their major. Undecided students rated parents to be significantly less helpful than the other two groups of students. For friends and extended family, undecided students rated each of these sources as significantly less helpful than students who were unlikely to change their major. ANOVAs examining STEM intent and major availability did not reveal any statistically significant between group differences.

Research Question 2: Interpersonal Preferences

To answer our second research question, "Who would high school students prefer to receive college and career information from?", the participants were asked to respond to three items: two items resulting in quantitatively-oriented data and one item resulting in qualitatively-oriented data. The quantitatively-oriented items asked students "who would you prefer to receive college and career information from?" and listed 11 possible sources of information as response options (e.g., high school counselor, admission counselor—see Table 3) in addition to an 'other' response option. The first item allowed respondents to choose from 0 to 12 of the possible response options with specific instructions to choose all that apply. The responses from 2,810 participants in this study who selected at least one of the 11

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named information sources are summarized in Table 3. The majority of high school seniors in this study indicated they would prefer to receive college and career information from high school counselors (65.2%), admission counselors (63.2%), teachers (58.0%), and parents (54.2%). Of the 12 possible information sources, each student selected 3.51 of them on average (SD = 2.02). Over 90% of the respondents indicated they would prefer to receive college and career information from six or fewer of the listed sources. The second quantitatively-oriented item asked students "which of the people you selected would you MOST prefer to receive college and career information from?" and limited respondents to selecting just one of the 11 named response options. As noted in Table 3, the people high school students in this study indicated they would most prefer to receive college and career information from were admission counselors (34.3%), high school counselors (25.4%), and parents (16.1%).

Similar to the first research question, additional chi-square analyses were performed to further describe the study participants' preferences for receiving college and career information from high school counselors, admission counselors, parents, and teachers within selected demographic characteristics, detailed in Table 4. For gender,

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"...the people high school students in this study indicated they would most prefer to receive college and career information from were: Admission counselors (34.3%), High school counselors (25.4%), and Parents (16.1%)."

10% more females selected admission counselors as the most-preferred source of information than males ($p < .001$). Chi-square analyses examining ethnicity revealed significant between-group differences for admission counselors ($p = .003$) and parents ($p < .001$). Students identifying with an ethnic minority group most preferred to receive information from high school counselors more frequently than White students, and White students selected parents more frequently than ethnic minority students. Black students selected admission counselors as the most-preferred source more frequently than all other ethnicities.

The chi-square analyses examining the most-preferred interpersonal information sources by parent income were significant for high school counselors ($p = .036$) and parents ($p < .001$), with students from lower income brackets selecting high school counselors more frequently than students from the highest income bracket, and students from the highest income bracket selecting parents more frequently than students from lower income brackets. A similar trend was observed with parent education level, where the chi-square analyses revealed statistically significant differences for high school counselors ($p = .001$), admission counselors ($p = .001$), and parents ($p < .001$). As parent education increased,

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students selected the high school counselor less often and parents more often as the most-preferred information source, and students with parents holding bachelor's or graduate degrees selected the admission counselor as their most-preferred source less often than students with parents who did not complete a bachelor's or graduate degree. For major decidedness, students who had a clear idea of their intended major selected admission counselors as their most-preferred interpersonal information source more frequently than students who had not yet decided or were likely to change their major (p = .003).

Two of the survey questions were open ended and asked students to briefly explain why they preferred to receive college and career information from the most-preferred source they selected. The findings were evaluated in two discrete categories:

(a) students who indicated they preferred to receive college and career information from their school counselor, and

(b) students who did not identify their school counselor as a preferred source.

Students who responded that they preferred to receive college and career information from their school counselor viewed their school

"...One student said, "my counselor will go over how to use the information she gives me. I can always return to ask further questions. School counselors have more knowledge in this type of information than my parents, friends, and myself.""

counselor as the most knowledgeable and the best positioned to share accurate and personalized information regarding college and career opportunities (n = 1353, 47%). One student said, "my counselor will go over how to use the information she gives me. I can always return to ask further questions. School counselors have more knowledge in this type of information than my parents, friends, and myself." Another student stated, "As the primary source of the information, I'll be getting information about the specific college and major I'll be pursuing, I would prefer to have someone that is known as the hub of that information to notify me of anything upcoming. It just allows for more convenience." Students feel that the amount of college and career information available to them is overwhelming, but they believe the school counselor will sort through all of it and make their life "easier."

Additional reasons students stated they preferred to receive college and career information from their school counselor included having a strong relationship, trusting their advice as a professional, seeing them as "helpful," believing they are "able" to answer their questions, and feeling safe because that the school counselor "knows" them best and is "looking out for them."

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Students who preferred to receive college and career information from someone other than their school counselor identified college admission counselors, teachers, coaches, clergy, friends, and parents as people who they "trust" and find "knowledgeable" about the process. One student said, "I prefer to receive college and career information from my teachers and parents because they are more supportive and understandable. My parents and teachers have been helping me get more information about colleges. I try getting help from counselors, but they are busy and don't have time to help me out." Another wrote, "I prefer to talk to a college admission counselor and friends because they had experience college. They also would give out advice to a student who is majoring in a big field and how to get through life without being so stress. There is many reasons why I prefer them." Other reasons students stated included a sense that daily interactions with teachers create stronger trusting relationships, a belief that college counselors are best prepared to answer questions about college majors, and feeling parents know them best and are in better positions to help them with their college decisions.

Students who preferred working with someone other than their school counselor to get college and career information do so because they see them as "reliable," experienced in their field, and someone who "wants the best" for them. Both groups feel strongly that their preferred source of college and career information is "knowledgeable about the process" and "cares" about their

success. The relational component appears to be tightly aligned to "trusting" their preferred source as an expert. Students typically responded that their preferred source "knows what is best" for them.

Research Question 3:
Communication Preferences
To answer our third and final research question, "how would high school students prefer to receive college and career information?", the participants responded to two items. The first item asked students "how would you prefer to receive college and career information?" and listed six possible response options (e.g., classroom presentations, email, internet – see Table 5) in addition to 'other.' The first item allowed respondents to choose from 0 to 7 of the possible response options with specific instructions to choose all that apply. The responses from study participants who selected at least one of the information sources are summarized in Table 5. The most-frequently selected method for receiving college and career information was Email (69.4%), with slightly less than half of all students selecting One-on-one (48.2%) and Mail (47.6%). Each student selected 2.99 of the communication methods on average (SD = 1.46). Nearly 85% of the respondents indicated they would prefer to receive college and career information from four or fewer of the listed sources, with most students selecting three of them. The second item asked students "how would you MOST prefer to receive college and career information?" and limited respondents to choosing one of the seven response options. As detailed in

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Table 5, Email was the most-preferred method (31.9%), followed by One-on-one (27.7%) and Mail (14.6).

As with the first two research questions, additional chi-square analyses were performed to describe the study participants' most preferred methods (Email, One-on-one, and Mail) for receiving college and career information within selected demographic characteristics, detailed in Table 6. Gender differences emerged for One-on-one (p = .005), with males preferring One-on-one less frequently than female students. Significant differences also emerged when examining Email (p = < .001) and One-on-one (p= .014) by ethnicity. White students selected Email as their most-preferred communication option more frequently than all other ethnicities and selected One-on-one more frequently than all other ethnicities except those identifying as American Indian/Alaska Native. For both Email and One-on-one, the significant chi-square result was due to the difference between White and Black ethnicities.

Discussion

The findings of this study both confirm and challenge prior research investigating sources of and preferences for receiving college and career information and provide insight into where and how high school seniors acquire such information and how helpful it was perceived to be. Our first research question assessed how helpful various interpersonal and media-based sources of information were in helping students decide on a field of study to pursue in college and reveals that parents and friends were the most helpful and employers were among the least helpful. This is contrary to the findings of the Gallup-Strada Education Network (2017), which found that employers were more helpful than friends and family. This discrepancy is likely due to the different samples employed in the study. The Gallup-Strada study employed a sample consisting largely of people who had completed a college degree and retrospectively reflected on their experience, while our study consisted entirely of high school seniors in the midst of choosing a major.

The perceived helpfulness of parents increased in lock-step fashion with their education levels, while the helpfulness of high school counselors decreased in a similar, lock-step manner as parent education levels increased and is aligned with prior research (Kim & Schneider, 2005). Similarly, the perceived helpfulness of high school counselors increased as parent income levels decreased. These findings point to high school

> **"Nearly 85% of the respondents indicated they would prefer to receive college and career information from four or fewer of the listed sources, with most students selecting three of them."**

counselors serving as a 'leveling agent' for first-generation and low-income students and are also congruent with prior research (Bryan et al., 2011; Castleman et al., 2015; Lara, 2014).

The second research question examined the interpersonal information sources students would prefer to receive college and career information from and indicates that formal networks—high school and admission counselors in particular—are the most preferred sources. This finding was even more pronounced for first-generation students and low-income students, highlighting the important role and function counselors serve for those students (Bryan et al., 2011).

Finally, the third research question investigated how students would prefer to have college and career information communicated to them. Somewhat surprisingly, given prior research on text messaging and the use of social media as promising ways to engage students in the college admission process (Arnold et al., 2015; Lenhart, 2015), Email was the most-preferred communication method, followed by One-on-one and Mail. It is also interesting that the Internet was characterized as the most helpful source of college and career information across all sources (see Table 1), yet was only noted to be a preferred source of information for one-third of our sample—and the most-

preferred information source for less than five percent. Unlike the previous research questions, our analyses were not able to detect any statistically significant differences for communication preferences based on parent income or education levels, although the trend observed in the data indicates that as income increases, preferences for receiving information by Email decrease while preferences for One-on-one increase.

Limitations

One notable limitation to the current study is the relatively low response rate with a non-random, slightly unrepresentative sample. Thus, it is important to keep in mind that those who responded to the survey might have different characteristics than the typical high school senior who took the ACT in February 2018. For example, female students were more likely to participate in the survey relative to their male counterparts. Fortunately, there were rarely any gender differences in our findings. We believe that future studies of this nature can be strengthened by the use of a nationally representative sample of 12th graders taking the ACT. Likewise, students who take the ACT test in February have a higher proportion of African American students than any other national test date. While not a direct limitation of our study, we caution the reader in generalizing across

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> **"These findings point to high school counselors serving as a 'leveling agent' for first-generation and low-income students and are also congruent with prior research…"**

national test dates for a given academic year. Regardless, future research might conduct studies across ACT's national test dates and from students who might not be inclined to sit for the test.

Another limitation of this study concerns the cross-sectional nature of the research design. While it was advantageous to collect students' preferences and sources of college major decisions immediately preceding their enrollment in college, the field could benefit with tracking students across time, including how their sources of college support relate to and inform enrollment into college and persistence, including attaining a college degree.

Finally, the survey questions and options provided in this study aligned with those utilized in the Gallup/Strada study. Some of the survey options need to be teased out further to avoid any confusion for students completing the survey. For example, some students may have interpreted the "college counselor" option to mean a "college admissions representative" while other students might have assumed this referred to a "high school staff member," "college access organization professional" or an "independent educational consultant" designated to assist with college applications, financial aid and other college-going tasks. In the future, these titles could be explicitly identified, and new options added to clarify and better understand the student responses.

Implications for School Counseling Practice

The ASCA national model (American School Counselor Association, 2019) recommends that school counselors calculate the amount of time spent in direct and indirect student services to assess where they are deploying the most energy and to identify gaps in services. In addition to personally understanding how their time is spent, school counselors need to share this information with appropriate stakeholders so that program delivery decisions are made to prioritize college and career advising as major school counselor roles and responsibilities. School counselors must keep abreast of the constantly changing college landscape and current research to make the necessary ongoing adjustments to their college advising practices. School counselors are considered resident experts and the brokers of college and career knowledge and, as such, are expected to be familiar with up to date practices, policies and research.

Administrators, teachers, parents and students rely on school counselors for accurate, timely and up to date information. School counselors must work hand and hand with stakeholders to establish practices that best facilitate student requests for college and career information and provide the individualized one-on-one support students desire (Hatch & Owen, 2015; Savitz-Romer, 2014). If future research continues to validate student preferences for one-on-one advising, college and career advisors and school counselors will need to advocate for and

tackle the logistics necessary to provide this level of support to all students.

When it comes to providing college and career information, we know very little about parents' college knowledge and needs, yet they often have the most influence on their children's college plans. Given that "social capital related to processes such as college application may amass directly to students or may accrue to students through their parents' contact and relationships with school personnel" (Bryan et al., 2011, p. 190), school counselors should consider ways to encourage and enhance collaborative parental relationships. High school counselors could work with parents to help dispel the myths around financial aid and the college admissions process, talk about college match and fit, provide FAFSA and financial aid information, and answer questions about the college transition. They could provide workshops for parents to discuss the social and emotional adjustment of sending a child to college. K-12 and higher education educators should consider how to best support parents and guardians as their students transition from high school to college.

Implications for the Training and Professional Development of School Counselors

Regardless of who students identify as their preferred source of information, they perceive this person to be the most knowledgeable provider of college advice. Standardizing the

preparation of all professionals who provide college and career guidance is needed. From pre-service training to ongoing professional development, the requisite knowledge, skills and aptitudes needed to support students as they navigate their college options should be central tenants of all training programs. Professionals engaged in college advising must have the most up to date information to close opportunity gaps and provide the support that students want and deserve. Given the especially important function school counselors serve for students living in poverty and those who are first in their family to attend college, professional development is necessary for educators to stay informed of the most up to date college and career information, yet access to ongoing professional development varies widely between role groups.

Many administrators disagree on how and when school counselor professional development should be delivered, resulting in a lack of consistent and relevant training (Harrison Ross, 2012; Savitz-Romer, 2019). A growing number of authors recognize the need to revamp school counselor professional development models especially when it comes to strengthening school counselor attitudes, knowledge and skills related to postsecondary guidance and researchers continue to call for more school counselor professional development as a solution to school counselor knowledge deficits (Brown et al., 2017, Savitz-Romer, 2019). However, virtually no one is publishing on professional development outcomes, and this needs

further exploration (Brown, et. al., 2016). Teachers and other school staff will need ongoing professional development if they are going to be informed participants in helping all students explore their college options and future majors.

The Council for Accreditation of Counseling and Related Educational Programs (CACREP) standards encourage counselor educator programs to provide stand-alone courses of study, institutes and workshops on counseling students for college education (CACREP, 2015). However, counselor education programs vary greatly in the amount of time devoted to the acquisition of the critical knowledge, skills and competencies needed to provide college exploration, planning and support (National Association of College Admission Counseling, 2016). Counselor educators consistently indicate that their programs provide training in college assessments, affordability planning, college admissions and transition to college support, yet school counselors continue to report feeling underprepared and underequipped to adequately support students with these tasks (Brown et al., 2016). Counselor training programs must assess their student's needs and create a stand-alone college admissions course with tangible, practical, hands on

college counseling information and training. College counseling opportunities should be embedded throughout the curriculum so that counselor trainees graduate with the requisite skills needed to support students as they navigate their college options.

Prioritizing activities that utilize the preferred sources and preferences students have for receiving college and career information will allow the field to respond to well-deserved criticism regarding the lack of access students have to high quality college advising and counseling support. Higher education institutions, the business community, philanthropic partners, and K-12 organizations need to work collaboratively to ensure that student voices are heard, and information needs are met as they transition to college and career.

"Prioritizing activities that utilize the preferred sources and preferences students have for receiving college and career information will allow the field to respond to well-deserved criticism regarding the lack of access students have to high quality college advising and counseling support."

Future Research

We must engage in research that will shed a continued light on how students seek college and career information, what sources they turn to understand postsecondary options, and their preferences for receiving this information. Researchers should consider partnering with high schools or school districts that are using college and career

technology platforms or high school exit surveys to gather student feedback and add a few extra questions to assess from whom and how students prefer to receive college information. Some school districts mandate student participation in high school exit surveys as a graduation requirement and partnering with these districts might not only increase the response rate, it would likely lend itself to a more representative sample.

Researchers could also consider collaborating with one or more college access organizations or higher education institutions that have access to a more nationally representative sample and track their students across time to learn how different aspects of support influence college enrollment, persistence, and degree attainment.

Technology can potentially provide additional support to educators working in under-resourced conditions, yet most research is focused solely on students as the recipients of technological strategies. We need to better understand how technology impacts educators' ability to get information to students and if and how this frees up their time to provide more one-on-one advising. Research can help us better understand what, if any, information can be automated versus what information students prefer to receive

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"We need to explore if any of the student preferences are due to a lack of awareness of other modalities versus an aversion to a potential information delivery method."

via email or what must be done face-to-face. We need to explore if any of the student preferences are due to a lack of awareness of other modalities versus an aversion to a potential information delivery method.

Research has shown that district-wide school counseling policies and smaller counselor-to-student ratios can help facilitate the implementation of robust college and career readiness programs; however, school counselors face a range of competing priorities and demands that often limit the amount of time available for engaging in student college planning activities and initiatives (Brown, et. al., 2016; Hall, 2013; Lapan, Whitcomb, & Aleman, 2012). More research is needed to understand evidence-based practices that are connected to college advising and counseling strategies that best align with student preferences. Research is also needed to better understand the role parents play in the postsecondary planning and decision-making process (Brown et al., 2016). With this research in hand, policy-makers can advocate for the appropriate roles needed to best support students on their postsecondary path.

Implications for Policy

Policies are needed to ensure enough resources are available to support first-

generation and low-income students who typically rely on the school counselor as their major source of support when navigating college opportunities. School districts need to consider equity models that would place more school counselors and college advisors in schools with greater student needs. Higher education institutions could provide additional supports to students and parents attending under-resourced schools. Policies that clarify the role of college access and community-based partners could greatly assist school districts as they weigh the role of school-based staff in providing postsecondary guidance. Policies that require the collection and use of reliable metrics to measure student outcomes will then support evidence-based practices.

Conclusion

How and from whom students prefer to receive college and career information is important for educators, college access professionals, and higher education professionals to know as they assist students and families with the college selection, application, and transition process. The findings of this study indicate that parents were rated to be the most helpful information source, and they suggest that providing parents with accurate, up-to-date college and career information can be beneficial to

> **"...parents were rated to be the most helpful information source, and they suggest that providing parents with accurate, up-to-date college and career information can be beneficial to students."**

students. The findings of this study also indicate that low-income and first-generation students prefer school counselors as an information source more than their parents, suggesting that school counselors serve a leveling function. While the Internet was rated to be a helpful source of information, it was among the least-preferred information sources, with interpersonal communication methods (Email and One-on-one) being the most preferred. Analyses of student preferences by selected demographic characteristics revealed differences for interpersonal information sources by gender, race/ethnicity, parent education, and income, few differences emerged when examining how students prefer to receive college and career information. Parent education and income are important characteristics when considering who students prefer to receive information from but are not important when considering how students receive such information. It may be helpful for professionals to consider such differences when developing policies, programs, and interventions designed to provide college and career information to students. JCA

Table 1.
Perceived Helpfulness Ratings of People and Media Sources Providing College Major Related
Information

Source	n	M (SD)	95% CI
People	2874	3.17 (0.85)	[3.14, 3.20]
Parents	2745	3.82 (1.19)	[3.78, 3.86]
Friends	2526	3.26 (1.20)	[3.22, 3.31]
Admission Counselor	1991	3.25 (1.27)	[3.19, 3.30]
Extended Family	2174	3.23 (1.31)	[3.17, 3.28]
High School Counselor	2508	3.20 (1.35)	[3.15, 3.25]
Siblings	2050	3.18 (1.36)	[3.12, 3.24]
Teachers	2610	3.16 (1.19)	[3.12, 3.21]
Faith-based	1397	3.03 (1.40)	[2.96, 3.11]
Coaches	1721	2.74 (1.33)	[2.68, 2.81]
Employer	1281	2.57 (1.33)	[2.50, 2.64]
Military Recruiter	870	2.26 (1.36)	[2.17, 2.35]
Media	2723	3.18 (1.05)	[3.14, 3.22]
Internet	2638	3.70 (1.13)	[3.65, 3.74]
Print	2151	3.21 (1.26)	[3.15, 3.26]
Television	1413	2.45 (1.33)	[2.35, 2.52]
Radio	1127	2.04 (1.26)	[1.97, 2.11]
Informal Social	2841	3.34 (0.97)	[3.30, 3.38]
Formal	2859	3.18 (0.93)	[3.15, 3.22]
Informal School-based	2638	3.02 (1.13)	[2.97, 3.06]
Informal Work-based	1462	2.52 (1.27)	[2.45, 2.59]

Note: CI = confidence interval.

Table 2.
Means, Standard Deviations, and Statistically Significant Between Group Differences For ANOVAs Employing Parents, Friends, Admission Counselor, Extended Family, and High School Counselor as Dependent Variables

Factor	Parents n	Parents M (SD)	Parents $g(\eta^2)$	Friends n	Friends M (SD)	Friends $g(\eta^2)$	Admission Counselor n	Admission M (SD)	Admission $g(\eta^2)$	Extended Family n	Extended M (SD)	Extended $g(\eta^2)$	HS Counselor n	HS M (SD)	HS $g(\eta^2)$
Gender			(.00)			(.00)			(.00)			(.00)	**		(.01)
Male (1)	847	3.85 (1.16)		774	3.30 (1.18)		613	3.28 (1.25)		658	3.24 (1.32)		787	3.36 (1.28)[2]	
Female (2)	1898	3.81 (1.21)	.03	1752	3.25 (1.20)	.04	1378	3.23 (1.28)	.04	1516	3.22 (1.30)	.02	1721	3.12 (1.37)[1]	.18
Ethnicity	**		(.01)	**		(.01)	**		(.01)	**		(.04)	**		(.04)
AI, NH, > 1 (1)	148	3.65 (1.27)[2]	.16	139	3.12 (1.10)[2]	.03	106	3.25 (1.20)	.10	115	2.99 (1.36)[2]	.05	133	3.31 (1.27)[3]	.27
Black (2)	680	4.00 (1.20)[1,3,4,5]	.15	626	3.45 (1.19)[1,3]	.24	531	3.42 (1.29)[3]	.23	583	3.62 (1.28)[1]	.43	659	3.56 (1.30)[3,4]	.46
White (3)	1180	3.83 (1.14)[2,4]		1083	3.16 (1.19)[2]		823	3.13 (1.26)[2]		910	3.06 (1.27)[2,5]		1049	2.96 (1.32)[1,2,4,5]	
Hispanic/Latino (4)	473	3.66 (1.24)[2,3]	.15	439	3.27 (1.24)	.09	347	3.28 (1.26)	.12	359	3.02 (1.32)[2,5]	.03	428	3.21 (1.36)[2,3]	.19
Asian (5)	97	3.62 (1.19)[2]	.18	93	3.32 (0.99)	.14	71	3.17 (1.10)	.03	77	3.47 (1.13)[3,4]	.33	91	3.37 (1.19)[3]	.31
Parent Income			(.03)			(.02)	**		(.01)	**		(.01)	**		(.02)
<24 to 50k (1)	1104	3.80 (1.23)		1044	3.34 (1.23)		816	3.34 (1.27)[2,3]		901	3.37 (1.33)[2,3]		1042	3.38 (1.32)[2,3]	
50 to 100k (2)	705	3.79 (1.18)	.00	633	3.18 (1.14)	.13	504	3.15 (1.24)[1]	.15	549	3.06 (1.26)[1]	.24	637	3.07 (1.33)[1]	.23
100 to >150k (3)	409	3.96 (1.08)	.13	375	3.20 (1.18)	.12	287	3.10 (1.22)[1]	.19	310	3.11 (1.28)[1]	.20	350	2.86 (1.28)[1]	.40
Parent Education	**		(.02)			(.00)	**		(.01)			(.00)	**		(.01)
Some coll. or less (1)	1094	3.66 (1.28)[3,4]		1035	3.30 (1.25)		820	3.36 (1.26)[2,4]		880	3.21 (1.36)		1049	3.35 (1.34)[2,3,4]	
Associates degree(2)	310	3.80 (1.17)[4]	.11	276	3.24 (1.17)	.05	224	3.08 (1.29)[1]	.22	239	3.30 (1.29)	.07	284	3.11 (1.32)[1]	.18
Bachelor's degree(3)	700	3.95 (1.11)[1]	.24	638	3.30 (1.16)	.00	510	3.20 (1.22)	.13	571	3.24 (1.29)	.02	631	3.11 (1.34)[1]	.18
Graduate degree(4)	449	4.06 (1.04)[1,2]	.33	409	3.13 (1.17)	.14	298	3.08 (1.31)[1]	.22	332	3.14 (1.25)	.05	375	2.91 (1.33)[1]	.33
STEM Intent			(.00)			(.01)			(.00)			(.00)			(.00)
No (1)	2253	3.84 (1.19)		2088	3.29 (1.20)[2]		1645	3.26 (1.27)		1792	3.24 (1.31)		2071	3.19 (1.35)	
Yes (2)	492	3.75 (1.18)	.08	438	3.14 (1.15)[1]	.13	346	3.17 (1.27)	.07	382	3.14 (1.32)	.07	437	3.22 (1.32)	.02
Major Decidedness	**		(.01)	*		(.01)			(.01)	*		(.01)			(.00)
Not yet decided (1)	254	3.53 (1.23)[2,3]	.32	238	3.07 (1.24)[2]	.21	164	3.17 (1.16)	.12	194	3.00 (1.29)[2]	.24	221	2.97 (1.32)	.18
Not likely change (2)	1338	3.91 (1.19)[1,3]		1208	3.33 (1.21)[1]		959	3.32 (1.30)		1052	3.31 (1.31)[1]		1210	3.22 (1.37)	
Likely to change (3)	1152	3.78 (1.17)[1,2]	.11	1080	3.23 (1.16)	.08	868	3.17 (1.25)	.12	928	3.18 (1.31)	.10	1076	3.22 (1.32)	.00
Major Availability			(.00)			(.00)			(.00)			(.00)			(.00)
< Most important (1)	1365	3.79 (1.22)		1262	3.25 (1.21)		983	3.26 (1.28)		1076	3.22 (1.34)		1245	3.23 (1.34)	
Most important (2)	1068	3.86 (1.14)	.06	976	3.25 (1.19)	.00	769	3.21 (1.25)	.04	845	3.23 (1.27)	.01	973	3.11 (1.33)	.09

* = ANOVA significant at $p < .05$

** = ANOVA significant at $p < .01$

Note. The numbers in parentheses in factor names refer to the numbers used in illustrating statistically significant between group differences. AI is Amer. Indian/Islander. White, <24 to 50k parents' income, some coll. or less parents' education, and Not likely change major were all used as reference categories to calculate Hedges g.

Student Preferences

Table 3.
Interpersonal information source preferences among high school seniors.

Information Source	A preferred source		Most preferred source		
					95% CI
	n	%	*n*	%	[LL, UL]
HS Counselor	1831	65.2	708	25.4	[23.8, 27.1]
Admission Counselor	1776	63.2	955	34.3	[32.5, 36.1]
Teachers	1631	58.0	339	12.2	[10.9, 13.4]
Parents	1523	54.2	448	16.1	[14.7, 17.5]
Friends	760	27.0	35	1.3	[.88, 1.7]
Siblings	577	20.5	55	2.0	[1.5, 2.5]
Extended Fam	547	19.5	39	1.4	[1.0, 1.8]
Coaches	418	14.9	54	1.9	[1.4, 2.4]
Faith-based	324	11.5	18	.6	[0.3, .9]
Employer	237	8.4	25	.9	[0.6, 1.3]
Military Recruiter	123	4.4	12	.4	[0.2, .6]
Other	126	4.3	98	3.5	[2.8, 4.2]

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Student Preferences

Table 4.
Percent of students selecting high school counselor, admission counselor, or parents as most preferred source of college and career information within selected groups

	HS Counselor			Admission			Parents			Teachers		
Factor	*n*	%	*h(V)*	*n*	%	*h(V)*	*n*	%	*h(V)*	*n*	%	*h(V)*
Gender			(.00)	**		(.10)			(.02)			(.04)
Male	214	24.9	0.01	232	27.0	.21	145	16.9	.04	122	14.2	.09
Female	494	25.3		723	37.0*		303	15.5		217	11.1	
Ethnicity			(.07)	**		(.09)	**		(.12)			(.07)
AI, NH, > 1	43	28.1	.11	47	30.7	.04	24	15.7	.12	21	13.7	.05
Black	181	25.9	.06	283	40.4*	.16	89	12.7*	.21	59	8.4	.12
White	280	23.2		394	32.7		247	20.5		143	11.9	
Hispanic/Latino	149	30.8	.17	154	31.8	.02	49	10.1*	.29	67	13.8	.06
Asian	27	27.8	.11	23	23.7*	.20	11	11.3	.25	17	17.5	.16
Parent Income	**		(.07)			(.04)	**		(.13)			(.02)
<24 to 50k	331	28.7*		400	34.6		137	11.9*		144	12.5	
50 to 100k	173	24.4	.10	253	35.6	.02	116	16.3	.13	79	11.1	.04
100 to >150k	85	21.0*	.18	123	30.4	.09	102	25.2*	.35	45	11.1	.04
Parent Education	**		(.09)	**		(.09)	**		(.22)			(.03)
Some coll. or less	328	28.6*		138	38.2*		89	7.8*		145	12.6	
Associates degree	77	24.5	-0.09	121	38.5	0.01	52	16.6	0.27	29	9.2	-0.11
Bachelors degree	163	23.5	-0.12	218	31.4*	-0.14	141	20.3*	0.37	83	11.9	-0.02
Graduate degree	80	17.7*	-0.26	127	28.1*	-0.22	131	29.0*	0.57	57	12.6	0.00
STEM Intent			(.00)			(.01)			(.00)			(00)
No	581	25.2	.00	789	34.2	.03	369	16.0	.01	280	12.1	.01
Yes	127	25.1		166	32.9		79	15.6		59	11.7	
Major Decidedness			(.05)	**		(.07)			(.04)			(.02)
Not yet decided	63	24.2		85	32.7		54	20.8		29	11.2	
Not likely change	326	23.4	-0.02	521	37.5*	0.10	216	15.5	-0.14	164	11.8	0.02
Likely to change	318	27.5	0.08	349	30.1*	-0.06	178	15.4	-0.14	146	12.6	0.04
Major Availability			(.02)			(.05)			(.02)			(.02)
< Most important	368	12.2		454	32.8		216	15.6		169	12.2	
Most important	257	11.2	.03	410	37.1	.09	187	16.9	.04	122	11.0	.04

* = Chi-square significant at p < .05
** = Chi-square significant at p < .01

Note. AI, NH, > 1 refers to the collapsed race category of American Indian, Native Hawaiian, and two or more races. White, <24 to 50k parents income, Some coll. or less parents' education, and Not likely to change major were all used as reference categories to calculate Cramer's *V*.

Student Preferences

Table 5.
Number and percentage of high school seniors' preferred methods for receiving college and career information.

| Information Source | Choose all that apply | | Select most preferred | | |
	n	% selecting	n	% selecting	95% CI
Email	1880	69.4	711	26.3	[26.4, 28.0]
One on one	1306	48.2	619	22.9	[21.3, 24.5]
Mail	1289	47.6	325	12.0	[10.8, 13.2]
Text messages	976	36.1	171	6.3	[5.4, 7.2]
Internet	912	33.7	124	4.6	[3.8, 5.4]
Classroom presentations	867	32.0	252	9.3	[8.2, 10.3]
Phone/tablet apps	435	16.1	27	1.0	[0.6, 1.4]
Other	12	0.4	3	0.1	[0.0, 0.2]
None of the above	475	17.5	475	17.5	[16.1, 18.9]

Student Preferences

Table 6.
Percent of high school seniors selecting email, one on one, or mail as most preferred way to receive college and career information within selected groups.

	Email			Mail			One on One		
Factor	*n*	*%*	*h(V)*	*n*	*%*	*h(V)*	*n*	*%*	*h(V)*
Gender			(.02)			(.01)	**		(.07)
Male	241	29.4	.10	96	11.7	.01	154	18.8	.14
Female	470	24.9		229	12.1		465	24.7*	
Ethnicity	**		(.12)			(.05)	**		(.08)
AI / > 1	40	26.5	.11	12	7.9	0.15	43	28.5	.07
Black	232	34.7*	.29	93	13.9	.04	119	17.8*	.19
White	254	21.8*		146	12.5		298	25.6*	
Hispanic/Latino	119	25.3	.08	51	10.9	.05	111	23.6	.05
Asian	21	23.1	.03	9	9.9	.08	21	23.1	.06
Parent Income			(.05)			(.04)			(.05)
<24 to 50k	314	28.2		136	12.2		246	22.1	
50 to 100k	176	25.6	.06	95	13.8	.05	167	24.3	.05
100 to >150k	86	22.1	.14	38	9.8	.08	108	27.8	.13
Parent Education			(.02)			(.05)			(.04)
Some coll. or less	301	27.2		143	12.9		242	21.9	
Associate degree	81	26.6	.01	46	15.1	.06	76	25.0	.07
Bachelors degree	169	25.3	.04	74	11.1	.06	152	22.7	.02
Graduate degree	110	25.3	.04	42	9.7	.10	114	26.3	.10
STEM Intent			(.04)			(.00)			(.03)
No	565	25.4	.11	267	12.0	.00	523	23.5	.08
Yes	146	30.4		58	12.1		96	20.0	
Major Decidedness			(.02)			(.01)			(.03)
Not yet decided	65	25.6		28	11.0		59	23.2	
Not likely change	363	27.0	.03	162	12.1	.03	324	24.1	.02
Likely to change	283	25.5	.00	134	12.1	.03	236	21.3	.05
Major Availability			(.05)			(.03)			(.05)
< Most important	379	28.5		154	11.6		181	22.0	
Most important	255	23.8	.11	144	13.4	.05	277	25.8	.09

Note. AI, NH, > 1 refers to the collapsed race category of American Indian, Native Hawaiian, and two or more races. White, <24 to 50k parents' income, some coll. or less parents' education, and Not likely to change major were all used as reference categories to calculate Cramer's *V*.

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Report Critique

How is technology addressing the college access challenge?
A review of the landscape, opportunities, and gaps

JCA

Reviewed by
Alexis Arocho
(*Western Michigan University graduate student*)

In the midst of the ongoing conversation about the value of higher education, this report aims to bring awareness to the ever-present issue of college access for students from low-income areas. An update to a 2013 Get Schooled report on the same topic, the report builds on the previous research to include new apps and technology. The report brings attention to the lack of financial resources within these districts, particularly in regard to counseling and advising personnel. One answer, although not a solution, is the option to supplement student access to information through technology. While the report does not perfectly address every type of student need and situation, this resource is a powerful centralized compilation of practical tools for both families and on-the-ground professionals.

With hundreds of students to consider and advise, many high school advisors simply cannot give students and their families the support they need to help them through the college application process. This means that families are essentially left to navigate the vast sea of college information without much help in sifting through options and making decisions. Although this report acknowledges that technology and apps cannot truly replace the individualized support of a high school counselor, access to these types of technology are incredibly valuable for families and students who need guidance in order to make knowledgeable decisions about their higher education options.

This report clearly explains the need for additional resources to assist low-income and first generation students through the college admission process. Although many colleges offer scholarships and programs for high-achieving students with high financial needs, there is very little assistance for average students with high financial need. This is an important thing to note, because these students should have access to good institutions of higher learning the same way their peers from more affluent high schools have assistance from their high school counselors. The apps and computer programs outlined in the second half of the report aim to help meet this need, although the authors
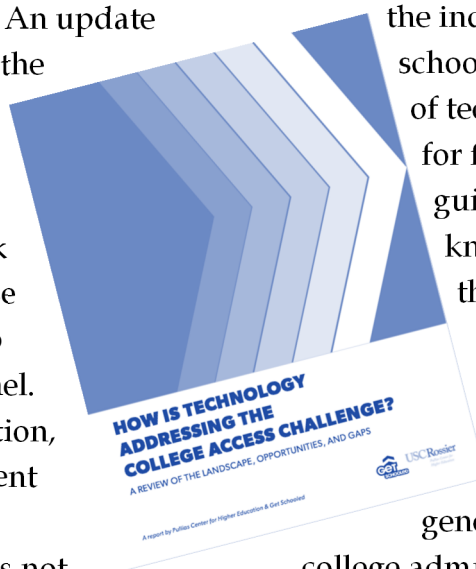
acknowledge that additional work needs to continue to be done in this area of college access. The authors acknowledge that this list of tools is simply meant to be a resource for high school counselors, parents, and students, and is not an extensive quality assessment endorsing any particular app or program. This is significant because the things that define quality and relevance for one student situation does not necessarily apply to every student. The four criteria used by the authors to assess and categorize the technology are also important considerations, especially in regard to different operating systems and proper phones and other devices. This inclusion of information is very useful, as each family will have varying levels of available technology to work with.

The report mentions some of the remaining issues within the apps themselves. There is mention of the lack of financial resources needed to purchase the programs or to unlock important information within the apps. Many tools are not taking full advantage of their platforms, missing opportunities to engage students in game-like experiences rather than just passively providing replicated information. Additional concerns are referenced in regard to motivation behind financial aid information requested within the apps, and whether or not the apps are being used mainly for data mining rather than supporting students and their families. The authors also acknowledge that some of the apps still require a school-based counselor to fully engage with the full potential of the app,

which is something that overwhelmed counselors are likely not able to do. These acknowledgements are significant admissions of the need for continuing to improve upon resources for underserved populations of students.

The author references a quote from the original 2013 publication, indicating that low-income and first generation students remain an afterthought in the designing process of college access tools. This is interesting, because there are additional underserved populations of students not mentioned or considered by the authors at all. One of the most glaring omissions in consideration in this conversation is the population of students whose families speak English as a second language. These students and advisors often face issues in explaining information properly, as many students and parents have difficulty translating academic and financial words and phrases. This causes multiple issues for families and colleges alike, and technology in the form of an app would be very helpful for bilingual families. An additional field of assessment criteria could have been included for these students. Something as simple as whether or not the app offers a Spanish or Arabic text version would be incredibly beneficial for this population. Another consideration missing from this article is the population of students with physical and mental disabilities. A simple way to include them would be to note whether or not apps and programs provide text-to-speech features and to note if they are

compatible with other programs, such as assistive listening technologies.

Overall, this report is an incredibly helpful resource for professionals "on the ground" in the field of college access work. Not only is the second half of the report instantly usable for work with students, but it also serves as a powerful resource for families as well. The format makes it easy to print and distribute "as is" without re-creating or reformatting the document, a valuable time saver for professionals. The research itself is also helpful for bringing awareness to just a few of the gaps in higher education access that still exist for low-income and first generation students. This report gives weight to the overwhelming need of professionals working in the field, and has potential to serve as a powerful resource for advocacy and awareness. JCA

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Pullias Center for High Education & Get Schooled. *How is technology addressing the college access challenge? A review of the landscape, opportunities, and gaps*. (2018).

Book Review:
Interrupting Racism:
Equity and Social Justice in School Counseling

JCA Reviewed by
Diana Camilo (*The University of Mississippi*)

Thanks to a social media book release announcement I was introduced to Rebecca Atkin and Alicia Oglesby's book *Interrupting Racism: Equity and Social Justice in School Counseling*. As a former school counselor and instructor at a social justice focused graduate program, I took notice of the post. Once I finally dove into the book, I was eager to finish it and immediately knew it would be a required text in my future courses. Throughout the book, Atkins and Oglesby call for a paradigm shift of school counselors from advocates to fundamental change agents in their schools. In other words, school counselors play a key role in dismantling practices that focus on minoritized students acculturating to educational practices within a Westernized school system; as can be noted in the expectation of minoritized students to fit into school-centric policies and standards. The authors also highlight, though not directly, the pertinent role of a culturally responsive framework as a way to provide equitable services to students. The authors identify how through self-reflection; a core component of culturally responsive practices, schools can identify how their practices and policies have, and continue to contribute to achievement disparities among students today. As the authors state "when we do not professionally reflect in order to change systems that do not work for students of color, we are complicit in normalizing racism for all students and all faculty (p.105)." Self-reflection can also help schools identify needed professional development that is student and community centered as well as "offers counselors an opportunity to detail, examine, and question their life experiences in a way that helps shape their understanding of social justice perspectives (p. 57)." Most importantly, the authors provide an introductory discourse on the ugly history of our educational system and I think chapter two and three will help unmask content generally excluded in many pre-service programs.
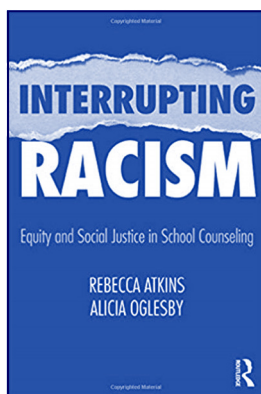
Chapter five and seven, as well as appendix A and B, include suggestions regarding how to apply concepts and do the work. I can see how the added suggestions can be helpful for novice and seasoned school counselors. However, it's the authors' personal stories and perspectives on how to handle difficult situations that added context to the activities

presented. It's worth noting the shared reflections include transparent and honest recounts on the times the authors felt they did not fully live up to their own expectations to act in the best interest of students, and hence, further influencing their passion for social justice reform in school counseling.

In chapter nine, the authors unpack the six principles of systemic change from Systems Change: A Guide to What it is and How to Do It (Abercrombie, Harries, & Wharton, 2015). While the six principles highlight the use of data, collaboration, advocacy, and resource mapping, the authors also embed culturally responsive practices as key to systemic change. The section Agenda: Problem Solving for Equity (p. 146) is also a helpful guide for those whom will lead a school level or leadership team, or are members of an advisory council that will review data in order to make decisions about resources, interventions, and/or solutions to equity gaps in schools.

Given my experience as a school counselor, district administrator, and higher ed instructor, I can certainly see the usefulness of this book at each level. For practicing school counselors, the book can provide a sense of solidarity; especially when they may feel alone in the battle to dismantle systemic issues at their schools. The resources and references shared can serve as guides to scaffold the use of advocacy strategies for those early in the profession. Seasoned counselors can use the book as a reference for how to continue their development and be

courageous in leading the efforts for systemic change in their schools. For district level administrators, I can certainly imagine the book serving as a tool to outline a professional development map. The authors also highlight the urgency for school counseling graduate programs to teach students to fundamentally understand and use data as a tool for systemic change, even beyond eliminating opportunity gaps. More so, the authors should encourage the academy to reflect as to whether graduate programs and courses are truly equipping graduate students to address equity issues and systemic oppression within the districts they will work in. The book can also encourage graduate students to practice social justice advocacy and leadership as well as reflect on the development of their multicultural professional identity.

Personally, I feel this book should not be read alone as there is much to digest and process. For many readers, I can assume the book may bring up feelings about their own experienced oppression in the K-12 system and a book club or reading guide would allow readers to reflect and unpack concepts that require further discussion. For example, a reading guide can be useful in the implementation of the previously mentioned Agenda: Problem Solving for Equity section (p. 145). The authors do offer a discussion guide designed for school-wide professional learning communities, and is available at counselorup.com/book-discussion-guide.html.

Interrupting Racism

I would have also appreciated if the authors provided a critique as to whether the ASCA model may or may not support school counselors as social justice change agents. For example, looking only at disparities between white students and minoritized students within the data in order to minimize the opportunity gap, inadvertently, is simply suggesting minoritized students continue to assimilate to Westernized academic standards. While there are tips and guides, most are student-focused, and although advocacy strategies and the call to challenge systemic issues are discussed throughout the book, an appendix outlining the two would have been helpful.

Atkins and Oglesby courageously highlight the need to address the systemic issues that persist in schools today that need to be "interrupted" in order to close the opportunity gap. They also remind readers to refrain from adhering to a meritocratic perspective toward student achievement because in essence, the support of educators, parents, communities, and stakeholders, as well as non-discriminatory policies and practices significantly contribute to their success. The authors are also honest about the difficulty of such work, as can be noted in the continuous efforts needed to address white privilege and the lack of culturally conscious practices in schools today. Although I consider myself a seasoned and passionate school counselor and educator, the authors re-inspired my drive to continue to advocate for minoritized students.

It is my hope that administrators or those whom oversee school counselors read the book and take notice on how school counselors can be leaders in their schools, and perhaps redistribute their time or duties in order to truly change school-centric practices that can yield positive academic outcomes for students. While eliminating racism in order to provide students equitable services is hard work, Atkins and Oglesby remind readers that at the very least, interrupting racism can lead to systemic changes in how students are serviced and supported. JCA

Book Review:
Choosing College: How to Make Better Learning Decisions Throughout Your Life

JCA

Reviewed by
Alice Anne Bailey (*Southern Regional Education Board*)

While we have witnessed a significant increase over the past fifteen years in the number of students who enroll in education after high school, credential completion has remained stubbornly stable over the same time period. The statistics are sobering. Only 30 percent of students complete a bachelor's degree in four years, and only 60 percent of students complete a four-year degree in six years.

The book *Choosing College* tries to answer the all-too-familiar question of why so many students who enroll in education after high school fail to complete a credential. Horn and Moesta's main premise is that many students go to college without a clear understanding of *why* they want to go and exactly *what* they want to get out of the experience, which can create a mis-match between their education goals and the institution they attend, leading to dissatisfaction and ultimately, dropout. "In the United States, we have a college-choosing problem," the authors write (p. 13).
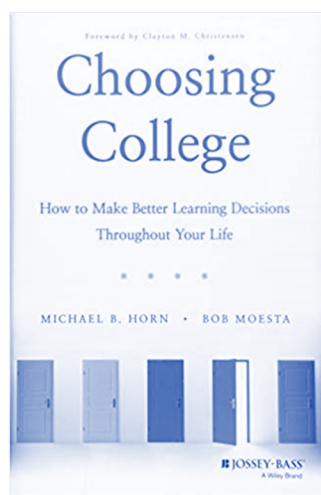
As we see in our work as college access professionals, this match and fit problem impacts low-income and first-generation students to a greater degree than students who have parents with postsecondary credentials. While most students apply to seven to ten colleges, thereby increasing their chances of match and fit as well as institution-specific scholarships and better financial aid packages, the students we serve typically apply to only one, with little thought about whether it is the right institution to help them meet their goals.

For example, in my own research interviewing very low-income high school students across the country, most students reported Googling one institution they had heard of for some reason, then going to that institution's website and following the steps to apply. Very few had taken time to first explore whether that institution offered a major they were interested in, whether their academic qualifications were a "match,"' or whether they would be happy with the school size, culture, extracurriculars, geographic location, etc. Students explained that their own experience with education was attending the school they were zoned for, then following

the requirements to complete a diploma. They had little understanding of the diversity of postsecondary choices.

Therefore, *Choosing College*, which is clear, straightforward, and easy-to-read, is a good resource for school counselors and college access professionals to use in their work with students and families. The authors recommend that a student's search process follow three basic steps: 1) Know thyself— Think about what you want out of a college experience; 2) Identify matches—Explore schools to identify which ones meet your needs, then make a list of possibilities; and finally, 3) Check and choose—Review each school on the list to determine which one meets most of your needs. The premise is simple, yet not often followed by students and parents.

Advice for Students
Horn and Moesta frame the task of selecting a college as "hiring" an institution for a "job to be done"—similar to the analogy as purchasing and using the right tool to help you accomplish a specific task. Just as you need the right tool for the right job, so too you need to clearly define and understand your personal end goal and have a clear understanding of what success looks like before you start reviewing and selecting schools. The first question school counselors and college advisors should ask students, before embarking on the search or application process, is, "What do you want a postsecondary degree or credential to do for you?"

The term "job," which sounded odd to me at first, is actually a fitting analogy because it acknowledges the amount of work that students will have to do to achieve their end goal—college is a "job to be done," not an ethereal aspiration. And the frame of "hiring" a college is important because students are indeed consumers who are paying for a product, and, like all consumers, they expect the product to work well for them. For that amount of money, students should receive significant value and satisfaction from their purchase.

In their research, Horn and Moesta conducted in-depth interviews of 200 current post-secondary students. Qualitative analysis of responses found that students' reasons for attending college, their "jobs to be done," fell into one of five types:

Get Into the Most Competitive School Possible. Students with this "job" seek the classic brick and mortar college experience as well as the prestige of belonging to a school with a good reputation; they want to meet new people and reinvent themselves in some way.

Do What's Expected. These students are going to college to satisfy others because it's what everyone in their lives has told them they should do to have a better future.

Get Away. These students are not sure what they want to do after high school but are looking to escape from a dead-end job, a bad home life, a dysfunctional

relationship, a town with limited job opportunities, etc. They seek change in their lives and are not concerned with the prestigiousness of a school or how relevant a school's programs are to their interests.

Step it Up. These students want to do better in a career. They have a clear focus on what they need to do next and have a specific time frame in mind—for example, working adults who seek a career change.

Extend Yourself. These students are interested in learning for learning's sake and have the time, money, and freedom to do so. They report an intrinsic motivation to learn as much as they can about a specific topic.

The authors then make practical recommendations for students who find themselves in each situation, or "job" type. (I focus here on recommendations for the audience we in the school counseling and college access community most often serve.):

1. For those whose "job" is to get into the *most competitive school possible,* students should find the campus that will provide the experiences they are looking for in order to be happy and fulfilled.

2. If students who are going just to *do what's expected*, however, they should consider taking a meaningful gap year to help find themselves and determine their goals. Or they should select a low-risk/low-stakes school

and attend for only a short time while working to transfer where they'll be happier. Or, they should find something else that makes them happy, such as a job.

3. Students who want to *get away* should first be honest with themselves about why they are leaving, then take time to learn their strengths and passions as well as what they do and don't like. Instead heading straight into a four-year college, the authors recommend that these students explore low-cost/low-risk options such as community or technical college, trade school, or apprenticeships.

Horn and Moesta caution students that "taking on lots of debt for something about which you lack passion is unwise." (p. 223). This is good advice. *Choosing College* recognizes the valuable role that associate degrees and technical diplomas play in preparing workers for careers. As the authors note, some professions that require a technical diploma, a two-year degree, or low-cost IT certifications can have higher starting salaries than those that require a four-year degree. The book also recognizes the reality that students face in terms of weighing costs of attendance, loans, and expected salary upon graduation. As the authors caution, "not all investments are good investments" (p. 118) because college does not pay off for many people, even if they complete a degree.

But reading the book through an equity lens, I wondered. What if four-year college investments are good for students from high-income households, but not for students from

Choosing College

low-income ones? What if circumstances beyond a student's control force them into the *Get Away* job type, but they would be in the *Best School Possible* job type if they had the financial means to do so? Some students have a desired "job to be done" but cannot afford to buy the right tool for that job. They may feel dissatisfied with their college experience and unable to pursue the career they are passionate about.

Horn and Moesta report demographics for the overall population interviewed, which does mirror the currently enrolled student population. But further research needs to be done to determine the demographic makeup of which students fall into which of the five job types. I would guess that the *Best School Possible* job is comprised mostly of students from high income families with at least one parent who attended college, but greater numbers of low-income and first-gen students fall into the *Get Away* and *Do What's Expected* jobs. This is concerning, because as the authors note, students who are most at-risk of not knowing what they want out of a college experience, thus, those most likely to mis-match and dropout, are those with *Do What's Expected* and *Get Away* jobs. One recommendation for students in these two jobs is take time to find themselves first, then pursue higher education at a later date when they have a more informed plan. Another is to re-think the value of college as the solution. I have a problem with that.

We know that when students meet with school counselors to discuss postsecondary

plans, they are more likely to complete the FAFSA and apply to education after high school. In fact, when they are able to meet with a school counselor, African American and first-gen students are more likely than White or non-first-gen students to name that counselor as most helpful and having the greatest influence on their postsecondary decisions. Yet, African American and low-income students are less likely *to have access to* a school counselor, and students in large, high-poverty schools are less likely to seek out school counselors for postsecondary planning. Without access to a qualified adviser, these students are less likely to have the information they need about their postsecondary options, more likely to have *Do What's Expected* and *Get Away* jobs, and more likely to apply to institutions that are not the right fit.

Horn and Moesta encourage these students with *Get Away* and *Do What's Expected* jobs to consider short-term postsecondary options. Yet not all certificate programs, technical diplomas, etc. truly payoff. As Itzkowtiz (2019) notes: 82 percent of certificate-granting institutions (and 72 percent of associate degree programs) have a majority of graduates who earn less than the average salary of a high school diploma holder.

Students need knowledgeable advisers to help them explore the graduation rates and average salaries of alumni from different institutions in order to make informed decisions. In order for this to happen, students need greater access to, and more

time with, school counselors and college access advisers. In addition, counselors and access advisers need more (and more frequent) training in college and career counseling so they are up-to-date on the most recent data.

It is critical in our jobs as counselors and advisors that we help our students pursue the *Best School Possible* job. To do that, we must help students to "know themselves"—their likes, dislikes, strengths, and weaknesses. We need to help them better develop an understanding of what careers are really like, what they want to get out of their education after high school, and what postsecondary option will leave them most fulfilled. We must also continue to work with policymakers to break down the financial barriers that prevent students from pursuing the college experience they most desire.

Likewise, we need to do a better job with exposing students more fully to different types postsecondary choices so they can determine fit. In the corporate world, HR professionals often provide "realistic job previews" of available positions, covering both the "good" and the "bad" so that employees can make informed decisions in accepting an offer. Realistic job previews have been shown to significantly reduce turnover rates among employees. How can we provide similar realistic previews of postsecondary institutions for students? The preferable but expensive option is in-depth campus visits, which again favor the wealthy over students from low-income households. We need to

explore emerging technology options, such as virtual reality programs that allow students to experience what a campus is like from a distance.

Advice for Postsecondary Institutions
As Horn and Moesta note, education is a two-sided process, similar to finding the right spouse: Just as students must know what they want to get out of their college experience, so too schools must understand what students are really trying to accomplish:

"Understanding the Jobs for which students hire an institution…gives institutions the ability to zero in on what matters to their key constituents." (p. 205). The authors offer several laudable recommendations for how institutions can better serve low-income students, such as finding ways to unbundle the elements of a prestigious college experience (study abroad, gap year, etc.) and offer each individually in a more cost-effective and affordable manner. When serving students who have *Get Away* jobs, the authors provide good advice on how colleges can create meaningful programs to help students discover a sense of purpose and what they want out of a postsecondary experience.

Horn and Moesta also address a critical issue facing many colleges today: more institutions, particularly small liberal arts colleges, are closing their doors each year. The authors propose that in order to survive, institutions should specialize by providing services to meet only one or possibly two of the goal

types. Schools should consider creating a niche, then re-organizing and marketing themselves specifically to a job type—for example, as a transfer college for students who did not get in their first- or second-choice school(s). The authors recommend that colleges change the admission process and the orientation of how they serve students: "Focus on serving students in a particular job – and then [serve] only students in that job. If [students] are in a different job from the one your program serves, then direct them elsewhere" (p.216).

While this makes sound business sense, particularly for at-risk schools, again I thought, "What if high income students fall into *Best School Possible* jobs, but low income and first-gen students fall into *Get Away* jobs?" What does admitting and serving only a single job type do to the homogeneity of the student population and the future of higher education? Does this limit the full college experience? To spur students' social, emotional, and academic growth, we want them to be exposed to as many different types of people from as many different backgrounds and perspectives as possible.

Even though I have equity concerns with a few of the suggestions in the book, overall, *Choosing College* is a helpful read for students, families, school counselors, and college access professionals. As early in the postsecondary planning process as possible, students need to answer questions such as, "Why do I want to go to college?" "What do I ultimately want to get out of the experience?" and "What end

goal am I trying to accomplish?" By helping students first know themselves and what they want their education to do for them, we can then help students think through what will be the best and most cost-effective tool for the job. Your "job" to be done is to check out this book. JCA

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Book Review:
Pre-College Programming in Higher Education: The Evolution of a Movement

JCA   Reviewed by
Jennifer Spirer (*Carnegie Mellon University*)

I t is Sunday morning and in just minutes you're expecting 250 students and their parents to arrive for six weeks of what you hope will be a transformational experience! The day is filled with check-ins, orientations, campus tours and tearful good-byes. This is what all pre-college professionals experience as their months of hard work come to life with a cacophonous group of students and parents anxiously arriving for the pre-college program.

But what does it take to execute the perfect program? And is there such a thing? The short answer is, it's complicated. And, it depends on who you ask. In their book, *Pre-College Programming in Higher Education: The Evolution of a Movement*, editors Sheth and Tremblay demystify what it takes to build and sustain a successful pre-college program or experience. With the help of 14 industry experts, this collection lays out common definitions and offers simple strategies and key components about what comprises a successful pre-college program.

Having spent the last 11 years of my professional career navigating the evolving pre-college landscape, it is no surprise that a group of my esteemed peers embarked on writing a book of this kind. While they ultimately identified that more research and data are needed (Sheth & Tremblay, 2019), this endeavor lays a solid foundation. From outlining the history and underlying research of pre-college, to showcasing a newly created experience at Brandeis University—Queer Academics and Activism (p. 149), this book is designed to walk the reader through the many nuances and intricacies of pre-college program development in an easy and understandable way.

A Solid Foundation from which to Build a Future

Sheth and Tremblay make the case that "Pre-college programs are a natural fit to the evolving enhancement of a college's enrollment pipeline" (p. 179). In their final chapter, *Recommendations and Implications for the Future*, Sheth and Tremblay identify the following next steps and areas of focus to consider. I agree this is what will take the conversation to the next level.

1. **Continued growth and development**; there is more work to do and the interest for these types of programs in growing (179).
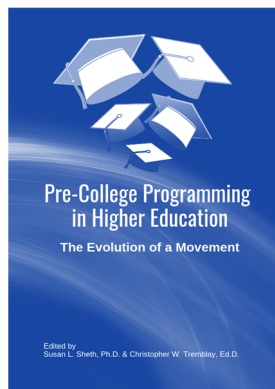
2. **Professionalization of the pre-college programming field**; there is a need for leaders in the field to come together to share best practices and create guidelines to ensure programs are held to the required standards ensuring safety and quality education for all (179).

3. **Strategic enrollment management (SEM) practices**; there is an increasing effort to align pre-college work with university-wide enrollment management. More data is needed here to determine trends (180).

4. **Centralization of pre-college programs**; with the proliferation of programs on campuses it is becoming less feasible for individual departments and/or faculty to manage on their own. It is becoming increasingly important to leverage the expertise that exists on campus (180).

5. **Focus on compliance**; as schools are continuing to build programs and offices devoted to the protection of minors on campus, programs will need to work collaboratively with these offices to ensure the safe treatment of minors as well as to protect themselves from any of the challenges that come with hosting minors on a college campus (181).

6. **Emphasis on 21st-century skills**; rather than focusing on a particular subject or topic, programs are moving toward skill-based programing such as leadership, critical thinking, or information literacy (181).

7. **Dimensions as best practices**; this is the assessment framework recommended industry-wide to create effective programs (182).

8. **Continued commitment to access and inclusion**; there is an opportunity to continue to mirror the higher education landscape and focus on particular underserved populations of students (182).

9. **Gathering more data on Generation "Alpha"**; as programs of these types grow, it's important to understand the audience and establish programs that support their interests and needs and that deliver information in a way that works with their learning style (182).

10. **Increase of internal and external partners**; in addition to developing relationships within campus communities as noted above, it will be important to find creative partnerships to help fund these types of programs and add an additional layer of support (183).

11. **Broadening the age focus**; in today's selective college environment it will be imperative to meet students at all levels of K-12, not just high school students, in order to support their growth through these types of programs from an early age (183-4).

12. **Need for more research**; with more understanding comes better results. As the field grows and research continues, programs will continue to improve (184).

About the Contributors

In order to reach these ideals, the authors have compiled a guide that spans the beginnings of research and development and takes the reader through to the implementation of creating a pre-college program by merging theory and practice. Sheth and Tremblay's calls for future action will ensure continued evolution.

Sheth and Tremblay (2019) assembled a diverse and knowledgeable group of higher education professionals who have each found their own way to build programs with intention, based on the best research they could find. These practitioners most likely pulled from general higher education theory and practice. The 16 authors represent a variety of institution types and share their individual piece of the puzzle to create a complete picture for the reader.

Planning, Flexibility and Continuous Improvement

Higher education often creates opportunities for professionals at all levels of experience and backgrounds to engage in work across the university, but pre-college programs tend to take this unusual pathway to extremes. I believe that the range of job titles across the book's contributors is representative of the diverse and varied backgrounds and approaches involved in creating successful and engaging pre-college programs.

In Chapter 4, *Starting a Pre-college Program or Office*, we are reminded by Dr. Newcomb of Harvard University that while that there are typical components to consider, in the end "a multi-faceted and comprehensive analysis should be conducted before beginning any program" (Sheth & Tremblay, 2019, p. 48). Short-term gains may outweigh the ability to put a plan of this type into place. Intentional planning makes all the difference.

Chapter 7, *Pre-college Programming as Enrollment,* continues to point to the importance of determining the program's purpose and creating a plan, while adding a few additional planning elements to the mix, particularly marketing and alignment with undergraduate admissions goals and strategic enrollment management. The authors from The School of the New York Times have identified one of the biggest opportunities, in my opinion, in the future of pre-college programs. The idea of building a pipeline that leverages university strengths to support all types of students, simultaneously allowing them to join the pipeline toward an educated future. The legacy of the establishment of the federally funded "TRIO" programs of the 1960's (Edwards, p. 19) is the continued creation of new opportunities to engage and support students for a better educational outcome. This goal is important and has been around for over 50 years.

Co-authors Susie Sheldon Rush and William Alba dive into their experiences at Carnegie Mellon University to affirm the theoretical framework they've uncovered to ensure educational growth on the part of both the students and the staff. They encourage

readers to analyze their own programs through this experiential lens to ensure continued enhanced learning and to reflect in order to find areas of improvement (Sheth & Tremblay, 2019).

Concluding Thoughts

This is the first book of its kind that weaves educational theory with hands-on practical experience. For this reason, it is tremendously important to the industry. Simply gathering experts in this area for discussion and collaboration is often challenging. The general themes outlined here establish a foundation for which to delve more deeply. Simultaneously, each individual author brings a fresh approach to the topic. It is clear, even in this collection, that different authors look at the same question or topic through a different lens. Over time it will be important to understand to celebrate these differences yet hold onto the commonalities in order to find new, creative ways to grow. Now that mainstream categorization exists, organizations such as the Michigan College Access Network (MCAN) and the Association for Pre-College Programs, industry professionals are able to begin to research and collect data over time. This ability will allow further determination of best practices and outcomes-focused opportunities that are scalable, reproducible, and grounded in fact.

For every pre-college program, there is a theory, process, and administration that follows. For so many years, staff worked in isolation, developing and launching what they believed to be the best version of a pre-college program. This resulted in varied and individual ways to create and run programs. This book is similar to this model in that, for each higher education professional in the book, there is a definition and model that they are following. In some areas, the book reads as a collection of chapters, rather than a cohesive narrative from start to finish. For me, this simply illustrates the many great ideas out there and the need for some order. Sheth and Tremblay are just getting started and there is a long way to go, the information in this book shows great work is happening that impacts young students. (JCA)

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Book Review:
Fulfilling the Promise: Reimagining School Counseling to Advance Student Success

JCA

Reviewed by
Tony Parsons (*Youth Villages*)

Over the course of the last sixty years, the educational landscape in the United States has changed, just as the populace of students has. Students have been asked to spend more time thinking about their future, both career and college. The individuals at the helm of this change and tasked with leading students to better outcomes are school counselors. However, history has shown us that over the course of time they have become underutilized and their role has become somewhat unclear. In *Fulfilling the Promise: Reimaging School Counseling to Advance Student Success*, Mandy Savitz-Romer makes the case for just how effective school counselors can be if given the proper training, are supported, and commit to the adoption of what she refers to as the "Academic Home" model. Romer, a faculty member at the Harvard Graduate School of Education, examines how counselors can fit into the larger mission of the education system, when given the proper supports and utilized in the way they are supposed to be. She correctly emphasizes that students deal with issues that span across academic, social-emotional, and mental health. While no one person is equipped to adequately solve all problems in these areas, counselors are the best at starting that process. As someone who works to provide professional development for school counselors especially focused on their work with students and getting them to college, Romer's work is not only enlightening, but refreshing, and spot on.
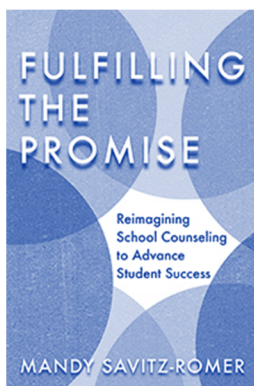
What I enjoy most about *Fulfilling the Promise*, is its comprehensive and illustrative examples of how counselors can be and have been successful. Romer offers multiple case studies to emphasize her points and show that the "Academic Home" model is not only something easy to implement, but that it works across the board at the different types of schools in our country. Also Romer makes the case that a reinvestment in counseling has to be one in which everyone (school personnel, administrators and community partners, parents, and sometimes students) is brought to the table to contribute a shared goal of creating better student outcomes. I am fully convinced that if the examples laid out by Romer are understood and taken to heart, students will be better served and their futures will be bright. If I am to offer a critique for Romer, it would be that success is never clearly defined. Based on the

topic, it is implied that it getting a student to college or set up on their path to a career is success, but not every example given was indicative of this. While success looks differently for each student and each school, having a clear understanding of how Romer defines success would be helpful as she discusses it.

The perception of school counselors and the counseling profession has become overwhelmingly negative, perpetuated by stereotypes in popular culture. When someone thinks of a school counselor they often think of a burnt out adult, disengaged, and uncaring. Or perhaps it's the image of a testing coordinator that pops into the mind's eye. While these certainly exist, by in large this is not what many counselors do, and it is exactly what none of them should be doing. To create the changes Romer advocates for, establishing trusting and understanding relationship between administrators and counselors is a must. It is often the case that administrators do not know what a counselor is actually trained to do, because if they did the perception problem surrounding the counseling profession wouldn't be so large. Yes schools need people to monitor lunches and coordinate testing schedules, but counselors are far too valuable to be the ones to do it. While counselors need to be supported, they must also advocate for themselves to create changes within their own realm and how they operate. The "Academic Home" model advanced by Romer not only is straightforward but also makes perfect sense

in an academic landscape in which counselors are expected to effortlessly navigate. This model proposes that counselors act as the coordinator of resources and supports for students rather than trying to provide everything for a given student. This will not only allow counselors to be more effective, it will also help to ensure all students are more likely to get what they need and that supports are delivered in a way that is equitable. An "Academic Home" will require that counselors foster relationships with other faculty and community partners in order to create the outcomes that a student needs. Different partners in the "Academic Home" will have different strengths and be able to provide resources for students that the counselor alone could not, this is especially the case in the realm of preventative and mental health services.

Like many of us, we perform well when our roles are clearly articulated and understood by all of the relevant players and we are held to high expectations. The same is true for counselors. When they are held to high expectations, Romer is quick to point out, great things happen. However, for expectations to be set, an understanding of a counselor's role must be in place, and an updated one at that. Some schools have not updated the description of a school counselor since the 1980s! This begs the question, of how can we expect counselors to serve 21st century students and help fix the problems they have if, we are holding them to standards from 30 plus years ago? In short, we cannot. Romer

points out that major success occurs when a counseling department's mission is aligned with the broader goals of the school district. Without a doubt, district leaders like superintendents would do well to build in social emotional and mental health goals into the academic goals of the district. All vested agents of change being in alignment on the mission helps ensure that all the work that is being done is adequate to support the stated mission and support students.

Support however, has to go beyond just the district leaders and building administrators sometimes. Sometimes outside organizations that can provide professional development, and enrichment opportunities for counselors are necessary. Thankfully with organizations like the American School Counselor Association, etc. there are no shortage of supports available. However, financial and personnel limitations are a real thing for many counselors. Their development must be seen as an investment in the student population and the district as a whole. This is especially true when counselors are working in places with a large population of low income, first generation, or students of color. Having one adequately trained and supported school counselor working with a student aforementioned, increases the likelihood that said student will pursue a postsecondary credential increases by 10%. Imagine what our education and society would look like if every counselor found themselves supported, trained, and properly utilized.

Fulfilling the Promise is a book that I would recommend. An inward reflection of one's profession and how to improve upon it is always good. Similarly anyone who is tasked with training school counselors whether it be for professional development or in the academic setting would be remiss to not include this book as a resources in some capacity. Romer is offering a fresh perspective on a profession that is misunderstood, and it is done so with great examples, and her passion for counseling and reshaping the profession to do what is was intended to do is evident. Not only can everyone learn from the insight Romer provides, but if we are able to implement the reforms and learn from the examples, we will all begin to do our part of *Fulfilling the Promise.* JCA

Reference

Savitz-Romer, M. (2019). *Fulfilling the Promise: Reimagining School Counseling to Advance Student Success.* Harvard Educational Press.