

Positioning for College Success: The Evaluation of the Princeton University Preparatory Program's Work With High-Achieving, Low-Income Students



PRINCETON UNIVERSITY PREPARATORY PROGRAM (PUPP)

ETS Research Report Series

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RESEARCH REPORT

Positioning for College Success: The Evaluation of the Princeton University Preparatory Program's Work With High-Achieving, Low-Income Students

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In summer 2015, Princeton University contracted with Educational Testing Service (ETS) to conduct an evaluation of the Princeton University Preparatory Program (PUPP), the college access program developed by Princeton University faculty and staff. The mixed-method ETS evaluation of PUPP included the collection and analysis of qualitative and quantitative data on the program and its participants. Data revealed that the PUPP model is perceived by a majority of participants and stakeholders as a well-designed and comprehensive program with effective practices, in particular the highly personalized nature of its services—lasting more than 3 years—and its strong emphasis on personal relationships. PUPP activities and instruction are viewed as high quality and rigorous. PUPP participants and stakeholders describe the program as highly beneficial for participants' academic and social-emotional skills and cultural knowledge and for their access to and preparation for college. Outcomes analyses confirm that participants tend to demonstrate strong academic outcomes and succeed in college. Participants also report attending more selective colleges than they otherwise would have, largely due to the supports provided by PUPP.

Keywords College access programs; minority students; access to education; high school graduates; program effectiveness; program implementation; college preparation; low-income students; college costs; financial aid; college bound; selective colleges; cultural capital; social and emotional learning; national student clearinghouse

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Coming into this program at the beginning of the summer, I am nervous and not too confident. I hope to leave PUPP this summer confident of my abilities. I also hope that at the end of this summer I see many things in a new light and am open-minded to new ideas. Finally, I hope that at the end of this summer I feel support and guidance from the PUPP staff for the next 4 years. (PUPP Scholar Betsy Vasquez, first summer, rising 10th grader)

I aspire to keep up my good work this summer. I hope to continue growing academically and to gain more knowledge. I also hope to become a more efficient student and to be able to take in all PUPP teaches me. (PUPP Scholar Betsy Vasquez, second summer, rising 11th grader)

Since this is my last summer, I expect and hope it to be my best yet. I expect to be prepared for the workload and approach it with enthusiasm since I have experienced it in the past 2 years. I expect to leave PUPP this summer with the best version of me there has ever been. I do not expect to culminate my growth; instead, I expect to continue growing and use all the valuable resources PUPP has provided to me as stepping-stones to that growth. (PUPP Scholar Betsy Vasquez, third summer, rising 12th grader)

Each year before the 6-week summer school commences, Princeton University Preparatory Program (PUPP) scholars write down their personal goals for the summer and for their continued participation in PUPP. Betsy Vasquez's quotes with which this report opens were chosen to demonstrate her development during her time in PUPP, which may exemplify the development of many PUPP scholars over their high school years. The PUPP community—scholars, their families, PUPP staff, PUPP faculty and teaching assistants, partner high schools, and members of the greater PUPP community—forge a unique bond with a common goal: to have students enroll and succeed at the most selective colleges that are a good fit for them academically and financially. To have had the opportunity to observe firsthand the transformation of PUPP scholars

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is to witness a paraphrasing of the British poet Robert Browning's quote: "Grow old along with the PUPP scholars! The best is yet to be."

In 2013, Pell Grant recipients accounted for 17% of first-time, full-time students at the 193 most competitive institutions of higher education (Plucker, Giancola, Healey, Ardnt, & Wang, 2015). PUPP works to prepare ninth-grade public high school students who will be Pell Grant eligible for success in the selective college admissions process by cultivating their individual talents and goals and educating them and their families about college admissions and financial aid. When they have the opportunity, PUPP staff are also informally encouraging admissions staff from competitive colleges and universities to consider students from high schools that serve large proportions of economically disadvantaged students, such as some of the PUPP partner high schools.

In summer 2015, Educational Testing Service (ETS) was contracted by Princeton University to conduct an evaluation of PUPP. The evaluation was designed to analyze the extent to which the current PUPP model supports the achievement of PUPP's stated goals and objectives and to identify essential program practices, strengths, and areas for improvement, in order to inform future programming and organizational practices. The evaluation is grounded in an understanding of the current college access landscape, developed through reviews of research literature on college access programs and policies.

ETS collaborated with Princeton University staff and PUPP leaders to identify a set of questions to guide the evaluation of PUPP:

1. What are the essential components of the PUPP model? What essential components of PUPP are seen as valuable by major stakeholders?
2. How do current and alumni scholars experience the program? What are their perceptions of PUPP's impacts on their skills and outcomes and on their families?
3. What are the benefits of PUPP participation for partner high schools?
4. What is the role and contribution of PUPP to Princeton University?
5. How is PUPP viewed on its own and in relation to peer programs on college campuses where PUPP students enroll and graduate?
6. How could current data management and analysis procedures be improved?
7. To what extent do PUPP results align with the stated goals/objectives that PUPP and Princeton University have for the program?
8. What are the PUPP features that can serve as exemplars for peer college access programs?

In this report, we summarize the findings of the PUPP evaluation and address each of the preceding evaluation questions. To set the stage for these findings, we first detail the history of PUPP, provide contextual information on the need for PUPP among low-income families and within the communities surrounding Princeton, and describe the program activities and practices. We then highlight the evaluation methods, including data collection activities, analyses, and limitations. The evaluation findings section details the results for each of the eight questions guiding the evaluation. Finally, we present the conclusions emanating from the evaluation findings.

Princeton University Preparatory Program History

I think if there's a mission for universities over and above the creation of research, especially in social science—I mean, I'm not going to cure anybody's cancer, but I could change some kids' lives. This is why PUPP is the best thing I've ever done. There are 200 kids whose lives are different, because of something that I did. I doubt there's 200 people whose lives are different because they read one of my books. (PUPP cofounder and Princeton University professor of sociology Miguel Centeno)

The development of PUPP began in summer 2000, when Miguel Centeno, professor of sociology at Princeton University, and John Webb, former director of the Program in Teacher Preparation at Princeton University, embarked on exploratory discussions with university faculty and educators from three central New Jersey school districts. The goal of the PUPP founders was to create an intensive program to prepare high-achieving, low-income high school students to apply to and succeed at highly selective colleges and universities.¹ In 2001, PUPP welcomed its first class of rising high school sophomores from three local high schools. It has since accepted approximately 24 incoming rising sophomores

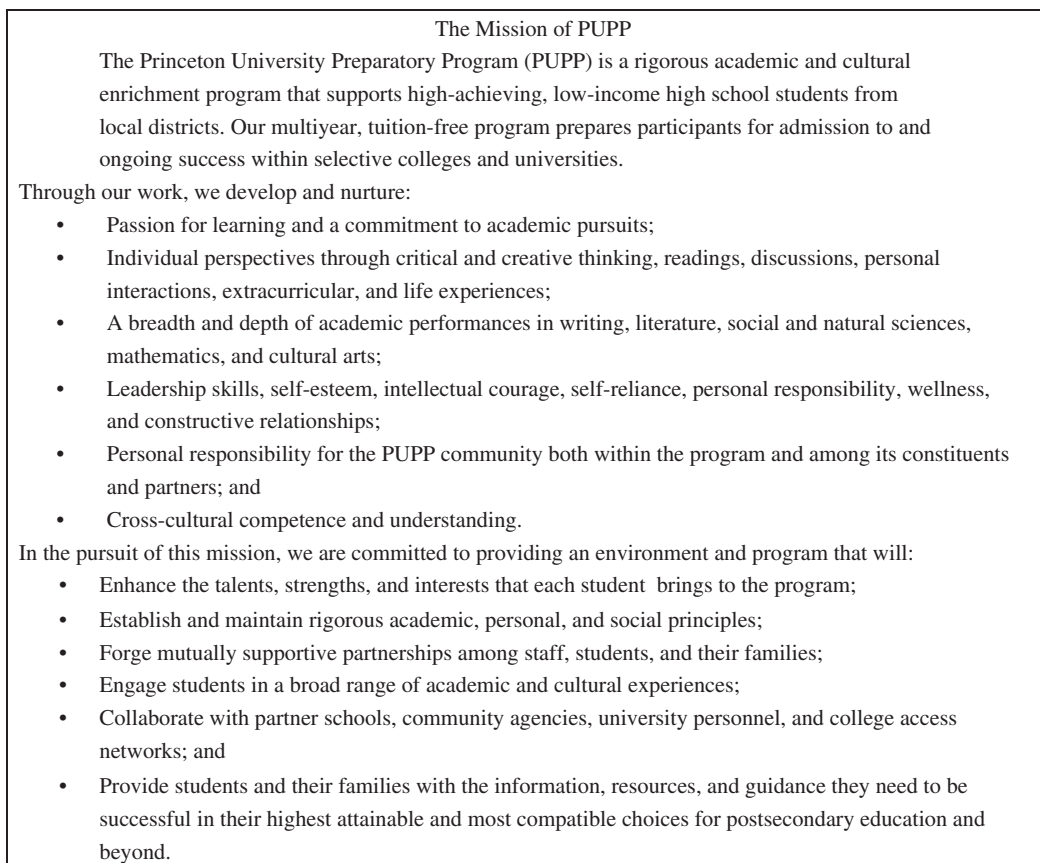


Figure 1 Princeton University Preparatory Program mission and goals.

each year (Princeton University Preparatory Program, 2016). In 2008, as a result of the strategic planning process undertaken under PUPP director Jason Klugman, the PUPP staff and faculty began referring to students as “scholars” to connote the program’s emphasis on developing scholarly attributes in each participant.

From the outset, PUPP was designed to complement scholars’ high school academic experiences with a variety of rigorous academic experiences, arts and cultural experiences, mentoring, and support for social–emotional skill development. PUPP was intended to support students, and their families, in the local communities in which they reside. Centeno and Webb made a conscious decision to offer the PUPP summer program component as a day program rather than a residential program so that students could return home to their families each night. They wanted parents to be their partners in PUPP and not have PUPP be a competitor or a replacement for what parents want for their children. As such, PUPP activities take place in local high schools and on the Princeton University campus. Parent engagement and support have been a high priority from the outset, due in part to the founders’ recognition of the challenges of raising children while living in poverty.

The PUPP mission statement and programmatic goals (see Figure 1) are the touchstones for the PUPP staff when thinking about programmatic direction.

A Triptych to Frame the Issues

A triptych is something composed of three parts or sections. We use the concept of a triptych to present information on three interrelated topics relevant to the context in which PUPP operates (see Figure 2). The first part is a profile of the communities and high schools in which PUPP operates. The second part is the need for programs like PUPP based on the research literature. The third part is an introduction to PUPP that we characterize as similar to an entry-level college course: PUPP 101.

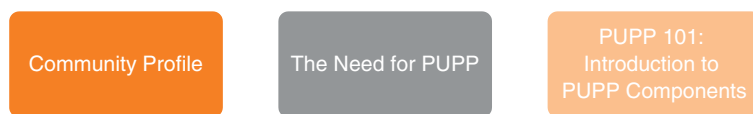


Figure 2 Triptych of framing issues for Princeton University Preparatory Program.

A Profile of the Greater Princeton Area Communities and High Schools

PUPP operates within a 17-mile radius of Princeton University. This area includes many pockets of poverty and several areas of affluence. This intermingling of different socioeconomic strata results in large differences in the daily experiences and opportunities experienced by high school students from the different strata.

Low-Income Communities

It is a given in PUPP that many scholars' daily lives are influenced by conditions of poverty. In Mercer County, New Jersey, where PUPP and Princeton University are located, one in every six children lives in poverty (Princeton Area Community Foundation, 2016). Of the approximately 9,900 public school children² living in the urban area of Trenton, 90% qualify for free or reduced-price school lunch, indicating that they may live in poverty. Of the 10,300 Mercer County public school children living in suburban areas, 37%–45% of children in each area qualify for free or reduced-price lunch. Out of New Jersey's 21 counties, Mercer County is ranked 14th on child well-being (Princeton Area Community Foundation, 2016). New Jersey also has a food insecurity rate of 19% for children. Food insecurity may be an even bigger issue in summer, given that only 18.3% of children who received free or reduced-price school lunch meals in 2014 were able to access a summer feeding site (Stoolmacher, 2015).

Six Partner High Schools: A Range of Opportunity

Current PUPP scholars attend one of six local public high schools: Ewing High School, Nottingham High School, Lawrence High School, Princeton High School, Trenton Central High School, or Trenton West High School.³ The six high schools that partner with PUPP have very different academic and demographic profiles (see Appendix A). Trenton Central and Trenton West high schools lag considerably behind other schools in New Jersey in terms of their students' academic performance, and they serve high levels of economically disadvantaged students, with over 80% of the students receiving free and reduced-price lunch (see Table A1). Both of the PUPP partner high schools in Trenton primarily serve Black and Hispanic students, while Ewing, Hamilton, and Lawrence are more racially diverse (with significant White, Black, and Hispanic populations). Princeton High School primarily serves White (62%) and Asian (21%) students. Lawrence High School is the most ethnically diverse high school PUPP serves (48% White, 19% Black, 15% Hispanic, 14% Asian, and 4% two or more races).

The six PUPP partner high schools also vary in the academic opportunities they provide to college-bound students (see Table A2). From a curricular perspective, the opportunity to take an *Advanced Placement*[®] course is one way to access rigorous curriculum. In 2013–2014, scholars at Hamilton, Lawrence, and Princeton had an opportunity to choose among more than 10 AP[®] courses, while their peers at Ewing, Trenton West, and Trenton Central had fewer than 7 AP courses to choose from. Taking the *PSAT/NMSQT*[®] examination or PLAN is an opportunity for students to receive feedback about their college readiness and to qualify for scholarships. The partner high schools differ substantially in the proportion of students taking these tests, from 18% at Nottingham High School to 100% at Princeton High School. Similarly, the proportion of students taking at least one AP test varies across the six high schools, from 7% at Nottingham High School and 8% at Ewing High School to 79% at Princeton High School (see Table A3).

Both Ewing High School and Nottingham High School lag behind state averages in academic performance, while Lawrence High School and Princeton High School are average and high achieving, respectively (see Table A3). Eighty percent of Princeton High School students are college ready, based on the metric of scores on the SAT[®] examination above 1,550, while only 11% of Trenton West, 6% of Trenton Central, 23% of Nottingham, 30% of Ewing, and 53% of Lawrence High School students meet this standard. Two other outcome measures that illustrate the variation in academic performance among the PUPP partner high schools are the percentages of AP exam scores greater than 3 or International

Baccalaureate (IB) exam scores greater than 4 in English, mathematics, social studies, or science (16%–93%) and proportions of students enrolling in 4-year institutions (which range from a low of 33% at Trenton Central to a high of 94% at Princeton).

The Need for Princeton University Preparatory Program

Selective colleges and universities tend to enroll a small portion of students from lower income backgrounds; only 10% of students enrolled in highly selective colleges come from the bottom 40% of the national income distribution (Hillman, 2012). Research has also shown that first-generation college students from minority groups are disproportionately more likely than White first-generation college students to enroll at 2-year colleges, which have no minimum qualifications (Carnevale & Strohl, 2013).

PUPP provides scholars with assistance in identifying the best colleges that will enable them to pursue their desired career paths. It helps those scholars for whom the best fit is a selective college to prepare for application to, enrollment in, and completion of such a college. This support may be highly valuable given the intense competition for seats at highly selective universities; for example, Princeton University accepted only 6.5%, or 1,894, out of the 29,303 applicants for its fall 2015 incoming class (Princeton University, 2016). PUPP also works with scholars to position them for success during their college years. For PUPP, the ultimate markers of scholars' success are college graduation and postcollege success in work and graduate and professional school.

College Preparation for Low-Income and High-Achieving Students

Armed with the knowledge of the communities and high schools where their scholars work and study, PUPP aims to fill a critical need for college preparation supports for low-income, high-achieving youth. Evidence shows that ensuring low-income students complete a rigorous high school curriculum, including advanced mathematics, greatly increases the chances that they will attend college. High-achieving students from low-income backgrounds need information and counseling on rigorous course taking and support to complete challenging course work, given gaps in prior preparation (Engle & Tinto, 2008).

There is also growing recognition that being college ready requires more than just academic preparation. College readiness is now thought to require strong noncognitive skills—or sets of behaviors, skills, attitudes, and strategies that are crucial to academic performance and persistence (Nagaoka et al., 2013). PUPP works directly with scholars in a number of ways to promote social–emotional learning and the development of noncognitive skills.

College preparation may also include preparation courses for college entrance examinations. Compared to their more affluent peers, low-income students are less likely to take costly test preparation courses, which may put them at a disadvantage in the college admissions competition (Buchmann, Condron, & Roscigno, 2010).

College readiness may also necessitate developing cultural capital. In addition to lacking financial capital, low-income students may lack the cultural exposure that colleges and universities value as “capital,” which can lead to academic underperformance (Lamont & Lareau, 1988). A primary goal of PUPP arts and cultural enrichment activities is to expose PUPP students to cultural experiences, which include works of art and arts performances. Helping low-income students develop cultural capital may be especially important for those who are planning to attend selective colleges and universities, in which a majority of their middle- and upper-middle-class peers are likely to have been exposed to these types of cultural experiences (DiMaggio, 1982; DiMaggio & Mohr, 1985).

The College Admissions and Financial Aid Processes

The financial barriers to college access and success for low-income students are formidable. College affordability has become a much greater problem for low-income families as income inequality has increased and the costs of both public and private colleges have continued to rise (College Board, 2015d). For longer than a decade, researchers have acknowledged that financial aid has not kept pace with increasing college costs (College Board, 2015e). Funding for federal Pell Grant and work-study programs has failed to keep pace with the increases in college tuition and fees (Engle & Tinto, 2008). Furthermore, low-income parents are far less likely to be saving for their children's college education (Sallie Mae, 2015).

According to Hoxby and Avery (2012), a vast majority of very high achieving students who are low income do not apply to any selective college or university, despite the fact that selective institutions would often cost them less because of the generous financial aid available at these schools. One reason for this may be the tendency for low-income parents and parents of color to overestimate the cost of attending college (Holcomb-McCoy, 2010). Without programs to help improve their awareness, these parents may continue to have incomplete knowledge about the actual cost of college. They may focus only on the sticker price rather than on the net costs of financial aid.

PUPP works to educate scholars and their families on the college and financial aid application process to address the documented need for support in these areas among low-income students without family members who have attended college (Black, Cortes, & Lincove, 2015). Research has shown that students and their families need proactive help, not simply more information, in navigating the financial aid system (Scott-Clayton, 2015).

College access programs, including PUPP, may play an important role in making sure underserved students and their families receive high-quality information regarding college financial aid (Institute for Higher Education Policy, 2010). PUPP provides scholars and their families with extensive college exposure, counseling, and application and financial aid assistance with the intention of ensuring that scholars match and attend the best, and most selective, colleges for them. Scholars are encouraged to target colleges and universities that will provide comprehensive financial aid, based on PUPP staff's knowledge of financial aid practices (see Appendix B for the list of "PUPP-approved" target colleges and universities).⁴

Furthermore, there is evidence that students who are members of racial and ethnic minority groups and low-income students end up with large amounts of student loan debt (Douglass-Gabriel, 2015). PUPP works with scholars and families to help them get the best financial aid packages possible, including encouraging them to negotiate for better aid packages after they receive the initial offer. Low-income families may be less likely to engage in these negotiations, despite the fact that they are more in need of the financial aid (Skibell, 2016).

Success in College

Studies have shown that low-income, first-generation college students need considerable support in making the transition to college (Engle & Tinto, 2008). Research has also demonstrated how challenging it can be for first-generation college students to deal with the paperwork required by colleges and with the isolation they may experience in college (Skibell, 2015). PUPP aims to prepare its scholars to succeed in college and provides ongoing support to help alumni complete their undergraduate degrees, many of them at selective colleges.

Researchers have shown that low-income, first-generation college students are less likely to be engaged in academic and social experiences that foster success in college, such as study groups, interactions with faculty and other students, participation in extracurricular activities, and use of support services (Engle & Tinto, 2008). Academic and social engagement during college have been found to have differential effects on early career and labor market earnings, highlighting the lasting influence of student engagement in college (Hu & Wolniak, 2013). Academic and social engagement in college is one of the goals PUPP staff expect to accomplish through their high school program and alumni support services.

PUPP also strives to help scholars benefit from the same opportunities, such as study-abroad programs and unpaid internships, as their more affluent peers in college. Their efforts toward this type of "experiential parity" are part of a broader movement on the part of colleges and universities to address economic disparities in educational opportunities during college (Patel, 2016).

College Outcomes

Research has documented that high-achieving and low-income students are far less likely to graduate from college than their more affluent peers (Wyner, Bridgeland, & DiIulio, 2007). According to an analysis of data from the National Center for Education Statistics conducted by the *Washington Post* ("100 Students," 2014), more than twice as many low-income students (i.e., those from families with incomes less than \$31,999 per year) drop out of college compared to their peers from upper-income backgrounds (i.e., families with incomes over \$92,000 per year). Twice as many low-income students as upper-income students earn associate degrees, because low-income students are far more likely than their more affluent peers to enroll in community college. While associate degrees may enable individuals to obtain employment, most associate degree holders earn far less than bachelor's degree holders over the course of a lifetime. In the *Washington*

Post analysis, more than twice as many upper-income students as low-income students actually earned a bachelor's degree.

Reasons low-income students fare worse than their more affluent peers in college include a lack of social support and the culture shock first-generation college students face (Engle & Tinto, 2008). Reasons may also include the academic challenges experienced by students who attended public high schools that failed to prepare them sufficiently for the rigor of college-level course work (Engle & Tinto, 2008) and the financial challenges low-income students face in college (College Board, 2015d). PUPP aims to prevent and address all of these potential challenges through college preparation programming and supports for alumni in college as well as through guidance on financial aid applications and decisions.

Prior research has shown that low-income students who graduate from selective colleges have higher incomes and standards of living than comparable students who choose not to go to a selective school (Dale & Krueger, 2002). Given that PUPP aims to prepare scholars specifically for selective colleges and universities, it may enable its alumni to earn higher incomes than they might have if they had chosen to attend a less selective college or university.

PUPP 101: Introduction to the Program Components

Armed with the facts about the students and communities in which they work, as well as the obstacles that can prevent students with similar profiles from enrolling in and graduating from selective colleges, PUPP staff have designed a multi-year program for low-income, high-achieving students at local high schools. Similar to a 100-level introductory course in college, this section presents our understanding of the nuts and bolts of student recruitment, program components, and staffing.

Program Recruitment, Selection, and Orientation

PUPP recruits scholar candidates by speaking with the program's contacts at each of the six partner high schools. Each year, PUPP requests lists of potential candidates from principals and guidance counselors based on suggested admissions criteria guidelines: (a) a score of 730 or higher on all sections of the Grade 8 Partnership for Assessment of Readiness for College and Careers (PARCC), or 720 if the student completed Algebra I in eighth grade,⁵ and (b) honor roll status during the first semester or receipt of a letter grade of B or higher in all courses during one marking period and no more than one grade of C in another marking period during the first semester of high school. Staff also review transcripts to assess rigor of course work completed (i.e., honors, college prep, or AP courses). The objectivity of these criteria may be advantageous, given that teacher and principal discretion in the nominating process for gifted and talented programs has been found to lead to lower rates of referral (Grissom & Redding, 2016).

PUPP sends an informational letter and application to each student (and his or her parents); in total, approximately 300 students receive these letters. Students and their parents are invited to an information meeting to learn about PUPP and the application process. PUPP receives applications from approximately 110–120 students each year. All applicants are invited to a session to complete a writing sample and another session to participate in a group interview with five other students from his or her high school and PUPP staff. These small-group interviews provide an opportunity to get to know students' personalities and observe how they interact with peers. Students also need to provide a teacher recommendation.

PUPP leaders carefully review all applications and current report cards. In addition to academic performance criteria noted above, as well as a review of the level of course work (regular, college preparatory, or honors), PUPP leaders also review documentation of students' household income and consider students' potential for leadership, social–emotional skills, and other extracurricular commitments to inform their admissions decisions. They also informally assess students' motivation levels and their academic strengths and weaknesses. Their first round of reviews enables them to winnow the applicant pool to approximately 50–60 applicants. They identify the final group of 24 scholars through a second round of applicant review, which includes evaluations of grades from the most recent marking period. During this time, they also contact school partners regarding any questions they might have about academic performance or student character, while also working to ensure that scholars would qualify for federal Pell Grants, based on documentation of family income, if they were to apply for college that year.

The PUPP Experience

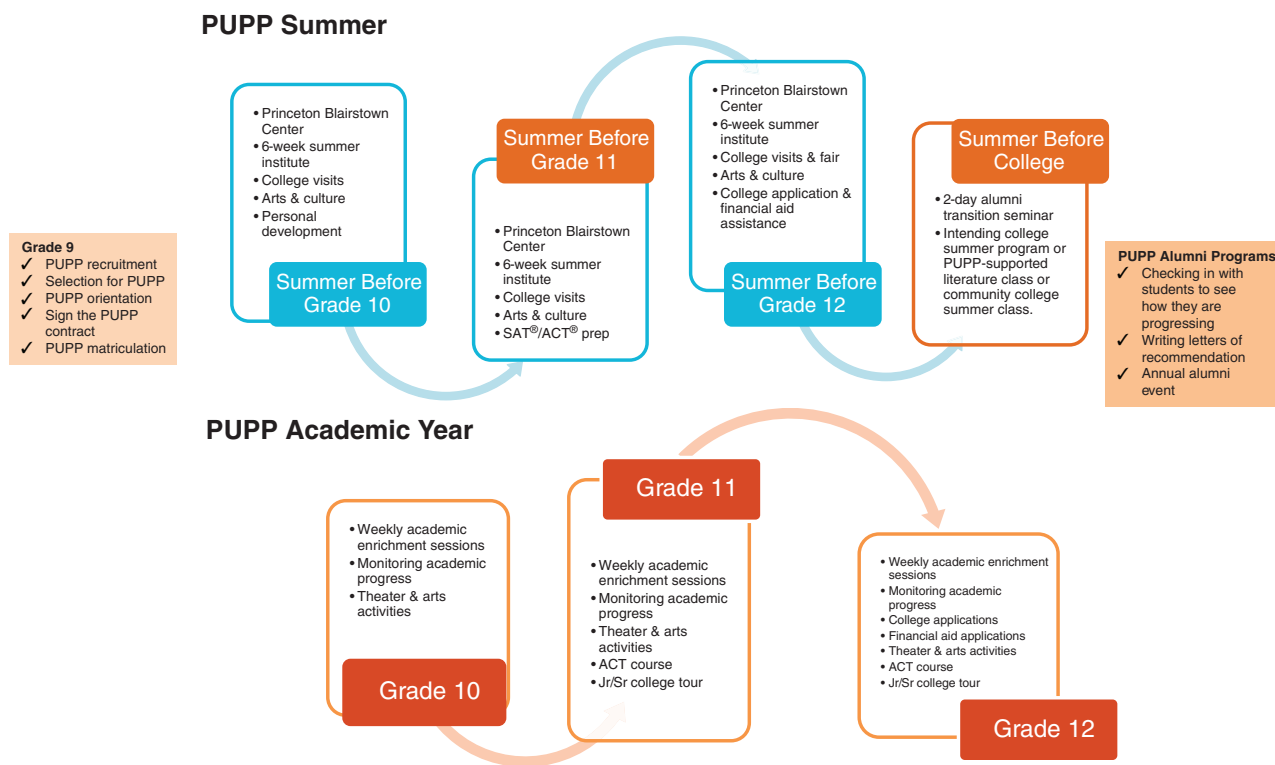


Figure 3 Princeton University Preparatory Program experience from admission to program alumni.

Program Activities

PUPP was designed to be a high-touch⁶ and time-intensive program aimed at providing a multiyear college preparation experience to high-achieving, low-income students in the Princeton area (see Figure 3). PUPP activities are implemented with scholars during summers and academic years between the end of Grade 9 and entry into college. PUPP activities aim to provide academic enrichment; social-emotional skill development; college exposure; academic, college, and career counseling; arts and cultural enrichment; and student and family support with the expectation that these activities will prepare traditionally underrepresented students for admission to and success at selective colleges and universities. PUPP’s interventions also go beyond the summer and academic year activities with scholars and include (a) activities to promote parent engagement and college knowledge and (b) supportive work with alumni scholars. All academic experiences provided by PUPP aim to expose scholars to the level of rigor students may experience in college, particularly in courses at more selective colleges and universities.

PUPP activities implemented during summers include a 6-week summer school that provides rigorous academic enrichment and arts and cultural experiences, support for personal and social-emotional development, college visits, and a leadership development retreat at the Princeton-Blairstown Center. Over the course of their participation in the summer school, scholars complete a multitude of academic and nonacademic courses (see Figure 4). Starting in 2005, PUPP staff and faculty introduced themes for the summer school courses, which became increasingly more focused, with time to cut across all subject areas, beginning with literature. For example, in summer 2015, the summer school theme was the country of Haiti, which scholars learned about through related units taught in their art, literature, science, sociology, and writing classes. In prior years, themes have been Nigeria, Islam, China, Asia and Asian-American immigration, the Native American experience, and Latin America.

PUPP activities implemented during academic years include weekly after-school academic enrichment sessions, multiday college tours, arts and cultural experiences, support for personal/social-emotional development, test preparation, and academic advising. PUPP scholars in their senior year of high school also receive regular

Summer Before Grade 10	Summer Before Grade 11	Summer Before Grade 12
<ul style="list-style-type: none"> • Art • Literature • Math • Writing • Science (Lab) • Personal Development 	<ul style="list-style-type: none"> • Art • Literature • Math • Sociology & Writing • College Entrance Exam Preparation 	<ul style="list-style-type: none"> • Art • Literature • Math • Writing • Science (Lab) • College Admissions 101
<ul style="list-style-type: none"> • Yoga 	<ul style="list-style-type: none"> • Yoga 	<ul style="list-style-type: none"> • Yoga

Figure 4 Princeton University Preparatory Program summer school curriculum.

personalized support with college application planning and completion as well as guidance on college financial aid applications.

Many of PUPP’s key program practices have been shown to be part of effective college access programs. These practices include (a) preparing students for academically rigorous colleges through implementing a college preparatory curriculum, including rigorous courses; (b) providing ongoing social support through peer relationships and mentoring from PUPP staff and leaders; (c) encouraging parent/family/guardian involvement; (d) helping students navigate the college admissions and financial aid application processes; and (e) providing comprehensive, long-term support to overcome any potential obstacles to college or career success (Broton, 2009).

Peer mentorship has been shown to be an effective practice in helping promote college-going through sharing information and providing encouragement and firsthand perspective on the college experience (Castelman & Page, 2015), and strong relationships between program staff and participants are theorized to be key to effectiveness (Comer, 1995). PUPP also follows several established practices for precollegiate academic outreach programs for underrepresented students: (a) setting high standards for program students and staff; (b) providing personalized attention for students; and (c) providing adult role models, peer support, strategically timed college preparation activities, and a long-term investment in students (Gullatt & Jan, 2003).

Many PUPP activities, including the orientation; opening ceremony; summer school; research symposium; closing summer ceremony; some of the weekend programs; and PUPP graduation and holiday parties for scholars, family, and staff are held on the Princeton University campus. Bonding and recognition rituals and ceremonies are important aspects of successful precollegiate programs (Gullatt & Jan, 2003), as they are also of marked importance to the college experience (Manning, 2000).

For further details on the program model, please refer to the PUPP logic model report of Millett, Saunders, and Kevelson (2018b).

Princeton University Preparatory Program Funding and Staffing

PUPP staff estimates the per PUPP scholar program cost to be \$23,000 from ninth-grade recruitment through college transition and alumni support. The annual PUPP budget is approximately \$500,000. These figures do not include professional staff salaries. PUPP’s implementation depends on the financial and human capital provided by Princeton University and others. Program operating funds for PUPP come from three main sources: Princeton University Provost’s Office, individual donors, and family and corporate foundations. Princeton University also provides PUPP with facilities and infrastructure as well as significant in-kind support, including office space, classrooms, labs, technology, information technology support, and office supplies.

Primary PUPP staff include 3.5 full-time-equivalent staff: a half-time director, a half-time associate director, a full-time counselor (since 2007), a half-time administrative support professional, a full-time PUPP alumni fellow who serves for

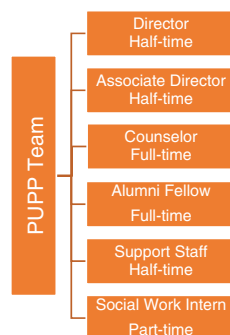


Figure 5 Princeton University Preparatory Program staff profile, academic year 2015–2016.

2.5 years (since 2012), and an unpaid part-time social work intern (since 2015; see Figure 5). PUPP is unique in that its two leaders are half-time; both the director and associate director are also lecturers and program associates in the Princeton University Program in Teacher Preparation, within which PUPP is formally housed. The PUPP leadership team is also quite diverse, given that it is composed of a White male, a Black man, and a Black woman. Both alumni fellows have been Hispanic women. PUPP scholars are also from diverse racial and ethnic backgrounds, thus the diversity of PUPP leadership may support role modeling and mentoring efforts (Karunanayake & Nauta, 2004).

There are also a number of staff employed to work with scholars during the academic year and summer program activities. During the academic year, the program employs up to eight part-time teaching fellows, most of whom are Princeton University graduate students. They are responsible for implementing the academic enrichment programming held at each of the six partner public high schools the program serves. During the 6-week intensive summer school, PUPP employs approximately 19 summer faculty, nine undergraduate teaching assistants (with an increased focus on hiring PUPP alumni over the past few summers), and one undergraduate who serves as the teaching assistant liaison. Summer faculty are a mix of independent teaching professionals and faculty from Princeton University or the six partner high schools.

The ability of PUPP staff to connect and communicate with students is a primary consideration for employment at PUPP. Besides being first-generation college graduates, several PUPP staff are bilingual in Spanish, which helps them communicate with scholars and their families.

Evaluation Overview

To evaluate PUPP, we relied on both quantitative and qualitative data. We selected this mixed-method approach for the PUPP evaluation because the use of quantitative and qualitative data enables a richer understanding of programs. The triangulation of findings from analyses of quantitative data (e.g., student demographic and achievement data) and qualitative survey and interview findings (e.g., overarching themes and detailed contextual examples) is helpful for addressing research questions typically posed during a program evaluation.

Mixed-method evaluation approaches respect multiple perspectives and provide a better understanding of the programmatic strengths and weaknesses than either a fully quantitative or qualitative approach alone could provide (Creswell & Plano Clark, 2010). One advantage of a mixed-method approach is that results can inform planning for program improvements. The use of both quantitative and qualitative methods may enable evaluators to obtain dependable feedback on a wide range of questions and a comprehensive understanding of program operations and perceived outcomes (Stufflebeam, 2001). The use of a mixed-method approach enabled the ETS evaluation team to provide evidence on the impacts of PUPP on scholars, their families, and partner high schools; to document lessons learned; and to identify actionable recommendations for program improvements, presented in the final section of this report.

Quantitative Data

Quantitative data for the PUPP evaluation were collected via surveys of PUPP scholars and alumni. The PUPP Scholar Survey provided data on scholars' experiences in PUPP and their perceptions of its impacts on themselves and their

families. The PUPP Scholar Survey addressed topics including the experiences of scholars through the years and in specific program activities; the development of social – emotional skills, particularly those encompassed within the PUPP Priority Skills; and the perceived impacts of PUPP on scholars and their families. The PUPP Alumni Survey was used to collect data on alumni scholars' experiences in PUPP, their perceptions of its impacts on them, and their college and career activities and outcomes since completing PUPP.

One hundred percent of current PUPP scholars (those from Cohorts 2016–2018) participated in the PUPP Scholar Survey, and 51% of PUPP alumni (those from Cohorts 2004–2015) completed the PUPP Alumni Survey. In addition, 12 alumni participated in a focus group held in conjunction with a PUPP social event. Although the survey sample and focus group participants may not be representative of the entire PUPP alumni population, respondent alumni's self-reported answers provide insights into the PUPP experience during high school and in the post-PUPP period (see Millett & Kevelson, 2018). See the Alumni Survey and focus group report by Millett, Saunders, and Kevelson (2018a) for a detailed account of the methodology and findings for each survey, including response rates.

Other quantitative data utilized for the evaluation included data on student demographics and outcomes provided by PUPP staff. Data on high school course taking and outcomes, including college entrance exam (SAT and ACT), *SAT Subject Tests*[™], and AP exam scores, were drawn from high school transcripts, score reports, and the Naviance⁷ college and career readiness student data program used by PUPP and some PUPP partner high schools. Data on college outcomes were provided to ETS by PUPP and included data from the National Student Clearinghouse (NSC) and data collected by PUPP.

Some outcome data were available not only for PUPP scholars and alumni but also for a similar group of non-PUPP scholars used as a comparison group. In February 2005, PUPP decided to identify a comparison group from the applicant pool for the class of 2008. At the time, roughly 30 ninth-grade students applied for admission into PUPP from each school. Approximately four to eight students from each school were accepted from those who completed the application process. The PUPP director created a comparison group from those students not accepted into PUPP for the class of 2008 cohort and for every subsequent cohort. After identifying the characteristics of the accepted cohort (in terms of gender, race/ethnicity, and academic standing), the PUPP director identified students from the pool of applicants and semifinalists who matched as closely as possible the ethnicity, gender, and academic standing of those students who were accepted (see Table C1).

We were not able to examine the comparison group students' records to determine if they have similar school recommendations, motivation, standardized test scores, and grades through freshman year. It is recognized that there are possible systemic limitations and biases established in having the comparison group consist of those who were not chosen to become PUPP participants. Recognizing these limitations, we still maintain that comparing PUPP scholars to their peers who might have joined is informative. Data available for both groups include grade point averages (GPAs); AP course participation records; and NSC data on college enrollments and outcomes, for some comparison group members.

Qualitative Data

Qualitative data collection activities included reviews of program documentation, observations of program activities, interviews with program staff and key stakeholders, and focus groups with parents of scholars (see Table 1). In addition, the Scholar Survey and Alumni Survey included items designed to elicit detailed comments about specific PUPP experiences.

Observations

ETS evaluators collected data through observations of a sample of each type of PUPP activity. Observers used semistructured observation protocols to gather information on the implementation of various PUPP activities. Observation schedules were vetted by PUPP leaders to optimize ETS field experience and program exposure.

Scholar and Alumni Scholar Parent Focus Groups

Focus groups were conducted with samples of current scholar parents and alumni scholar parents. A total of 40 parents participated in the focus groups, including nine parents of PUPP alumni and 31 parents of PUPP scholars. The goal of these focus groups was to learn about the experiences of parents of PUPP participants and to gather suggestions for ways

Table 1 Evaluation Data Collection Activities

Data collection method	<i>N</i>
Individual interview participant total	48
PUPP leaders and staff	10
PUPP faculty	2
Princeton University stakeholders	6
Partner high school staff	12
Staff from receiving colleges and universities	18
Focus group participant total	71
Alumni focus group participants	12
Parent focus group participants	40
PUPP faculty, teaching fellows, and teaching assistant focus group participants	12
Princeton University stakeholder focus group participants	7
Survey participant total	197
Alumni Survey participants	126
Scholar Survey participants	71
PUPP observations total	41
Orientation	2
Parent/family events	6
Summer institute classes	12
PUPP ceremonies/celebrations	4
College tours	9
Arts and cultural enrichment	6
Academic year activities	2

to enhance the program. The focus group discussions asked parents to reflect on their experiences as parents of PUPP participants; the experiences of their children in PUPP and in high school; and the children's transition to college, if applicable, and to offer recommendations for program improvements.⁸

Alumni Scholar Focus Groups

Two focus groups were conducted with a total of 12 PUPP alumni in fall 2015. The alumni focus groups were designed to collect data on alumni perceptions of PUPP college preparation and exposure activities, PUPP staff, college and financial aid application support, college entrance exam preparation, how PUPP differed from their high school courses, PUPP arts and cultural experiences, and support for the transition to college (for details on methodology and findings, see Millett et al., 2018a).

Stakeholder Interviews and Focus Groups

ETS researchers conducted in-depth interviews with PUPP leaders and staff, principals and guidance counselors from the six partner high schools, Princeton University administrators, and staff at a sample of colleges attended by PUPP alumni. Interviews and focus groups were guided by semistructured protocols developed by ETS researchers to address the research questions as outlined in the evaluation scope of work. The majority of interviews and focus groups (37 interviews and 8 focus groups) were conducted in person; a small number (11 interviews and 2 focus groups) were conducted by telephone.

Analyses

Quantitative data from Scholar and Alumni Surveys were tabulated using frequencies and custom tables procedures in SPSS. The ETS research team completed a comprehensive review of the extant PUPP outcome data, including all available student data collected from the PUPP Naviance file, test score data (e.g., NJ state, AP, and ACT/SAT scores), GPAs, AP course participation rates, college admissions rates, financial aid offered at time of admissions, college retention/graduation rates, career attainment, and PUPP Priority and noncognitive skills, if applicable. Most of the data were not in a format that allowed for analysis by ETS. Additionally, NSC Student Tracker for Outreach Programs⁹ college

enrollment, retention, and graduation data for the 2008–2014 PUPP scholars and comparison students from the participating high schools were acquired by PUPP and analyzed by ETS researchers.

All of the interviews and focus groups were recorded and transcribed. Qualitative data from interviews and focus groups were content analyzed to identify crosscutting themes and subthemes. Analyses were conducted using the NVivo Version 10 software program to code and organize interview data according to themes. Coding of the parent and alumni focus group information included collaborative planning for potential themes followed by repeated coding of focus group transcripts, interspersed with discussions of themes as they evolved and solidified. Analysis of stakeholder interviews and focus groups was conducted by two ETS researchers trained in qualitative coding. At the outset of coding, a set of themes and codes was developed. The coding themes were revisited and refined over time to more accurately represent the interview findings. Two coders coded multiple interviews at the outset of the coding process and at regular intervals during the course of the process, achieving interrater reliability through discussions and mutual reviews of coded data ($\kappa \sim .90$).

Limitations

Even when trying to keep an objective mind-set, our own subjective opinions of PUPP, based on our experiences conducting research on it, may influence our analyses and presentation of the findings. Millett, the lead evaluator, has prior experience with the program. She co-led an earlier evaluation of PUPP from 2005 to 2008, when PUPP received support from the Goldman Sachs Foundation. At that time, she recommended that PUPP form a comparison group, which led to PUPP's decision to do so.

It should also be noted that there are limitations to both quantitative and qualitative methods of evaluating program implementation and outcomes. Qualitative data from interviews and focus groups are necessarily collected from subsamples of a population, and participants' views may not necessarily be representative of the full population. The alumni and parent focus groups in particular may not represent the complete range of viewpoints of the actual populations of these groups, given that those who volunteered to participate may be biased in favor of PUPP. Furthermore, although a broad range of stakeholders and PUPP partners participated in interviews, the views expressed in interviews may not be representative of the views of all PUPP stakeholders.

Similarly, the 51% of alumni who completed the Alumni Survey may have been biased in favor of PUPP, or they may have been negatively biased against PUPP. Even in the case of the Scholar Survey, which was completed by the entire population of current scholars, social desirability bias or a sense of obligation to the program may have played a role in response choices.

Evaluation Findings

In this section, we present the findings in relation to the eight research questions developed in collaboration with key stakeholders.

The Essential Components of the Princeton University Preparatory Program Model

ETS researchers collected data on the essential elements of the PUPP model through interviews and focus groups with PUPP stakeholders, including PUPP staff and leaders, Princeton University administrators, principals and guidance counselors at the six partner high schools, and admissions office and student support services staff at colleges attended by PUPP alumni. Data from alumni and parent focus groups and from the Scholar and Alumni Surveys also shed light on the extent to which scholars, alumni, and PUPP parents value specific program components.

We should begin by noting that the vast majority of PUPP stakeholders interviewed felt that all components of the PUPP model are essential to its success. By and large, PUPP stakeholders reiterated the importance of the synergy of all the components of the PUPP model working together toward the targeted outcomes for PUPP scholars. Stakeholders repeatedly cited the effectiveness and value of PUPP's holistic approach; they highlighted how important it is that PUPP addresses all areas of scholars' lives and nurtures scholars' development across domains, rather than solely focusing on academic skills.

Part and parcel of this holistic approach is the high-touch nature of the PUPP intervention. When stakeholders described the high-touch nature of the program, interchangeably using terms such as "boutique," "artisanal," and

“personalized,” they were describing how PUPP tailors supports to the needs of each individual student across multiple domains. In essence, PUPP is designed to holistically focus on developing the whole person—nurturing academic and social–emotional skills and cultural competence—through personal relationships, individualized instruction, and cultural experiences. On top of this, PUPP also seeks to help meet the basic needs of scholars’ families to enable scholars to focus on their own learning and development.

As one Princeton University administrator noted,

it is a high-touch model that engages with all parts of the student’s life. Their family is in the mix. It’s looking at their academics. It’s looking at helping them build the kind of cultural social capital that they need. It stays with them over an extended period of time in an intense way. It stays with them through college. I think that that is actually a really powerful model.

Another administrator commented,

I would say that I think that [the program leader] has been extremely successful in the goal of working with students as whole people and building a community for them and making them feel secure and successful in their lives or more secure and successful than they were without PUPP.

The following sections detail the PUPP practices and activities PUPP stakeholders described as essential.

Strong Relationships and Mentoring

Those we interviewed repeatedly cited the critical importance of relationships among all members of PUPP: between scholars and program leaders, between scholars and PUPP faculty members, and among PUPP scholars themselves. Many interviewees characterized these relationships as key to the scholars’ development across multiple domains. Close relationships enable PUPP leaders and teaching staff to offer scholars ongoing mentoring and advising. As one high school guidance counselor, at a relatively well resourced high school, noted,

it’s extremely essential, the mentoring [provided by PUPP]. I have opportunities to have one-on-one, but in many cases my seniors—I have like 78 seniors—it’s one-on-one, but really also 1 in 78. In PUPP, because the numbers are much smaller, the opportunity to develop a one-on-one relationship is much greater, I believe. When our students know that somebody is invested in their future and cares, it’s like they really, really take to that.

Stakeholders often characterized PUPP leaders as having close and caring relationships with all PUPP scholars. The PUPP director, associate director, and counselor provide mentoring and advising to scholars throughout their 3 years in the program and beyond. All three are viewed by PUPP stakeholders as highly dedicated to their jobs, as evidenced by their longevity in their positions and their tendency to make themselves available outside of working hours for PUPP scholars and families in need. Some PUPP leaders, and many staff and faculty members, were first-generation college students themselves, so they may truly understand the challenges PUPP scholars are facing.

The majority of stakeholders emphasized that PUPP leaders are skilled at connecting with youths and their families, largely as a result of their prior professional and personal experiences. However, a very small minority of scholars and PUPP staff noted that PUPP leaders may not be as connected to or friendly with students as they could be. They mentioned a perception among scholars of PUPP staff as distant or not accessible. It is unclear how prevalent this perception may be. It also should be noted that such a negative perception may be due to the small number of leaders relative to the number of scholars—it may be exceedingly difficult for leaders to develop close relationships with all 71 scholars.

PUPP leaders are also viewed as keenly aware of the challenges low-income families and communities face. One Princeton University administrator noted,

I think having somebody like [the PUPP director], who has really a firm understanding of and sensitivity to what it means to be living in kind of a state of emergency at all times is really empowering for the students because they can go to him and he understands, I think the different forms of stressors that they have at all times.

PUPP leaders get to know scholars, including their strengths and weaknesses in multiple domains, during the application process. They then share this knowledge with PUPP faculty, including teaching fellows and teaching assistants, to enable them to personalize their teaching. As one teaching assistant described,

[the associate director] had a meeting with the three teaching assistants, to discuss what to look out for in some of the scholars. I remember him saying, “Look out for [scholar], he has a reputation for not being really active and just find ways to prompt him to participate in class and to form relationships with his peers.” I think going in and just knowing what to look out for in each scholar helped me to see how they improved by the end of the program.

In PUPP, the low student-to-teacher ratios enable teaching staff to regularly check in with scholars on their skill development in multiple areas. PUPP teaching staff develop very close relationships with scholars as a result of working with them in small groups, often over the course of multiple years. PUPP faculty and teaching fellows spoke about the importance of going beyond the traditional boundaries of the student–teacher relationship to get to know each scholar as a person. One PUPP faculty member explained the power of this approach:

In my opinion, the single most important factor in how a teacher can help foster student success is the extent to which the teacher demonstrates real caring and compassion for each student, and does so across the board for all. This takes a willingness to celebrate each student’s individual identity and abilities, and to have empathy with each. But it also takes hard work, paying attention to what students are doing and saying and how they’re doing and saying it and working with them in building fundamental skills.

Similarly, a Princeton University administrator noted,

The advising that they receive and the relationships that they’re able to build with PUPP staff seem vital, are very important. What I’ve heard from PUPP staff, sometimes those services are beyond the academic and the college prep. It’s life.

A former teaching fellow noted,

I think that everybody who taught in PUPP kind of agreed that if we didn’t stretch a little bit beyond what quote/unquote school is supposed to be, we wouldn’t be able to help these kids in the ways that they needed to be helped.

In focus groups, some PUPP alumni described the depth of relationships with teaching staff and the extent to which they felt supported and understood by the PUPP faculty. They emphasized the importance of this high level of support, and the mentoring provided by faculty, to their personal development during PUPP.

Relationships among scholars are also described as key to the success of PUPP. Each cohort develops a close sense of community over the 3 years of the program, beginning with a leadership and community-building retreat at the Princeton–Blairstown Center. The retreat sets the stage for the near-peer mentoring that happens later in the summer school and academic enrichment classes. A PUPP leader described it thus:

At the Princeton–Blairstown Center, there’s a lot of conversation about comfort zone and challenge by choice. Those messages really resonate in terms of “I’ve never done this before, but let me try it. I’m seeing my peers try it, so I can step outside my comfort zone and do it.”

PUPP staff and scholars echoed the PUPP leader’s comments on the support of peers. One former PUPP scholar noted, “We all felt comfortable when we were with each other, we were all supportive, all trying to make each other better.”

Several PUPP stakeholders described how PUPP scholars quickly build friendships and come to rely on each other as a source of mutual support. As one interviewee noted,

once they get in, they become friends with the other students, they have that mutual support, they work together, they don’t want to let anybody down. They’ve developed a relationship that, I think, they want to keep that pulls

them out of the school or separates them from kids in the school that may not be supporting them. Now they've created a support structure for themselves.

Several alumni focus group participants also emphasized the importance of the bonds they developed with their peer scholars, many of which have persisted after their completion of PUPP. However, a small number of current scholars and alumni reported that they did not feel as connected to their peer scholars as they would have liked.

Strong relationships also exist among PUPP leaders and their contacts at the six partner high schools and their target colleges as well as with their partners at Princeton University. Stakeholders from each of these groups described strong relationships with PUPP staff characterized by respect and clear and effective communication.

Small Groups

The small size of PUPP cohorts and the low teacher-to-student ratios are viewed as crucial to the PUPP model. Strong relationships and a sense of community are facilitated by the small cohort size. As a PUPP teaching assistant stated, "24 is enough to have a lot of different backgrounds and experiences and it also helps them form a family, in a sense, with its own culture." PUPP teaching staff have the opportunity to get to know the scholars' interests, personalities, and academic strengths and weaknesses much better than they might in a typical public high school classroom and to offer plenty of support and encouragement to students. A PUPP leader noted, "I think there's something particularly special about keeping it as small as we have, in terms of the level of attention that we can provide the scholars that we work with."

Interviews also highlighted the importance of small groups for student learning and skill development. PUPP's use of small instructional groupings allows PUPP teaching staff to tailor instructional activities to address students' strengths and weaknesses. One teaching fellow stated, "We support every scholar individually by assessing what they know and remediating areas of weakness. The PUPP experience allows faculty to work closely with students and really personalize teaching to meet their individual needs." For example, mathematics class ratios are one teacher for every eight students, facilitating the provision of highly individualized support for students. On the Scholar Survey, a majority of scholars agreed or strongly agreed that PUPP teachers are able to help them more than their regular school teachers during class (59%) and outside of class (51%; Millett & Kevelson, 2018).

Some PUPP stakeholders described how the intimacy of PUPP classes and the sense of community among PUPP scholars make students comfortable enough to participate in class discussions. Others described how the small groups and high level of trust among scholars led to in-depth discussions on a variety of topics. Teachers felt that these discussions nurtured critical thinking skills and taught students to listen to each other and build on the arguments of their peers. Research has shown that this type of relational trust is important for learning outcomes (Bryk & Schneider, 2003). Thus the relational trust established among scholars and between scholars and teaching staff facilitates a deep focus on the PUPP critical communication skills: reading, writing, thinking, speaking, and listening. The PUPP summer school and academic enrichment interventions focus on helping students build each of these skills to a level that will enable them to succeed in college.

Interviewees also emphasized how PUPP's use of small instructional groupings enables teaching staff to provide rigorous and high-quality learning experiences for PUPP scholars. Faculty and teaching fellows described the small instructional groups as ideal for using an inquiry-based approach to support the development of the PUPP critical communication skills. As a teaching fellow explained, "often, PUPP lessons are designed to be discovery in nature and where scholars work in groups to problem solve and foster communication skills." The interdisciplinary nature of the PUPP curriculum is also described as useful for keeping students highly engaged and providing opportunities for leadership.

Rigorous College Preparation

Perhaps the signature components of PUPP, instrumental as they are to college access and enrollment, are the rigorous college preparatory activities provided for PUPP scholars. As one Princeton University administrator noted when asked about PUPP's essential elements, "[it's] the preparation. Taking students in 10th grade and providing them challenging curriculum, high expectations, and opening their eyes to the type of postsecondary options that are available to them."

The 6-week summer school is viewed by stakeholders as invaluable for college preparation. In fact, 44% of current scholars and 33% of Alumni Survey respondents ranked it as the number one most crucial aspect of PUPP.¹⁰ Many current

scholars described how the summer school provides exposure to college experiences and keeps their minds engaged in academic activities, while reinforcing what they learned the prior school year. Several current scholars emphasized that the summer school goes beyond academics by helping them to develop their social–emotional skills and nurturing a strong sense of community among scholars and between scholars and PUPP staff. Furthermore, some partner high school staff noted that PUPP mitigates summer learning loss through providing the summer school.

One topic that comes up repeatedly in interviews is PUPP’s support for students’ course choices in high school, which is provided to ensure that scholars are prepared for college and are more likely to be admitted to selective colleges. Throughout the 3 years of the program, PUPP scholars are encouraged to take rigorous high school courses, such as Advanced Placement courses. Each student’s high school record is reviewed to assess the rigor of each student’s course load and inform course advising. One PUPP teaching fellow explained, “PUPP also encourages students to take on a rigorous course load, pushing them to take as many Advanced Placement courses as they can.”

Test preparation courses are also an integral part of PUPP. Among the scholars, test prep activities are viewed as one of the most important aspects of the program. Seventeen percent of current scholars and 19% of Alumni Survey respondents viewed test prep as the most crucial PUPP activity, and another 17% of current scholars and 15% of Alumni Survey respondents viewed it as the second most crucial element of PUPP. As one scholar stated, “the test prep courses are helpful for anyone. Most scholars boost their scores considerably from practice test to real exams. Test prep courses are one the best assets of PUPP.” Other scholars also emphasized that they would be unable to afford test prep courses on their own, and therefore PUPP enables them to compete with students from more affluent families. A teaching fellow noted, “I also think the test preparation students receive is very valuable. These are all resources many students in Trenton, and likely many low-income students throughout Mercer County, do not have access to.” Several alumni and current scholars and some high school staff members also noted that the test fee waivers provided by PUPP may make an important difference for some families.¹¹

Rigorous instruction and support for critical communication skills (reading, writing, thinking, speaking, and listening) are also provided during the school year in the weekly academic enrichment sessions for sophomores and juniors. These sessions are seen as complementing and continuing the academic support of the summer school, while also continuing to nurture relationships among scholars and between scholars and staff via the small-group sessions. As one teaching fellow noted,

PUPP really supports the whole individual and makes those scholars feel seen and appreciated, while holding them to challenging and rigorous standards. Some students who didn’t think they could write or present, really rose out of their comfort zones and conquered their fears.

In focus groups, some PUPP alumni noted that PUPP’s academically rigorous program prepared them for the rigors of college. Although some alumni reported that they still faced academic and financial challenges in college, they credited PUPP’s preparation efforts for their smooth transition into college and their success in college. Also in focus groups, parents of PUPP alumni reported that the rigor of PUPP prepared their children to take on greater academic challenges and to successfully transition to college.

College Explorations, Admissions, and Financial Aid Support

PUPP also provides high-touch support for college admissions and financial aid applications. Interviewees highlighted how important it is that PUPP helps scholars and their families understand and navigate these processes and shepherds them through the completion of all necessary paperwork. Scholars themselves also highlighted the importance of these supports; on the Scholar Survey, 18% of scholars ranked guidance on college applications as the most crucial aspect of PUPP, and another 13% ranked guidance on college financial aid similarly. One scholar explained it thus:

These are the most crucial to me because my counselors at school aren’t the most helpful. My ultimate goal is to get into a good school to receive a great education, and getting good test scores after test prep as well as guidance on my college application process help me achieve that.

Alumni focus group participants and survey respondents highlighted how helpful the college application guidance was for them, in some cases noting that it helped to make college a reality for them and in other cases that it helped them to

attend a more selective college than they otherwise would have. Parent focus group participants also credited PUPP with enabling their children's college success by providing the requisite knowledge, resources, and personalized support.

PUPP scholars commented that PUPP helped them to identify colleges that fit their needs. They found the college counseling, college tours, and mentoring from PUPP teaching fellows and staff helpful for their understanding of the various "PUPP-approved" colleges. Many PUPP scholars reported, and high school partner staff and PUPP staff concurred, that these activities tended to lead the PUPP scholars to consider a broader range of colleges than they might otherwise have considered applying to, including more selective colleges. Over the course of their 3 years in PUPP, scholars visit approximately 28–30 colleges and universities. These tours provide PUPP scholars with the opportunity to see large and small campuses; urban, suburban, and rural campuses; public and private colleges; as well as colleges outside of New Jersey. The junior and senior college trips, which rotate between the New England states and the Mid-Atlantic states, are a rite of passage in the program (see Appendix D).

As noted, PUPP staff encourage PUPP scholars to apply to the colleges and universities that are the most likely to provide substantial financial aid packages, preferably meeting full need without loans. PUPP brings students to visit many such colleges over the course of the 3-year program. The PUPP college tours are described as critical for helping PUPP scholars identify the schools that would be the best fit for them, in part by helping them to think about whether a big or small school or an urban or suburban school would be best for them, in addition to considering available academic majors. A scholar expressed it even more poignantly, stating, "The college tours are what really turn your college dream into a reality. They inspire and encourage you to stay resilient." PUPP alumni focus group participants credited the college tours with helping them identify and choose their best-fit colleges.

PUPP leaders emphasized in interviews how important it is for PUPP scholars to attend colleges that not only meet their academic needs but also meet their needs for almost complete financial aid. PUPP scholars generally receive comprehensive financial aid packages that require very minimal financial contributions from them or their families. PUPP scholars are more likely to persist in college if their financial needs are met, and graduating without student loan debt provides them with greater opportunities for career success, including graduate school attendance and a more comfortable lifestyle. As one PUPP faculty member noted,

for them to go out and make \$60,000 or \$80,000 with no debt is massive. It's life changing. The experience they get from going to these institutions that are nothing like what they would do if they stayed in the local community college, or went and got a job at a corner store.

Also as noted, staff at colleges and universities attended by PUPP alumni tend to report that PUPP alumni are successful in their chosen schools. Analyses of PUPP college outcomes data also indicate that PUPP scholars tend to graduate from college.

PUPP staff may also meet with PUPP scholars' families to help them become more comfortable with the idea of having their son or daughter attend a college far from home, something that may not be the norm in their own culture. They may also help the PUPP scholars themselves to feel comfortable leaving home to attend college and focus on their own goals, given their strong sense of obligation to help their families and contribute to the household income.

PUPP's support for PUPP scholars goes well beyond the college tours and applications; PUPP staff continue to meet with PUPP scholars after admissions awards are received to provide guidance on enrollment decisions. They help PUPP scholars to compare and understand their financial aid offers, and they may even work with PUPP scholars to negotiate for better financial aid packages.

Social–Emotional Skills and Character Development

A major component of PUPP's holistic approach is its support for the development of PUPP scholars' social–emotional skills. Sometimes referred to as noncognitive skills, soft skills, mind-sets, or character, social–emotional skills are now widely regarded as critical for success in school and in life. PUPP adopted a focus on social–emotional skills early on, with its identification of the PUPP Priority Skills in 2008. The PUPP Priority Skills include competencies critical for college success, such as study skills, critical thinking, communication, collaboration, perseverance/grit, leadership, and time management. PUPP supports development of these skills through its academic and cultural activities as well as

through informal mentoring and role modeling. It also aims to help PUPP scholars develop habits to address stress relief through exposure to yoga and art making.

PUPP stakeholders emphasized the critical importance of PUPP's focus on social–emotional skills for PUPP scholars' success in college and beyond. They noted that PUPP sets high expectations for students not only to be successful academically but to have strong character and a sense of social responsibility. PUPP staff model and teach appropriate behaviors for various academic and cultural contexts. They aim to help PUPP scholars become comfortable navigating new experiences and interacting with people from diverse backgrounds. Several interviewees noted that PUPP's focus on social–emotional skills helps PUPP scholars develop into more well-rounded people and to reach their potential as leaders. One high school guidance counselor described it thus: “PUPP develops all the talents maybe that they didn't even know they had, brings them out, and definitely encourages them to be really, really the people that they are, that they may not have known they were.”

PUPP scholars themselves emphasized the crucial importance of the summer school experiences for their own character development, in addition to their academic development. One scholar noted, “the six and a half week Institute grows everyone's character and academics. The character of every scholar is grown into someone who can present themselves and have confidence in everything they do.”

In focus groups and survey comments, PUPP alumni also cited the importance of PUPP's support for their social–emotional skill development, noting how the increased self-confidence and communication skills they developed in PUPP enabled them to be successful in college. Parents of alumni and current PUPP scholars also spoke in focus groups about the helpfulness of PUPP's support for personal development, describing increased self-confidence and extraversion in their children as well as greater openness to new ideas and different perspectives.

Arts and Cultural Experiences: Support for Cultural Capital Development

The teaching of the PUPP critical communication skills extends to include arts and cultural experiences, which many PUPP stakeholders described as an essential part of the PUPP model. Over the 3 years, PUPP scholars attend approximately 21 live performances and visit 6 museums (see Appendix E). During visits to art museums, students are asked to think and write critically about the works of art on view. Students may also be asked to think and write about arts performances, such as plays and operas, and to engage in discussions about them during subsequent PUPP class sessions. The PUPP studio arts course aims to nurture students' willingness to take risks in their schoolwork. It is also designed to be a collaboration and communication skill development experience because sophomores are paired with seniors.

PUPP interview respondents noted how the cultural experiences offered by PUPP enable an expansion of students' worldviews, an outcome that is supported by recent research (Greene, Kisida, & Bowen, 2014). They also emphasized how the arts and cultural experiences, such as attending plays and operas and visiting major arts institutions, prepare students for college by exposing them to the same experiences more affluent students may have had. As one college partner noted, “it allows them to feel empowered, too, to know that you're sitting in a classroom with others that have seen and watched and experienced these cultural things, and now you have something to contribute.” She and other PUPP stakeholders praised the importance of the arts and cultural experiences to increasing PUPP scholars' cultural capital.

In focus groups, alumni described how the arts and cultural events they attended as PUPP scholars enabled them to engage in discussions about theatrical performances or other arts or cultural works with their peers in college.

Alumni Supports

The high-touch PUPP approach continues after PUPP scholars graduate from the program. Several interviewees described PUPP's supports for alumni as an important part of the program model. A component that is particularly helpful is the support for the transition to college that encourages students to make use of the resources and services available for them at their chosen universities. For example, whereas many first-generation college students may avoid using campus tutoring or writing center services because they feel ashamed to seek help, PUPP scholars are described as entering college with the understanding that it is a good idea to seek help when they need it. They also understand that their more affluent peers may already be comfortable doing so. PUPP aims to change the mind-sets of its alumni around asking for help (see Figure 6).

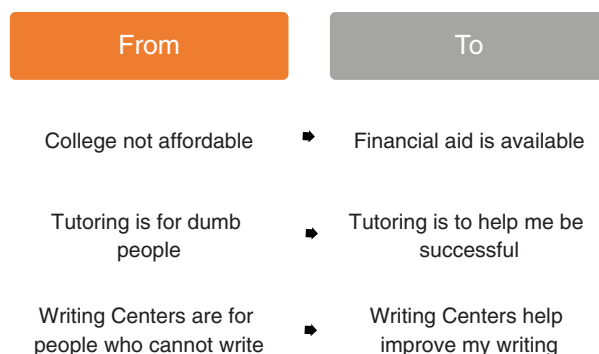


Figure 6 PUPP scholars' beliefs that Princeton University Preparatory Program will challenge.

PUPP staff maintain their relationships with alumni through visits to college campuses to meet with students and discuss successes and challenges. As one Princeton University administrator noted, “one of the things I really admire about the program is the degree to which they’re able to bring alumni back and really create very concrete mentorship links with students who have already been placed in these selective colleges.”

PUPP staff sometimes provide critical supports, financial and otherwise, for alumni who are no longer connected to their families of origin. The PUPP mentoring relationships continue through the completion of college and beyond, sometimes through graduate school. The goal of the alumni supports is to ensure former PUPP scholars are able to complete college despite any obstacles in their paths, such as academic and financial challenges or culture shock. In focus groups, several alumni described how helpful PUPP staff were for them during college, particularly when they experienced culture shock as a result of coming from a different social background than most of their peers at college.

Supports for alumni, including alumni events and outreach, were provided on an informal basis prior to 2012, when the Alumni Fellow position was added to provide these supports in a more consistent and structured fashion. Many stakeholders see these supports as a critical program element that should be enhanced. PUPP staff noted that they have expanded their efforts to support alumni over the years; however, they still lack sufficient staff and funding to provide a comprehensive and structured alumni support program.

Supports for Families

Also integral to PUPP’s high-touch approach are the supports provided for the families of PUPP scholars to address challenges with basic needs that may affect a scholar’s ability to focus on school (Bausch, 2010; Broton & Goldrick-Rab, 2016). They provide all scholars with backpacks loaded with all supplies, including graphing calculators, they will need to be successful in PUPP and in high school. They also provide a laptop or desktop computer, usually a surplus item donated by the university, to any scholar without a functional computer at home. They do this because they know that students’ parents are likely unable to afford all of these supplies. Several interviewees noted that PUPP staff aim to get the best possible deals on everything they purchase for the program to maximize the help they can provide for families within the limitations of the program budget.

Interviewees noted that PUPP may be unique among college access programs in its provision of wraparound services that help students and their families address challenges such as food insecurity and insufficient housing. Because PUPP serves a severely low income population (i.e., students who would qualify for Pell Grants, based on their families’ income being below the federal poverty threshold), staff seek to learn about family financial challenges by conducting a needs assessment (see Appendix F for the needs assessment form) with each family during each program year. When they do, they either refer the family to an appropriate social services program or provide financial or in-kind support. PUPP has paid families’ electric bills, purchased groceries for families, and provided household items such as microwaves. PUPP has also connected PUPP scholars and parents to counseling and medical services to address mental and physical health needs. On the Scholar Survey, some PUPP scholars commented that PUPP helped them or their families address financial challenges, such as covering bills for basic expenses. Other PUPP scholars explained that PUPP had helped them through a challenging personal situation by providing social support or counseling services. As of 2015, the social work intern conducts a broad family needs assessment that asks about housing, food, school supplies, and so on.

PUPP leaders and teaching staff may become aware of families' needs through their close relationships with PUPP scholars. PUPP leaders are described as having a keen awareness of the challenges low-income families face. As one Princeton University administrator noted,

there are all these assumptions that we make—people have electricity; people have computers; they have enough food to eat. We make all these assumptions about our students and [the PUPP director], with his work on the ground, both as a teacher in Philadelphia and in PUPP, can really kind of shake that up a little bit for us.

This quote highlights other points made by multiple interviewees, including that PUPP leaders have the potential to help Princeton University administrators understand the needs of PUPP students and that PUPP is a college access program laboratory for Princeton University.

PUPP stakeholders reported that the support provided for families may be very helpful for students' success in the program. PUPP leaders and staff agreed, and they noted the importance of their close connection to the PUPP families. As a PUPP leader noted,

some programs, if you're just a summer experience, or you're more regional, or national, you don't have a sense of what's happening locally every day. Because our students and families sometimes are very fragile, being this close and being this available, I think really is one of those unique and special parts of what we do.

PUPP evaluation interviews and focus groups also revealed that many PUPP scholars may be working to contribute needed income to their families or may be primary caregivers to younger siblings. These PUPP scholars' families may be particularly challenged financially by their children's participation in PUPP in lieu of a part-time job. A few stakeholders noted that this is an important reason to keep the summer school nonresidential—if PUPP scholars cannot work and contribute income to their families during the summer schools, at least they can still be there to help them through crises and contribute to the care of their younger siblings. However, these adult responsibilities also tend to pose a threat to the successful college transition of PUPP alumni. A few stakeholders noted that they have seen PUPP alumni and other first-generation college students challenged by the dual pressures of college and home life responsibilities. A few college staff members noted that these pressures have prevented some first-generation students from persisting in college, whereas the PUPP alumni they have seen seemed to have been well prepared to deal with such challenges.

Commitment of 3+ Years

A major advantage of the PUPP approach is that the intervention begins early in PUPP scholars' high school career, during the summer prior to their sophomore year, and continues for 3 years through the completion of high school and enrollment in college. The ongoing nature of the program enables it to ensure students are prepared for college in multiple domains—academic, social-emotional, and cultural. The year-round and continual exposure to PUPP courses and skill building is also an important way to help PUPP scholars establish habits, according to stakeholders, including high school principals.

Many PUPP stakeholders emphasized the program's duration as key to its effectiveness. As one faculty member stated,

when you come back time after time and there's that consistency, the rigor, the high expectations, the idea that we're all going to go somewhere, do something, be something, that's an incredibly powerful thing that a summer camp doesn't do or a summer camp with a 1-year extension just would never achieve.

It is clear that PUPP's success rates are attributed to its comprehensive and multiyear approach. One PUPP leader described the program as “ongoing, continuous, and comprehensive, until we're done.” As a teaching fellow noted, “a lot of the skills that PUPP develops need to be acquired early on, including test prep and writing courses. PUPP also provides advice in terms of course enrollment, which students need at an early stage.”

The length of the program is described as enabling PUPP staff to nurture students' skills and help them address their weaknesses as they progress through high school. The PUPP curriculum is sequential and designed to build skills over time, which would not be possible in a short-term program. Faculty observe students developing their critical

communication skills over the 3 years, through repeated encouragement and the support of their teachers and peers in small groups. One teaching fellow described the advantage of the 3 years thus:

I think it's an enormous advantage to have PUPP last 3 full years. The students really develop a presence as a cohort, where they know how to support and encourage each other. It also allows the faculty of the summer school a chance to really build on skills and content from summer to summer. I teach the students who are in their middle summer, and I appreciate understanding where they have come from previously with their writing and research skills, and I love that I get to see how their journey continues.

Moreover, the impacts of mentoring may also multiply as mentoring relationships are built and continued over multiple years.

Deficits in vocabulary, which may be more common among students with poorly educated parents, are diminished as students are repeatedly exposed to an academic vocabulary. As one faculty member noted,

they get used to what is an educated language that's used in colleges and universities. That's huge. One year doesn't ever give you that. They become acculturated into the kind of place that they're going to go into. A college or university where higher level language is going to be used and where people will not dumb down the words for you.

PUPP staff also emphasized that PUPP scholars learn over time how and when to “code-switch,” that is, when to use more academic and formal language.

In focus groups, some PUPP alumni described the depth of relationships with teaching staff developed over the 3 years of the program. They emphasized how these relationships were stronger than those they had with their regular high school teachers, largely due to how long they lasted.

Princeton University Name and Resources

Several PUPP stakeholders highlighted the importance of the connection to Princeton University for some aspects of PUPP's success. For example, they find that the Princeton name increases parent interest and engagement. One PUPP leader noted,

Even if a parent is really new to the whole idea of college, if they live in this region, and if their child is being approached by something that says Princeton on it, there is something that matters in that space, so we nurture that. That gets you in the door.

The Princeton University name is seen as connoting a high-quality and rigorous academic experience, which helps to set expectations for high achievement and successful academic outcomes. Partner high school staff noted that it is an honor to have Princeton University provide their schools and students with academic supports.

Several stakeholders interviewed, including Princeton University administrators, emphasized how important it is that PUPP is funded by Princeton University. Not only is the program a way for the university to leverage its resources in support of local low-income communities but the resources provided by Princeton, including both financial and in-kind supports, are crucial to PUPP's operation.

Experiences of Current and Alumni Scholars

The PUPP Scholar Survey and Alumni Survey were designed to gather detailed information on scholar and alumni experiences in PUPP. As noted, the PUPP Scholar Survey was completed online by all 71 current PUPP scholars. The PUPP Alumni Survey was completed by 126 former PUPP scholars, or 51% of all alumni. The following sections summarize findings on the overall experiences of PUPP scholars and alumni. They also describe scholar and alumni experiences in PUPP activities as well as their perceptions of the program's impacts on themselves and, among current PUPP scholars, on their families. Note that the PUPP Scholar Survey report (Millett & Kevelson, 2018) and Alumni Survey report (Millett et al., 2018a) provide detailed accounts of the findings from all items on each survey, along with graphs and charts depicting major findings.

Overall Princeton University Preparatory Program Experiences and Impacts

Current PUPP scholars generally reported having positive experiences in PUPP activities. On the Scholar Survey, 86% of PUPP scholars described how PUPP met their expectations for the program. Most PUPP scholars expected to participate in academically rigorous college preparatory activities. Many expected to be guided through college applications and to be prepared to gain admission to selective colleges and universities. Some also expected support for their social–emotional skill development and help with preparation for college entrance exams.

PUPP Alumni Survey respondents also generally rated their PUPP experiences positively. All but a few respondents indicated they had good or very good experiences in PUPP academic activities (94%), college preparatory activities (97%), and cultural events (96%), and a large proportion felt the same regarding nonacademic or student life experiences (83%). Alumni Survey respondents also tended to agree that they found PUPP activities useful (94%). However, a small minority (10%) of alumni agreed that PUPP had too many expectations for students or found the PUPP staff to be “pushy” (15%).

In terms of overall impacts, a large majority of Alumni Survey respondents agreed that PUPP helped them to reach their goals (92%) and helped to improve the quality of their lives (79%). A large majority agreed that PUPP staff helped to build their confidence (86%), adopt a more positive outlook (79%), and have more control over their lives (71%). More than half of Alumni Survey respondents also indicated that PUPP prepared them more than adequately or very well to face academic challenges in college (62%) and to adjust to the academic culture of college (65%). Among current PUPP scholars, two thirds (66%) agreed that PUPP has helped to build their social networks, and another 63% agreed that PUPP has helped them build their self-confidence.

Alumni Survey respondents also reported that PUPP had contributed quite a bit or very much to their development of specific skills. These included academic skills such as writing clearly and effectively (90%), thinking critically and solving problems (85%), producing high-quality work (85%), designing and conducting research (72%), solving numerical problems (66%), using computer technology (58%), and working with data (56%). In open-ended comments on surveys and in focus groups, some alumni indicated that PUPP had prepared them for college by providing academically rigorous and culturally enriching experiences and support for their personal development. Many also made comments highlighting the fact that PUPP enabled them to attend college by helping them determine which colleges were a good fit and guiding them through the college and financial aid application processes. Other open-ended survey comments and focus group comments described the importance the high level of support and mentoring provided by PUPP faculty and staff. Several survey and focus group participants also emphasized the importance of the support they received from PUPP leaders and their peer PUPP scholars, both during and after PUPP.

The following sections detail PUPP scholars’ perceptions of the various PUPP activities and how the activities impacted them and their families.

Summer Institute

The majority of PUPP scholars indicated they had a good or very good overall experience in the summer school. A large majority of PUPP scholars (82%) agreed or strongly agreed that the summer school courses were challenging. Most PUPP scholars also agreed or strongly agreed that the summer school courses improved their writing skills (87%), their reading skills (80%), their mathematics skills (69%), and their time management skills (68%). The majority also agreed that the summer school improved their ability to think critically about written texts (79%) and about works of art (63%).

Academic Enrichment Sessions

Over 45% of current PUPP scholars rated their overall experience of the academic enrichment sessions as good or very good. Over 74% of PUPP scholars found the academic enrichment session activities challenging, a finding that aligns with the findings of the PUPP stakeholder interviews. The majority of current PUPP scholars agreed or strongly agreed that the academic enrichment sessions impacted their small-group discussion skills (77%), their presentation skills (65%), their listening skills (58%), and their debating skills (51%).

Overall Princeton University Preparatory Program Course Work Experiences

PUPP scholars were also asked about their general experiences of PUPP courses, including summer school courses and the academic enrichment sessions. The vast majority of PUPP scholars agreed or strongly agreed that PUPP courses demand

critical thinking, concurring with the perspectives of many PUPP stakeholders. More than three fourths of current PUPP scholars (76%) saw the topics covered in PUPP courses as relevant to their lives, and two-thirds (66%) found them interesting. Less than 40% agreed that PUPP course assignments are enjoyable, perhaps reflecting the challenging nature of these experiences. In terms of impacts, PUPP scholars perceived positive impacts of PUPP courses on their work ethics (76%), comfort with studying long hours (56%), and vocabularies (55%).

PUPP alumni also held positive views of PUPP courses. On the PUPP Alumni Survey, almost all respondents agreed or strongly agreed that PUPP faculty were excellent teachers (98%) and that PUPP provided the right amount of interaction between students and PUPP staff and faculty. Another 91% of survey completers agreed or strongly agreed that PUPP offered a rigorous curriculum, while 90% agreed that there was a lot of variety in the way that PUPP faculty presented lessons.

Comparisons to High School Courses

The greater focus on critical thinking and communication skills and the level of rigor of PUPP classes, both in the summer school and during school-year academic enrichment sessions, set them apart from high school general education courses. The PUPP curriculum is described by PUPP leaders as “walking alongside” the curricula of the partner high schools. At the same time, the PUPP courses are designed to engage students in critical thinking and intellectual exploration at a level that they would not be exposed to in high school courses, according to PUPP teaching staff. Scholar Survey responses supported these interview findings: 55% of PUPP scholars agreed or strongly agreed that the PUPP courses are more difficult than their general education high school courses, while 38% agreed or strongly agreed that PUPP courses are no more difficult than Advanced Placement courses offered at their high schools. Over 40% agreed that PUPP courses are more interesting than their regular high school courses.

As noted, current PUPP scholars also tended to agree that PUPP teachers are able to help them both during (59%) and outside of class (51%) more than their regular school teachers. Although the majority of PUPP scholars (79%) agreed that they are treated with respect by their regular high school teachers, even more (94%) felt they were treated with respect by their PUPP teachers.

College Planning and Exposure Experiences

PUPP scholars and alumni generally perceived positive impacts of the PUPP activities and practices designed to expose them to colleges and universities. Perhaps most importantly, and central to the goals of PUPP, the vast majority of current PUPP scholars (87%) agreed or strongly agreed that PUPP has made them decide to apply to more selective colleges than they otherwise would have. Similarly, over 90% of PUPP scholars agreed or strongly agreed that PUPP has helped them to understand which colleges would suit them best. The PUPP college tours seem to have improved attitudes and expectations for college attendance: The vast majority of PUPP scholars felt that the tours helped them to imagine themselves on a college campus (94%) and made them more interested in attending a specific college (85%). Almost three-fourths of PUPP scholars (75%) said the tours improved their confidence in their ability to succeed in college. A minority of PUPP scholars (23%) reported feeling intimidated when visiting college campuses other than Princeton, and only a few (11%) felt that PUPP being on the Princeton campus was intimidating. In fact, most PUPP scholars felt that having PUPP on the Princeton campus helped them to imagine themselves on a college campus (78%) and to learn about college life (70%).

PUPP scholars also tended to report positive outcomes for the college application and financial aid supports that are a primary component of the PUPP intervention. All PUPP scholars agreed or strongly agreed that PUPP helped them to understand more about the college application process—a remarkable success rate for one of the program’s key short-term outcomes. All PUPP scholars also agreed or strongly agreed that they have shared their knowledge of the college application process with students who are not in PUPP, and 91% indicated that they have shared their knowledge of college financial aid with students who are not in PUPP. These findings confirm that PUPP has achieved another key outcome related to sharing lessons learned with other low-income students.

Scholar Survey responses also highlight PUPP’s successful achievement of other target outcomes, including increased preparation for college entrance exams and increased knowledge of college application and financial aid processes among PUPP scholars. Most PUPP scholars agreed or strongly agreed that PUPP made them better prepared for college entrance

exams (87%), increased their knowledge of the college application process (83%), and helped them to understand more about possible ways to finance a college education (91%).

According to current PUPP scholars, PUPP has also increased knowledge of college application and financial aid processes among PUPP scholars' family members. Seventy-four percent of PUPP scholars agreed or strongly agreed that PUPP has helped their families to understand more about the college application process and about possible ways to finance a college education. More than half of current PUPP scholars (56%) also reported that PUPP has helped their families to understand which colleges would be best for them to attend.

PUPP Alumni Survey respondents also tended to agree (73%) that being on the Princeton University campus helped them learn about college life. Most respondents agreed that the PUPP college tours allowed them to see more colleges than they would have on their own (98%) and that PUPP was the primary way they visited college campuses (94%). In terms of the impacts of the college tours, 88% agreed that the tours helped them decide where to apply to college, and 78% agreed that the tours helped them realize college was the right place for them. Just slightly more than half (53%) agreed that meeting with PUPP alumni during college visits helped them to choose a college. At the same time, most Alumni Survey respondents (94%) also found it helpful to work with PUPP teaching assistants, who are college students. They may have found these relationships more helpful than their meetings with PUPP alumni during college visits because the relationships with teaching assistants are longer term than connections to college students.

Perceptions of Impacts on Social–Emotional Skills

On the Scholar Survey, the majority of PUPP scholars indicated that PUPP had contributed to the development of various social–emotional skills “quite a bit” or “very much.” Three-fourths or more of PUPP scholars felt that PUPP had helped them develop skills important for college and career success, such as producing high-quality work (83%), being open to new ideas (77%), working collaboratively toward a goal (76%), working with people from diverse backgrounds (76%), and learning effectively on their own (70%). Many PUPP scholars' responses also indicated that PUPP had contributed quite a bit or very much to their communication skills related to presenting to a group (72%), speaking clearly (70%), and writing clearly (69%). Approximately half of PUPP scholars felt PUPP had contributed to their critical thinking skills, including assessing the value of information (56%), breaking information down into its basic elements (52%), and solving numerical problems (49%). Finally, close to 60% of PUPP scholars reported that PUPP had influenced their leadership skills.

PUPP's focus on social–emotional skills, emphasized as an essential program element in stakeholder interviews, may be having the intended impacts on PUPP scholars. Three-quarters or more of Alumni Survey respondents indicated that PUPP prepared them well to show respect for others despite their disagreements (77%), develop their passion for learning (77%), develop an individual perspective (75%), and submit all assignments on time (75%). Nearly two-thirds of respondents felt that PUPP benefitted their time management skills (67%) and their leadership skills and ability to contribute to classroom discussions (65%). A large majority indicated that PUPP contributed quite a bit or very much to their abilities to work well with others (85%) and to learn effectively on their own (76%).

Arts and Cultural Experiences

The vast majority of current PUPP scholars reported that they had a good or very good overall experience during the PUPP cultural events (90%) and that these events were new experiences for them (93%). In terms of impacts, PUPP Scholar Survey responses highlight the extent to which the arts and cultural experiences were helpful for PUPP scholars. Very few (9%) of current PUPP scholars felt that the arts and cultural experiences provided by PUPP were not helpful for them. Most PUPP scholars agreed or strongly agreed that the arts and cultural events helped them learn about people from different backgrounds (90%) and increased their appreciation for the performing arts (82%). Slightly less than 40% of PUPP scholars agreed that knowledge of a play or opera has helped them with their schoolwork; others may find this to be the case once they get to college, depending on their chosen areas of study.

In describing how the PUPP arts and cultural experiences affected their experiences in college, Alumni Survey respondents tended to report positive outcomes. The vast majority felt that the cultural events were a good use of their time (91%). Many agreed that the arts and cultural experiences led them to feel comfortable discussing arts or cultural topics with peers (74%), that they drew on these experiences in social situations with faculty (60%) and students (68%), and that

they drew on these experiences in classes (67%). Some respondents were inspired by the PUPP arts and cultural experiences to take a class about theater/drama, music, or art (40%); to participate in art, theater, or music programs at their colleges (27%); or even to major in the arts (14%).

Supports for Personal Challenges

Data from both the Scholar Survey and the Alumni Survey also support the perceptions borne out in PUPP stakeholder interviews regarding the extent to which PUPP supports PUPP scholars on a personal level, as part of its holistic approach to each Scholar's development. Well over half of Alumni Survey respondents (59%) reported that PUPP staff helped them with stressful situations in their personal lives. Similarly, one-quarter of current PUPP scholars reported that PUPP staff had helped them with a personal financial challenge, and another 24% indicated that they had received support from PUPP staff for a personal, nonfinancial challenge.

Benefits of Participating in Princeton University Preparatory Program for Partner High Schools

PUPP stakeholder interviews highlighted several ways in which PUPP is seen as benefitting the high schools it partners with in Princeton and the surrounding communities. High school staff acknowledged that PUPP is providing more support for PUPP scholars than they themselves generally are able to provide. Stakeholders also described several benefits for non-PUPP scholars resulting from PUPP scholars sharing knowledge with their peers, PUPP providing resources for non-PUPP students at the high schools, and PUPP advising high school staff on useful supports for non-PUPP students. Stakeholders also described PUPP as contributing to an increase in rigorous course offerings as well as helping to improve the school's image in the community.

More Support for PUPP Scholars Than Schools Can Provide

In interviews, high school guidance counselors and principals highlighted the challenge of very high student-to-guidance counselor ratios. One principal described PUPP as “one of the shining jewels in the crown” of their college and career readiness efforts. Guidance counselor caseloads are described as too large to provide the level and type of personalized support PUPP scholars received from PUPP. One high school guidance counselor went so far as to compare the individualized attention provided by PUPP to that provided by a private school:

The strengths—I think it gives the kids an understanding of what it takes to get into college, about different kinds of colleges, that they can make an informed choice. It holds them to a higher academic standard but does a lot—if they are struggling in math, then they'll get them a tutor. It's nice. They get very individual attention. It's something I wish that all the kids could have. It's like they're in a private school. They get private school attention from PUPP in a way that—they're attending a public school here, but the kind of college and career counseling that you get maybe—I would assume you'd get in like a prep school.

In addition, some of the guidance counselors described giving similar advice to all students, including enrolling at state and community colleges to save money, and seemed to have limited knowledge of the overall college landscape. Even the staff at PUPP high schools located in more affluent communities, which are able to provide more support than partner high schools in poorer communities, acknowledged that PUPP provides benefits beyond what the school is able to provide. And staff at schools in lower income areas acknowledged that PUPP may be the only such program available to students directly through the school; students may learn about other local college access programs only if their parents or peers happen to be aware of them. This finding is supported by comments made by several parents in focus groups, who explained that their children in PUPP were far more knowledgeable about the college preparation and application process, and better prepared for the college transition, than their children who were not in PUPP. In cases when the PUPP scholar was the older sibling, the scholar was able to shepherd younger siblings through these processes by sharing what he or she learned in PUPP.

Princeton University Preparatory Program Scholars Share Knowledge

High school leaders and PUPP staff agreed that PUPP's supports for PUPP scholars also spill over to impact students who are not enrolled in PUPP. Some of these effects stem from PUPP scholars sharing their experiences with their friends and

other peers at their high schools. One PUPP staff member noted, “We ask our students to really share what they’ve learned with their peers and to try to give them some guidance and advice about what they’ve learned.” Friends of PUPP scholars may benefit when scholars share what they have learned about the college application process or about specific colleges or give advice on which high school courses to take to prepare for college. One guidance counselor described these benefits as having a “ripple effect” within the partner high schools. Another described organizing small groups of students in which PUPP scholars share their knowledge with others. Perhaps even more notably, all PUPP seniors indicated on the Scholar Survey that they share their knowledge of the college application process with students who are not in PUPP, and the vast majority (91%) agreed that they have used knowledge gained from PUPP to advise peers on the college financial aid process (Millett & Kevelson, 2018).

Princeton University Preparatory Program Provides Resources to High Schools

PUPP staff also help partner high schools directly by providing resources, helping to organize events, or inviting non-PUPP students to PUPP events. They may help partner high school staff organize events, such as an Ivy League college fair, for non-PUPP students as well as PUPP scholars. They have provided resources, including college entrance exam preparation materials and Advanced Placement exam preparation materials, for the larger population of students taking AP courses in the two partner high schools in Trenton. They have opened up AP exam preparation sessions to non-PUPP students. PUPP scholars are encouraged to bring their friends to college admissions sessions, where they may benefit from help completing financial aid applications or reviews of their college application essays. PUPP scholars may also invite friends to attend local college tours when space is available and to attend cultural excursions when extra tickets are available. In addition, the small number of high school faculty who also teach at PUPP received ongoing professional development and support from their PUPP teaching peers and supervisors, in addition to teaching materials and technology that oftentimes benefitted non-PUPP students. All of these resources are provided at no cost to the partner high schools, other than the agreement to let PUPP use school space for academic enrichment sessions and to help PUPP identify potential applicants.

Other Princeton University Preparatory Program Supports for Non-Princeton University Preparatory Program Scholars

Our findings indicate that PUPP staff often do what they can to support high-achieving students who are not enrolled in PUPP. In some cases, they will provide lists of summer reading materials for students in AP courses to help them prepare for the upcoming school year. They will share the names of PUPP applicants who did not fully meet the enrollment criteria so that high school staff can encourage these students to enroll in a college access program operated by a local community college. PUPP staff members often participate in local high school college information sessions for students and parents, providing their expertise and advice to the broader school population.

Increased Rigorous Course Offerings

Partner high school staff described how PUPP has contributed to an increase in the number of rigorous courses offered at their schools simply by increasing the demand for these courses. Demand among PUPP scholars, and potentially among their friends as a result of spillover, has been strongest in the areas of mathematics, science, AP, and dual-credit courses.

Improved External Relations

High school principals spoke of how PUPP adds value to their schools by providing opportunities for their high-achieving, low-income students to connect with similarly high-achieving students and with the more affluent community of Princeton. Principals and guidance counselors described being proud to have students, in particular PUPP alumni, attending selective colleges, including Ivy League colleges like Princeton University. They boast about having students attend such selective colleges and universities. Some principals noted that they did not have many students doing so prior to their partnership with PUPP.

Overall, PUPP partner high school staff are satisfied with PUPP. The only change they suggest is for PUPP to accept more students from their schools, including slightly less highly achieving students who, they suggest, still have strong potential for success in PUPP and beyond.

Princeton University Preparatory Program's Role at and Contribution to Princeton University

PUPP is formally housed within the Princeton University Program in Teacher Preparation (Teacher Prep), a teaching certificate program open to all Princeton University undergraduate and graduate students and alumni. The Program in Teacher Preparation places student teachers in the PUPP partner high schools, and other local public and private schools, for their in-school teaching experience. One of the qualities of Teacher Prep that transfers to the work with PUPP is the importance of understanding learning and teaching and how to apply these skills in a variety of professional settings. Teacher Prep works with local high schools ranging from those in the Trenton Public School District to the Lawrenceville School, an elite private day and boarding school located in Lawrenceville, New Jersey.

While Princeton University funds or operates several programs to support disadvantaged youth from the low-income communities in Mercer County, where it is located, PUPP is unique among them as an intensive and high-touch college preparation program for low-income, high-achieving young people. As we noted earlier, stakeholder interviews and survey and focus group findings confirmed that PUPP aims to support the holistic development of its PUPP scholars, which makes it unique among programs supported by Princeton University. PUPP is also unique in that it operates as a laboratory college access program, in which practices have been developed, tested, and refined over the years of the program.

PUPP was designed to leverage the resources of Princeton University to help alleviate some of the challenges faced by poor families in the communities surrounding the university. As noted previously, it was designed by professor of sociology Miguel Centeno and Dr. John Webb, former director of Teacher Prep, as a way to enable the university to improve the academic and life outcomes of low-income students with great academic potential. This remains its primary role within Princeton University to this day.

Many key PUPP stakeholders emphasized that PUPP should continue to do what it does well, which is to help prepare students to enroll and succeed in the colleges that are the best fit for them. At the same time, a small minority of Princeton University administrators believe that PUPP should focus more on preparing students to attend Princeton University in particular, to enhance the pipeline of first-generation and low-income students into Princeton.

Sharing Lessons Learned: Princeton University Preparatory Program as a Model College Access Program

PUPP leaders have previously presented information about PUPP, and their lessons learned, at conferences, including those of the National College Access Network and the National Association for College Admissions Counseling. Further dissemination efforts may enable them to reach a broader audience. Moreover, while PUPP leaders have provided technical support to other institutions that have started or reframed college access initiatives, including Washington University in St. Louis, Elon University, Northwestern University, and Rutgers University, and even hosted a national conference on lessons learned from PUPP, with the necessary support and resources, they could expand their technical assistance efforts to support other colleges and universities.

In interviews, Princeton University administrators emphasized that PUPP should serve as a model college access program. As the leaders of a model program, interviewees suggested, PUPP leaders should expand their efforts to disseminate lessons learned through their years of implementing and refining its various activities. Such efforts may include additional publications for higher education and college access practitioners as well as additional presentations at national and local college access conferences.

Another way Princeton University stakeholders feel PUPP should share lessons learned is through partnerships with other Princeton University programs and departments. In interviews, several stakeholders described PUPP leaders, and the PUPP director in particular, as uniquely positioned to advise Princeton University faculty and administrators on how to support first-generation students, due to their deep connections with local communities and well-developed understanding of the challenges posed by growing up in poverty. PUPP leaders could expand their efforts in this area through deeper partnerships with university organizations serving first-generation students.

Benefits to Graduate Students Who Teach in Princeton University Preparatory Program

The PUPP faculty include Princeton University graduate students from various departments, including sociology and English. In interviews, former and current PUPP faculty members credited PUPP with helping them to understand how to work with students and providing opportunities for them to hone their teaching strategies in a supportive environment. They explained that their experiences teaching in PUPP enabled them to work closely with students and learn how to really personalize teaching to meet their individual needs. They noted that this experience personalizing their teaching emphasized for them the high value of such an approach. Faculty also described the advantage of an extended support network of peer teachers with which they plan and refine lessons, devise student groupings, and discuss student needs and strategies to address them. As one teaching fellow explained,

the effectiveness of this has encouraged me to make more time during class to individualize teaching, such as by conferencing one-on-one with students. I also often separate the class into groups based on topic comfort and then try to work closely with students who are struggling. Additionally, during the summer we are not pressed to cover a curriculum, so we are able to take advantage of teachable moments, to delve deeper into topics, do many hands-on activities, and to have a more flexible schedule. Despite having a set curriculum throughout the school year, I try to take advantage of every opportunity to do the same.

How Princeton University Preparatory Program Is Viewed on Its Own and in Relation to Peer Programs on College Campuses Where Princeton University Preparatory Program Students Enroll and Graduate

Colleges and Universities Princeton University Preparatory Program Scholars Attend Have Positive Views of the Princeton University Preparatory Program and Alumni

According to interviews with staff at colleges and universities attended by PUPP alumni, PUPP is viewed positively by those who are aware of the program. Interviewees, including staff in admissions offices, financial aid, student support services, and multicultural affairs, had different levels of familiarity with PUPP and with PUPP alumni on campus. Those who were familiar with the program suggested it may competently prepare PUPP scholars to succeed in college. One admissions officer noted, “I think PUPP does a really good job of having prepared students to be able to succeed in the context of their high school, which is often a great indicator for them to be able to really challenge themselves at [university].” They noted that PUPP alumni are more willing and able to access college resources than other first-generation college students who did not go through PUPP. Many college staff members also expressed gratitude for their positive relationships with PUPP staff, including the PUPP college counselor.

Several interviewees also noted that PUPP does a good job of ensuring students’ applications are complete. The same admissions officer stated, “They tend to be really good about ensuring that students, when they really are applying to [university], have everything that they are required to have, which sometimes for our students who are not affiliated with CBOs [community-based organizations], we sometimes struggle with.”

The small number of PUPP alumni at each school tended to be described as successful and as leaders among their peers. Interviewees described alumni who became leaders of student organizations. One described a PUPP alumnus who started a new student organization for low-income students, while another described an alumnus who led the development of a strategic planning process for support services for racial and ethnic minority students. One admissions officer explained it thus:

I’m looking at the list of our PUPP kids. I see tour guides on this list. I see a resident advisor on this list already. I see co-leadership in terms of Comunidad Latina already. I think the help of PUPP really gives them the academic boost that they need to jump into a place like [university] and just hit the ground running.

Some interviewees were not familiar with the components of the PUPP model, particularly the focus on cultural experiences and support for social–emotional skills. However, when they learned about these components, they tended to comment on their importance for college success. Many of those who were not familiar with PUPP suggested that PUPP should increase its efforts to market itself to college staff. Interviewees also suggested that PUPP should expand supports for alumni and share lessons learned with the field more broadly.

Colleges and Universities Would Like More Information About the Princeton University Preparatory Program

Staff at several colleges and universities attended by PUPP alumni suggested that PUPP could provide additional marketing materials, including statistics on PUPP outcomes, to increase awareness of PUPP within college offices that may support PUPP students. Student support services staff noted that their lack of awareness of PUPP may signal that PUPP alumni are faring well in college. However, more information about the program, including possible ways they may support alumni, may help PUPP alumni succeed while increasing PUPP's profile at colleges attended by alumni. Furthermore, it may help university staff publicize that they partner with successful programs to support first-generation and low-income college students. As one college admissions officer explained, "it wouldn't be uncommon for PUPP to be mentioned on the floor to the board of trustees that these are examples of how we get where we're going. Good partnerships are strong vehicles to take us there." He went on to note that they credit PUPP with increasing diversity at his college.

Expand Supports for Alumni

In interviews, many target college staff members highlighted how important it is that PUPP and other college access organizations maintain relationships with alumni throughout their college years and beyond. These key PUPP stakeholders agreed that PUPP should help alumni address any obstacles to college success, and they also suggested that PUPP should expand the supports it currently offers to alumni. Several target college staff members suggested that PUPP should develop a more formal mentoring program for alumni, similar to what is offered at some colleges and universities by other college access programs, which connect participants with a cohort of similar peers to increase the likelihood of college success. However, we should note that the peer programs may significantly differ in scale and budget and in requirements for participation from college and university staff.

Target college staff members suggested that PUPP should focus on continuing to support PUPP scholars through their college years and, where possible, to connect them to a supportive community on campus at their respective colleges. One option may be to connect them to other PUPP alumni on the campus, in cases where they have not already done so. Other options may include ensuring PUPP alumni are aware of student organizations and resources for first-generation and low-income students on their campus, such as those provided by student support services departments. As alumni focus group findings document, PUPP has provided these types of supports for some alumni. PUPP may need additional resources and staff to be able to provide them to all alumni throughout the college years, and potentially beyond.

Some target college staff members suggested that PUPP should also keep them apprised of any challenges PUPP alumni face. This is already occurring in some cases; however, the types of supports referred to previously could be provided more systematically across target colleges. PUPP leaders and staff concur that alumni may be better helped by a more structured and consistent alumni program, including regular check-ins and mentoring. One challenge PUPP staff have noted is insufficient staff to operate an expanded alumni support program.

Share Lessons Learned With the Field

Several target college staff members suggested, as Princeton administrators did, that PUPP should increase its efforts to disseminate its knowledge of best practices in college access programs to the broader field. Several target college staff members noted that PUPP has helped them to think more about how to best support first-generation college students on their campuses. They suggested that PUPP staff could share these strategies with other colleges and universities. PUPP could communicate its lessons learned to the broader field of colleges and universities, going beyond those it has so far reached through its work as well as through its membership in national college access and admissions organizations.

Current Data Management and Analysis Procedures

Data collection has been a central practice of PUPP for many years. Each year PUPP collects a wealth of data on its PUPP scholars, both academic and nonacademic (see Figure 7). Nonacademic data are collected through the PUPP application and accompanying teacher recommendations (for incoming PUPP scholars) and through PUPP surveys and self-assessments administered to PUPP scholars at the beginning and end of each summer school. PUPP leaders also

PUPP Non-Academic Data Collection—Class of 2015

Applying to PUPP	10 th Grade	11 th Grade	12 th Grade	Bridge to College
<ul style="list-style-type: none"> • Student application • Teacher recommendation • Computer inventory at start of program 	<ul style="list-style-type: none"> • New scholar survey • PUPP summer inst. – End of summer scholar self -assessment • Summer inst. evaluations • Faculty interim & end of inst. course evaluation • College visit feedback 	<ul style="list-style-type: none"> • Returning scholar survey • PUPP summer inst. – end of summer scholar self-assessment • Summer inst. evaluations • Faculty interim & end of inst. course evaluation • College visit feedback 	<ul style="list-style-type: none"> • Returning scholar survey • PUPP summer inst. – end of summer scholar self-assessment • Summer inst. evaluations • Faculty interim & end of inst. course evaluation • College visit feedback • College applications, acceptances, matriculation plans • College essays • Financial aid—applications and awards 	

PUPP Academic Data Collection—Class of 2015

Applying to PUPP	10 th Grade	11 th Grade	12 th Grade	Possible College
<ul style="list-style-type: none"> • GPA • NJ ASK test scores 	<ul style="list-style-type: none"> • GPA • Academic rigor • C&CR • PSAT/NMSQT &/ PLAN • AP • SAT Subject 	<ul style="list-style-type: none"> • GPA • Academic rigor • C&CR • PSAT/NMSQT &/ PLAN • SAT &/ ACT • AP • SAT Subject 	<ul style="list-style-type: none"> • GPA • Academic rigor • C&CR • PSAT/NMSQT &/ PLAN • SAT &/ ACT • AP • SAT Subject 	<ul style="list-style-type: none"> • College enrollment • Major field • Degree earned

Figure 7 Academic and nonacademic data collected by Princeton University Preparatory Program (class of 2015 used as an example).

collect a large amount of information via course evaluations, completed both by PUPP scholars and by faculty, and college visit feedback forms, completed by PUPP scholars after each college visit. PUPP entry and returning scholar surveys gather data on PUPP scholars’ demographic characteristics; their knowledge of the college application process; their goals for their participation in PUPP; their plans for postsecondary education and careers, if any; and their perceptions of how PUPP has affected them.

PUPP staff also collect a large amount of data on students’ academic achievements and progress, including transcripts, GPAs, Advanced Placement examination scores, and college entrance examination scores. Many of these data are also collected for students who applied for but were not accepted into PUPP, to enable comparative analyses of the high school outcomes of PUPP and similarly high-achieving students. PUPP also informally tracks alumni’s college enrollments and academic majors, as well as degrees earned. Data are housed in Microsoft Excel files or in hard copy paper files.

Currently the academic data collected on PUPP scholars are used to track their progress during high school and into college. PUPP staff monitor students’ high school GPAs and course-taking patterns to ensure that students will be qualified for admittance into a selective college or university. If they find that students are not performing well academically or are not choosing sufficiently rigorous courses, such as AP courses, they will provide academic skills supports or counsel the student to take more rigorous courses and offer academic supports to help the student perform well in these courses. Similarly, PUPP staff aim to monitor PUPP alumni course enrollments and decisions on degree majors and gather anecdotal information on college experiences to enable PUPP staff to provide supports to help alumni address any challenges that may prevent alumni from completing their degrees. However, these efforts are largely aspirational at this point.

Some of the nonacademic data collected by PUPP are used to inform planning for program adjustments or improvements. These data include course evaluations from PUPP scholars and faculty. Other nonacademic data, such as student perceptions of how PUPP affects them and students' reports of their college and career plans, are reviewed to inform program planning and individual advising. Finally, documentation of students' college applications, acceptance letters, and financial aid offers is reviewed to enable the PUPP counselor to provide guidance on college and university enrollment decisions.

Although all of these data provide valuable information to inform PUPP's student advising and support efforts, and to inform programmatic adjustments, there remains an untapped potential for more sophisticated data management and student tracking and outcomes analysis efforts. Such a database could provide a source for richer understanding of PUPP Scholar experiences and outcomes, which may enable more informed program planning as well as dissemination of lessons learned to others in the college access field.

Princeton University Preparatory Program Results and Their Alignment With Program Goals

Scholar Demographic Profile

Since 2001, 349 students have been selected to become PUPP scholars (see Table 2). Among PUPP scholars who have completed the program or who are currently active ($N = 319$), 61% are female and 39% are male. A majority of these scholars are non-White. Forty-five percent identify as Black or African American, 33% as Hispanic or Latino, 7% as Asian, 5% as multiracial, and 9% as White. Approximately half (50%) of the PUPP scholars are from the two partner high schools located in Trenton. Another 19% are from Ewing High School, 14% are from Princeton High School, 9% are from Nottingham High School (added in 2009), and 8% are from Lawrence High School (also added in 2009). Throughout the implementation of PUPP, graduating cohort sizes ranged from 16 to 24.

Ninety-one percent of PUPP's recruited PUPP scholars have remained in the program, while 9% of those students did not complete the program. Compared to noncompleters, similar percentages of those remaining in the program are Black and Asian. Hispanic/Latino PUPP scholars are slightly more likely to remain in the program (33% compared to 27%), and noncompleters are more likely to be White (20% compared to 9%). It appears that noncompleters were more likely to be from Cohorts 2006, 2009, and 2014 (attrition rates were approximately 20% for these cohorts), White (attrition rate is 17% compared to 9% average), and from Princeton or Trenton Central High School (attrition rates are 12% and 11%, respectively). PUPP attrition for male PUPP scholars is twice the rate for female PUPP scholars (12% compared to 6%). It is possible that U.S. citizens are more likely to remain in PUPP; however, missing citizenship data makes it difficult to draw any conclusions on this difference.

Academic Accomplishments

PUPP provided ETS with transcripts for 98% (243 out of 248) of the PUPP scholars from Cohorts 2004–2015. ETS conducted data entry and analysis of the transcripts to look at GPA and AP course-taking patterns. PUPP also provided ETS with test score data in multiple formats—paper copies, Excel spreadsheets, and PDF score reports. ETS created data files for each of the four tests: AP exams, SAT Subject Tests, ACT exams, and SAT exams. In the case of ACT and SAT exams, when students took an exam multiple times, ETS used the highest score for each section, across all exams completed (this practice is commonly referred to as “superscoring”), to form the highest possible composite score.

Grade Point Average

ETS converted all final GPAs to a 4.0 scale using the National Assessment of Educational Progress guidelines from the High School Transcript Study (National Center for Education Statistics, 2011). For high schools that provided weighted and unweighted GPAs, we used the unweighted GPA data. On average, PUPP scholars achieved a 3.27 GPA (see Table 3). The 2015 college-bound seniors population who took the SAT reported earning a mean GPA of 3.39 (College Board, 2015b).

Table 2 Princeton University Preparatory Program Scholar Profile

	Current scholars and alumni		Noncompleters ^a		Total	Attrition rate (%)
	<i>N</i>	%	<i>N</i>	%		
Totals	319		30		349	9
Gender						
Female	196	61	13	43	209	6
Male	123	39	17	57	140	12
Missing						
Race/ethnicity						
Asian	22	7	2	7	24	8
Black/African American	144	45	14	47	158	9
Hispanic/Latino	105	33	8	27	113	7
Multiracial	16	5			16	
Other	1	0			1	
Pacific Islander/Native Hawaiian	1	0			1	
White	30	9	6	20	36	17
Citizenship						
U.S. citizen	303	95	25	83	328	8
Non-U.S. citizen	14	4	1	3	15	7
Missing	2	1	4	13	6	67
High school						
Ewing High School	62	19	5	17	67	7
Lawrence High School	24	8	2	7	26	8
Nottingham High School	29	9			29	
Princeton High School	44	14	6	20	50	12
Trenton Central High School	113	35	14	47	127	11
Trenton West High School	47	15	3	10	50	6
Graduating cohort						
2004	22	7	1	3	23	4
2005	17	5	3	10	20	15
2006	16	5	4	13	20	20
2007	19	6	2	7	21	10
2008	23	7	1	3	24	4
2009	20	6	5	17	25	20
2010	20	6	3	10	23	13
2011	22	7	2	7	24	8
2012	21	7	3	10	24	13
2013	24	8			24	
2014	21	7	5	17	26	19
2015	23	7	1	3	24	4
2016	23	7			23	
2017	24	8			24	
2018	24	8			24	
Alumni status						
Alumni (2004–2015)	248	78	30	100	278	11
Current students	71	22			71	

Note. *N* = 349.

^aOf the 30 noncompleters, 15 withdrew, 13 were dismissed by PUPP, and two moved out of the region/out of state.

AP Course Taking and Exam Performance

Our analysis found that 80% (*n* = 194) of PUPP scholars from Cohorts 2004–2015 for whom we had a transcript took an AP course while in high school (see Table 4). Their enrollment spanned 27 AP subjects,¹² with the most popular courses being English Literature and Composition (*n* = 124), Calculus AB (*n* = 78), U.S. History (*n* = 69), English Language and Composition (*n* = 51), and Biology (*n* = 41). In total, PUPP scholars took 560 AP classes, averaging more than 2 (2.3) courses per person.

Obtaining data on PUPP scholars' AP testing taking and their performance on the AP exams was challenging. None of the partner high schools listed AP scores on their transcripts. PUPP compiled AP data for ETS from multiple sources: AP

Table 3 Princeton University Preparatory Program Scholar Transcript Status and Average Grade Point Average

Cohort	Have a transcript	Average grade point average
2004	19	3.26
2005	17	3.29
2006	16	3.13
2007	19	3.37
2008	23	3.52
2009	20	3.40
2010	19	3.32
2011	22	3.32
2012	21	3.14
2013	23	3.17
2014	21	3.10
2015	23	3.17
Total	243	3.27

Note. $N = 243$.

score reports from students and guidance counselors. Another complicating factor in obtaining AP data was that students who take exams in their senior year receive score reports after they graduate from high school. In the end, we had data for 21% ($n = 40$) of PUPP scholar AP participants who took an exam for their AP courses.

The 41 PUPP scholars for whom we had AP exam data took 71 AP exams. They took exams in 19 subjects, with English Language and Composition ($n = 17$), U.S. History ($n = 17$), Biology ($n = 5$), and Spanish Language and Literature ($n = 5$) being the most popular subjects. This exam-taking pattern mirrors the national pattern of AP test taking. In 2015, English Language and Composition and U.S. History were the two most popular tests taken (College Board, 2016a).

Research has consistently shown that students who score a 3 or higher on an AP exam, when compared to their matched peers, earn higher GPAs in college, perform as well or better in subsequent college courses in the discipline, are more likely to graduate within 5 years, and have higher graduation rates (College Board, 2014a). Among those AP exams taken, a majority (69%) were scored well enough (3 or higher) for colleges in which students enroll to possibly award college credit and/or placement into higher level courses, depending on the AP score achieved. In total, 30% of the AP exams taken by PUPP scholars were scored as 3, 31% were scored 4, and 8% were scored 5. While not an official reporting from College Board, our analyses found that six PUPP scholars may have met the criteria for being awarded an AP scholar designation, and one PUPP scholar may have met the criteria for being awarded the AP scholar with honors designation (College Board, 2016b).

Over the last decade, many states, including New Jersey, have made improvements in student access to and performance on AP end-of-course examinations (College Board, 2014a, 2014b). PUPP scholar AP exam-taking rates and scores are highly similar to the New Jersey averages for low-income students. In 2013, 13.3% of low-income students in New Jersey took an AP exam, with 9.7% of low-income students (or 73% of exam takers) scoring a 3+. AP exam participation and performance rates are comparably lower for Black or African Americans than for low-income students as a whole in New Jersey (6.3% participation, with 57% of those test takers earning a 3+; College Board, 2014b). The data on PUPP participation for African American scholars suggest that they may be performing above this average.

SAT Subject Tests

SAT Subject Tests are a common admissions tool for more competitive colleges. They are voluntary 1-hour, multiple-choice college admissions exams that test high school–level knowledge in general subject areas: English, history, languages, mathematics, and science.¹³ Students elect which subjects to take, and a majority of SAT Subject Test test takers complete more than one test.

Since PUPP began, 99 scholars have taken 229 SAT Subject Tests (see Table 5). Ninety-seven percent of PUPP scholars who took SAT Subject Tests took more than one. Among PUPP scholars, Math Level 1 and English Literature were the most common SAT Subject Tests taken. Scores ranged from 370 to 800 on these exams, with the median PUPP scholar score being 607.5. While mean scores vary by subject test, the 50th percentile score ranges from 620 to 680 for the literature, history and social studies, mathematics, and science SAT Subject Tests (College Board, 2015c). This means that the

Table 4 Princeton University Preparatory Program Scholars AP Course Taking and AP Exam Performance, Cohorts 2004–2015

AP subject	AP course taking in high school					AP score (average and on the 5-point scale)				
	10	11	12	Total	Average score	1	2	3	4	5
Art History	0	0	3	3	4.00				1	
Biology	0	20	21	41	2.83		1	4		
Calculus AB	0	5	73	78	3.67			2		1
Calculus BC	0	6	14	20	4.00				1	
Chemistry	0	11	16	27	2.75	1	1	1		1
Chinese Language and Culture	0	0	1	1						
Computer Science A	0	0	1	1						
English Language and Composition	0	46	5	51	2.29	3	8	4	2	
English Literature and Composition	0	0	124	124	3.00		1	2	1	
Environment Science	0	5	4	9	4.00				1	
European History	2	7	8	17	2.67	1		1	0	
French Language and Culture	0	1	9	10	2.00		1			
Japanese Language and Culture	0	0	2	2						
Latin	0	0	1	1	1.00	1				
Macroeconomics	1	7	3	11	4.00				1	
Microeconomics	1	6	3	10	4.00				1	
Music Theory	0	0	1	1						
Physics 1: Algebra-Based	0	0	4	4						
Physics 2: Algebra-Based	0	0	3	3						
Physics C: Mechanics	0	0	2	2	4.00				1	
Spanish Language and Culture	0	2	5	7	4.40				3	2
Spanish Literature and Culture	0	1	0	1						
Statistics	0	1	7	8	3.50			0	1	
Studio Art: Drawing	0	0	2	2						
U.S. Government and Politics	0	2	22	24	5.00					1
U.S. History	21	19	29	69	3.28	2	1	5	8	1
World History	0	25	3	28	2.75	1		2	1	
Grand total	25	164	366	555		9	13	21	22	6

Note. $N = 243$. PUPP scholars who took more than one AP course or AP test are counted more than once.

PUPP scholars are on average scoring slightly below the 50th percentile on these tests, which in part may be based on the competitiveness of the elite universities that use these tests and their typical applicant pool.

ACT Exam Performance

Historically, the SAT dominated the East Coast and relatively few students took the ACT assessment. Around 2012, this pattern started to change, and the ACT has since been rising in prominence. Another pattern that has been occurring is for students to take both the ACT and the SAT, with the notion that students will leverage their best test performance.

One hundred thirty-five PUPP scholars have taken the ACT college entrance examination (see Table 6). Their average score is 23, with a minimum score of 13 and a maximum of 34 out of 36. The average PUPP score is slightly higher than the 2015 national average ACT score of 21 and comparable to the New Jersey average of 23 (ACT, 2015). The average PUPP ACT score is higher than the averages for Black/African American (17) and Latino/Hispanic (19) ACT test takers (Tyson, 2014). One of the limitations of the data reported to ETS is that many of the ACT data were composite scores only, and the information on the four ACT subscores (English, Reading, Mathematics, and Science) was not reported. The ACT College and Career Readiness benchmarks rely on the full ACT profile; therefore we could not use them to indicate levels of ACT College and Career Readiness.

SAT Performance

All current and former PUPP scholars who completed the program have taken the SAT examination. Of the 248 alumni who completed the program, data are available for 208 PUPP scholars from PUPP Cohorts 2004–2015 (see Table 7).

Table 5 Princeton University Preparatory Program Scholars SAT Subject Test Test Taking and Performance, Cohorts 2004–2015 and 2015 SAT Subject Test Takers

	PUPP scholars			SAT Subject Test test takers ^a		
	<i>N</i>	Mean	<i>SD</i>	<i>N</i>	Mean	<i>SD</i>
English						
English Literature	41	553	86	56,594	618	107
English Writing ^b	13	572	101			
History and Social Studies						
U.S. History	28	596	162	70,298	645	102
World History	6	548	110	16,657	618	106
Mathematics						
Math Level I	54	569	171	65,319	619	102
Math Level IC ^c	14	609	68			
Math Level II	18	659	74	144,772	690	96
Math Level IIC ^d	5	628	113			
Science						
Biology ^e	7	556	93			
Biology: Ecological	3	473	59	31,027	625	105
Biology: Molecular	2	535	7	42,253	652	103
Chemistry	14	660	81	73,551	666	102
Physics	2	620	28		667	105
Languages						
Chinese With Listening	2	715	7	5,204	759	66
French	4	485	124	7,587	636	122
Japanese With Listening	1	590		1,332	694	120
Spanish	14	619	149	19,302	651	111
Spanish With Listening	1	730		2,982	665	106
Total	229	598				

Note. *N* = 99.

^aTests are scored on a 200–800 scale. These are mean scores for students who took SAT Subject Tests and the SAT. ^bEnglish Writing is no longer offered. ^cMath Level IC is now Math Level I. ^dMath Level IIC is now Math Level II. ^eETS was not able to determine which biology test the student took.

Table 6 Princeton University Preparatory Program Scholars ACT Test Taking and Performance, Cohorts 2004–2015

PUPP cohort	No. took test	Average no. time took test	Mean	<i>SD</i>
2004	1	1	21	
2005	1	1	21	
2006				
2007	3	1	28	0
2008	15	1	22	3
2009	9	1	23	6
2010	20	1	21	4
2011	22	2	22	5
2012	21	1	23	4
2014	21	2	24	3
2015	22	2	25	3
Total	135	1	23	4

Note. *N* = 135. Owing to variations in the availability of the scores for the four sections on the ACT test, we are reporting on the composite score.

Although all 248 program completers took the SAT, score data were not consistently collected by PUPP until the 2008 cohort. The mean PUPP superscore for Critical Reading is 544, for Mathematics is 563, and for Writing is 554. These scores are above the 2015 national means of 495, 511, and 484, respectively (College Board, 2015a) and the 2015 New Jersey means of 500, 521, and 499, respectively (see Table 8; College Board, 2015a). PUPP scores are well above the means for

Table 7 Princeton University Preparatory Program Scholars SAT Test Taking and Performance, Cohorts 2004–2015

Cohort	No. took SAT	Critical Reading		Mathematics		Writing ^a	
		Mean	SD	Mean	SD	Mean	SD
2004	8	631	89	643	76		
2005	9	548	68	554	93		
2006	6	618	97	627	102	643	99
2007	11	551	63	598	99	576	82
2008	23	520	102	563	96	539	103
2009	20	538	108	553	91	563	112
2010	20	470	82	505	76	488	73
2011	22	517	104	544	90	544	105
2012	21	568	90	551	86	560	96
2013	24	603	77	608	80	579	84
2014	21	555	62	572	71	560	75
2015	23	560	62	572	81	573	82
Total	208	544	92	563	90	554	97

Note. $N = 208$. Scores were superscored.

^aThe Writing section was introduced in 2006.

Table 8 Princeton University Preparatory Program Scholars SAT Test Performance Compared to the National 2015 College-Bound Senior Population and the New Jersey 2015 College-Bound Senior Population

Cohort	No. took SAT ^a	Critical Reading		Mathematics		Writing	
		Mean	SD	Mean	SD	Mean	SD
PUPP profile (Cohorts 2006–2015)	191	549	93	567	89	555	95
National profile							
All test takers	1,698,521	495	116	511	120	484	115
Public school	1,332,096	498		498		475	
Family income							
\$0–\$20,000	140,801	433	104	455	116	426	101
\$20,000–\$40,000	165,091	466	102	479	110	454	100
Parent's highest level of education: High school diploma	437,989	461	99	471	106	448	97
New Jersey profile							
All test takers	85,021	500	116	521	120	499	118
Public school	73,597	495		518		494	
Family income							
\$0–\$20,000	5,184	417	102	441	105	416	97
\$20,000–\$40,000	6,172	458	102	480	107	455	102
Parent's highest level of education: High school diploma	23,112	459	99	478	104	455	99

Note. Standard deviations were not provided for test takers who attended public high schools.

^aSAT test score data are available for 191 PUPP scholars from Cohorts 2006–2015. Because the Writing test was added in 2006, scores for this test portion were not available for PUPP scholars from the 2004 and 2005 cohorts.

Black (431, 428, 418), Mexican (448, 457, 438); Puerto Rican (456, 449, 442) or other Hispanic, Latino, or Latin American (449, 457, 439); and low-income¹⁴ test takers.

The average PUPP scholar's SAT score is 1,665 out of 2,400, which is above the 1,550 college readiness benchmark established by the College Board (2015b; see Table 9). The 2013, 2014, and 2015 cohorts showed a marked improvement in the proportion of PUPP scholars who scored as college and career ready, compared to earlier cohorts (not including the 2006 and 2007 cohorts). Though average PUPP SAT scores may not be completely competitive for elite colleges and universities—SAT subscores are between 655 and 800 for the most competitive colleges and universities, according to Barron's current college ratings (Barron's Education Series, 2016)—the scores are higher than one might expect considering the previously mentioned economic and racial disparities found in SAT scores.

Table 9 Princeton University Preparatory Program Scholars College and Career Readiness and SAT Performance, Cohorts 2004–2015

Cohort	No. took SAT	No. college and career ready ^a	2,400 scale ^b		1,600 scale	
			Mean	SD	Mean	SD
2004	8				1,274	131
2005	9				1,102	136
2006	6	5	1,888	276	1,245	185
2007	11	9	1,725	226	1,149	149
2008	23	12	1,621	274	1,083	181
2009	20	13	1,653	289	1,091	189
2010	20	6	1,463	203	975	139
2011	22	13	1,605	278	1,061	180
2012	21	11	1,676	251	1,119	166
2013	24	21	1,790	207	1,212	141
2014	21	16	1,687	169	1,127	114
2015	23	19	1,708	169	1,134	110
Total	208	125	1,665	248	1,116	166

Note. $N = 208$. Scores were superscored.

^aCollege readiness is defined as a combined score of greater than or equal to 1,550 out of 2,400. This cannot be assessed for students of 2004–2005 cohorts as the Writing section was introduced in 2006. ^bNote that SAT test score data are available for the Writing portion of the SAT for 191 PUPP scholars from Cohorts 2006–2015, and Mathematics and Critical Reading test scores are available for 208 students from Cohorts 2004–2015. Because the Writing test was added in 2006, scores for this test portion were not available for PUPP scholars from the 2004 and 2005 cohorts.

Postsecondary Enrollment and Degree Attainment

The NSC is a trusted third-party source of college enrollment and degree completion information. The NSC works with college access programs like PUPP to provide student-level data to track students' progress in college and graduate and professional schools. Like many organizations that deal with larger numbers of student records, certain data about individuals enhance the probability of matching records between students and the colleges where they enroll. The NSC requests that programs provide information such as students' names (first name, middle initial, last name, and suffix) and dates of birth to maximize the chances of correctly identifying target students. PUPP has this information for most of the students who completed the program. PUPP started collecting date of birth information on the PUPP application with the 2010 cohort. This has ramifications for our examination of the comparison groups' enrollment and degree attainment, as we only have sufficient data to analyze for cohorts from 2010 to 2015.

Limitations of National Student Clearinghouse Data Matching

There are two instances when the NSC may not be able to provide data on individual students (National Student Clearinghouse Research Center, 2015). The first is called a student-level block. This occurs when students exercise their rights through the Family Educational Rights and Privacy Act to block their educational records from being disclosed to the NSC. Three PUPP alumni blocked their records, and two members of the comparison group blocked their records. A second instance occurs when institutions invoke institution-level blocks. Although the NSC reports that institution-level blocks are rare (less than 1% of all student–institution combinations over a 3-year period), New Jersey presents a unique case. All three of the Rutgers campuses—New Brunswick, Camden, and Newark—have elected to exercise the institution-level block. Duke and Columbia Universities, both of which have served PUPP alumni, have also blocked their institutional data.

Princeton University Preparatory Program and Comparison Group Data Matching Rates

PUPP provided ETS with the file that it received from the NSC with data for the PUPP scholars and the comparison group. The PUPP scholar file included data for 80% of PUPP scholars from the 2004–2015 cohorts. These data were augmented with information on enrollment and degrees earned, provided by the PUPP director. Data provided by PUPP added another 19%. This left 1% of student records with no enrollment information. Given that four-fifths of the data

were provided by the NSC, we chose for these analyses to combine the NSC- and PUPP-provided data. The comparison group portion of the file included enrollment records for 61% of the 2010–2015 cohorts (see Table G1). PUPP was not able to supplement comparison group student records.

Undergraduate Enrollment and Degree Attainment

Ninety-nine percent of PUPP alumni for whom we have data ($n = 245$) have enrolled in college. We have initial college enrollment data for 238 scholars. Of these 238 scholars, 63% enrolled in a college or university ranked as most competitive, highly competitive+, or highly competitive (Barron's Education Series, 2016). Another 28% enrolled at very competitive+ or competitive colleges, as ranked by Barron's (see Appendix H for a list of Barron's rankings); 2% enrolled at 4-year or less college or university; and 7% enrolled at a 2-year school (see Table G2). Following is a list of colleges where PUPP alumni initially enrolled¹⁵:

- Allegheny College, PA
- Amherst College, MA
- Arcadia University, PA
- Brown University, RI
- Bryn Mawr College, PA
- Carnegie Mellon University, PA
- Chattahoochee Technical College, GA
- Colgate University, NY
- College of New Jersey, NJ
- College of Saint Elizabeth, NJ
- Columbia University, NY
- Cornell University–Endowed Colleges, NY
- Davidson College, NC
- Dickinson College, PA
- Drew University, NJ
- Drexel University, PA
- Duke University, NC
- Emory University–Oxford, GA
- Franklin and Marshall College, PA
- George Washington University, DC
- Georgetown University, DC
- Haverford College, PA
- Howard University, DC
- Johns Hopkins University, MD
- Kean University, NJ
- Kenyon College, OH
- Lafayette College, PA
- Lehigh University, PA
- Loyola University of Maryland, MD
- Mercer County Community College, NJ
- Middlebury College, VT
- Monmouth University, NJ
- Montclair State University, NJ
- Morehouse College, GA
- Mount Holyoke College, MA
- Muhlenberg College, PA
- New Jersey Institute of Technology, NJ
- New York University, NY

- North Carolina Agricultural and Technical State University, NC
- Occidental College, CA
- Pennsylvania State University–Main Campus, PA
- Pomona College, CA
- Princeton University, NJ
- Rice University, TX
- Rider University, NJ
- Rowan College at Burlington County, NJ
- Rowan University, NJ
- Rutgers University–Camden, NJ
- Rutgers University–New Brunswick, NJ
- Rutgers University–Newark, NJ
- Seton Hall University, NJ
- Smith College, MA
- Spelman College, GA
- Stevens Institute of Technology, NJ
- Stockton University, NJ
- Swarthmore College, PA
- Syracuse University, NY
- Temple University, PA
- Texas A&M University, TX
- Tulane University of Louisiana, LA
- University of California, Irvine, CA
- University of Massachusetts at Amherst, MA
- University of North Carolina at Chapel Hill, NC
- University of North Carolina at Greensboro, NC
- University of Notre Dame, IN
- University of Pennsylvania, PA
- University of Richmond, VA
- University of Rochester, NY
- Ursinus College, PA
- Vassar College, NY
- Villanova University, PA
- Wake Forest University, NC
- Washington University in St. Louis, MO
- Wellesley College, MA
- Wesleyan University, CT
- West Virginia University, WV
- William Paterson University of New Jersey, NJ

Overall, students who persisted in college remained enrolled where they first enrolled. Five percent ($n = 12$) of PUPP scholars transferred to another college. Although 42% of those who transferred moved to a less selective college, 33% made a lateral move with respect to college selectivity, and 25% transferred to a more selective college. Two of these students transferred a second time.

Prior to analyzing student success from the perspective of enrollment status and degrees earned, we elected to divide the alumni into two groups. The first group included alumni from Cohorts 2012–2015, for whom we assessed enrollment and graduation outcomes within 4 years (see Table G3). All (100%) alumni in Cohorts 2013–2015 were enrolled in college, according to the NSC data. Among those alumni in Cohort 2012, 5% ($n = 1$) had graduated, while 86% are still enrolled and 10% are not enrolled.

The second group for whom we analyzed enrollment and graduation outcomes included students from Cohorts 2004–2011, for whom enough time has elapsed that they could have earned a college degree in 4 or more years (see Table

G3). Among the alumni in this group, 72% have graduated from college, 9% are enrolled, and 19% are not enrolled. The majority of students who graduated earned a bachelor's degree, while a small minority (2%) earned an associate degree.

As of November 2015, 69% of the PUPP scholars from the 2004–2011 cohorts had earned a bachelor's degree—this includes students who transferred who earned a degree (see Table G3). Nationally, the 6-year graduation rate for students who start college at age 20 years or younger and are exclusively enrolled full-time at their starting institution is 68%. This rate increases to 80% if students completing their degree at different institutions are included in analyses (Shapiro et al., 2015).

When we considered degrees earned by institutional selectivity, we found that 62% of PUPP scholars earned degrees from colleges and universities classified as most competitive, 31% earned degrees from very competitive colleges, 4% graduated from 4-year or less colleges, and 3% graduated from a 2-year college (see Table G4). Following is a list of colleges and universities from which alumni graduated:

- Brown University, RI
- Bryn Mawr College, PA
- Carnegie Mellon University, PA
- Colgate University, NY
- College of New Jersey, NJ
- Columbia University, NY
- Cornell University–Endowed Colleges, NY
- Davidson College, NC
- Dickinson College, PA
- Drew University, NJ
- Drexel University, PA
- Franklin and Marshall College, PA
- George Washington University, DC
- Georgetown University, DC
- Haverford College, PA
- Howard University, DC
- Kean University, NJ
- Kenyon College, OH
- Lafayette College, PA
- Lehigh University, PA
- Loyola University of Maryland, MD
- Middlebury College, VT
- Monmouth University, NJ
- Montclair State University, NJ
- Mount Holyoke College, MA
- Muhlenberg College, PA
- New York University, NY
- North Carolina Agricultural and Technical State University, NC
- Occidental College, CA
- Pennsylvania State University–Main Campus, PA
- Princeton University, NJ
- Rice University, TX
- Rider University, NJ
- Rowan University, NJ
- Rutgers University–New Brunswick, NJ
- Rutgers University–Newark, NJ
- Seton Hall University, NJ
- Smith College, MA
- Stevens Institute of Technology, NJ

- Stockton University, NJ
- Syracuse University, NY
- Texas A&M University, TX
- Thomas Edison State College, NJ
- Tulane University of Louisiana, LA
- University of California, Irvine, CA
- University of North Carolina at Chapel Hill, NC
- University of North Carolina at Greensboro, NC
- University of Notre Dame, IN
- University of Pennsylvania, PA
- University of Phoenix, AZ
- University of Richmond, VA
- University of Rochester, NY
- Ursinus College, PA
- Vassar College, NY
- Villanova University, PA
- Wake Forest University, NC
- Wesleyan University, CT
- West Virginia University, WV
- William Paterson University of New Jersey, NJ

Graduate and Professional School Enrollment and Degree Attainment

The NSC also provides graduate and professional school enrollment data. To date, 30% of PUPP alumni who earned a bachelor's degree have enrolled in a graduate or professional degree program (see Table G5). Following is a list of colleges and universities in which PUPP alumni enrolled in graduate or professional degree programs:

- American University, DC
- Boston University, MA
- Brown University, RI
- Bryn Mawr College, PA
- CUNY Hunter College, NY
- George Washington University, DC
- Harvard Kennedy School of Government, MA
- Keller Graduate School of Management, CA
- Princeton University, NJ
- Rowan University, NJ
- Rutgers University – Biomedical, NJ
- Rutgers University – Camden, NJ
- Rutgers University – New Brunswick, NJ
- Salus University, PA
- Stanford University, CA
- SUNY University at Albany, NY
- Syracuse University, NY
- University of Chicago, IL
- University of Michigan Law School, MI
- University of Pennsylvania, PA
- University of Southern California, CA
- University of Texas Health Science – San Antonio, TX
- Virginia Polytechnic Institute and State University, VA
- Wake Forest University, NC
- William Paterson University of New Jersey, NJ

Master's degrees are the most commonly targeted graduate degree, with 45% of PUPP alumni with bachelor's degrees enrolling in master's programs, followed by law school (21%), medical school (15%), and other doctoral (3%) programs. The NSC was not able to provide program-level information on graduate enrollment for 15% of PUPP alumni who have enrolled in a graduate or professional degree program. As of November 2015, 58% of the alumni who enrolled in a graduate or professional degree program had earned their degrees (see Table G5). Following is a list of colleges and universities in which alumni earned their graduate or professional degrees; over half of the degrees earned were master's (53%), 26% were law degrees, and 21% were medical degrees:

- American University, DC
- Brown University, RI
- George Washington University, DC
- Keller Graduate School of Management, CA
- Princeton University, NJ
- Rowan University, NJ
- Rutgers University–Camden, NJ
- Rutgers University–New Brunswick, NJ
- Salus University, PA
- Stanford University, CA
- University of Michigan Law School, MI
- University of Southern California, CA
- Wake Forest University, NC

Princeton University Preparatory Program Scholars' Accomplishments Alongside the Comparison Groups' Accomplishments

Data on a comparison group have been collected for Cohorts 2008–2018. Our analyses focus on the 196 students in the PUPP comparison groups from Cohorts 2008–2015. One of the challenges in conducting comparative analyses is missing data. This occurred in several instances. Comparison students are more likely than PUPP scholars to have missing demographic information, such as gender (32%) and race/ethnicity (43%). There is a difference in the representativeness of the transcripts, with comparison group students being less likely than PUPP scholars to have a transcript on file. This constrains our ability to examine key academic outcome indicators provided by transcripts, such as GPA and AP course taking. We have no data on comparison group students' performance on AP exams, SAT Subject Tests, or the ACT, and we have SAT scores for only 16 comparison group students. In addition, analyses on the NSC data were constrained, as detailed earlier, preventing us from providing a more accurate depiction of the college outcomes of comparison group members.

From the data that were collected, it appears that comparison students were more likely to be female, less likely to be Black or African American, and less likely to come from Ewing or Princeton High School compared to PUPP scholars. Other differences between the comparison group and PUPP scholars are presented in the following sections, and a profile of the comparison group is provided in Appendix C (see Table C1).

Academic Performance

Differences in GPA and AP participation between PUPP scholars and the comparison group students were analyzed. The analysis of transcript data shows that PUPP scholars have higher average GPAs (see Table C2) and AP course participation rates than students in the comparison group (see Table C3). PUPP scholars who persisted in PUPP had an average GPA of 3.27, whereas the average comparison group student had a GPA of 2.84. PUPP scholars took just over 2 (2.3) AP courses, on average, while in high school, whereas comparison students took an average of 1.5 AP courses.

PUPP scholars and comparison students have taken a variety of AP courses over the last 15 years (see Table C4). Although this sample of advanced course taking is incomplete, these data show that PUPP scholars more often participated in any of the offered AP courses.

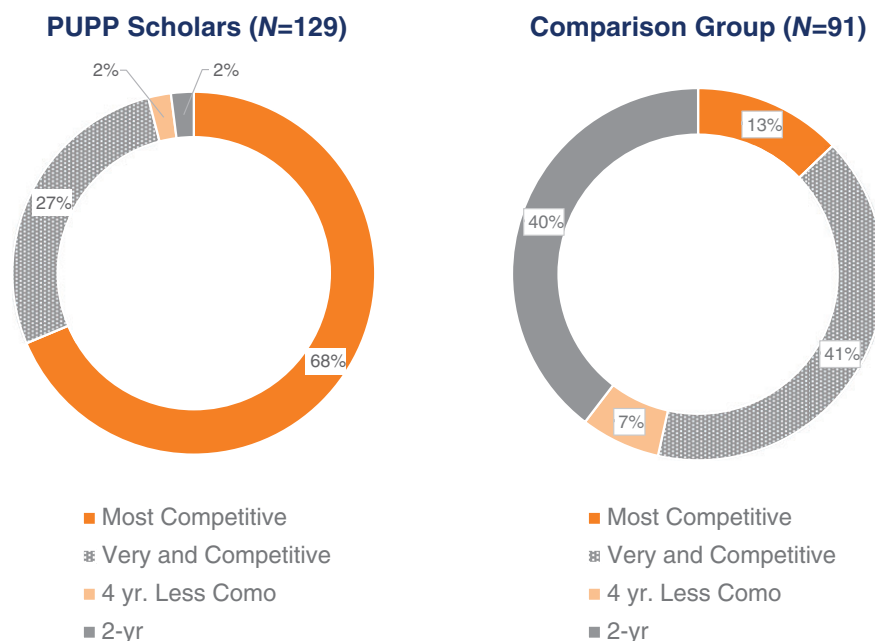


Figure 8 Princeton University Preparatory Program scholars and comparison group enrollment by selectivity (Cohorts 2010–2015), November 2015.

College Enrollment, Degree Attainment, and Postbaccalaureate Education

As noted previously, our ability to evaluate college enrollment and degree attainment, as well as graduate and professional school enrollment and degree attainment, is restricted by the limited number of cohorts for which data are available. The earliest comparison cohort for which NSC data are available is 2010. If students in this cohort began their pursuit of a bachelor's degree in fall 2010, their 4-year graduation rate would be calculated in 2014, and their 5-year graduation rate would be calculated in 2015. For the 2011 cohort, their 4-year graduation rate could be calculated in 2015. Given these time restrictions and the differences in the representativeness of the data for the PUPP scholars versus the comparison group, we caution readers not to make definitive conclusions when examining the patterns of enrollment and graduation.

The NSC data suggest that PUPP scholars from Cohorts 2010–2015 have a higher rate of enrollment in the most competitive colleges and universities than comparison group members (68% vs. 13%; see Table G6 and Figure 8). Conversely, PUPP scholars have a lower rate of enrollment at 2-year colleges and universities than their high school peers (2% vs. 40%).

We found differences in the enrollment status of PUPP scholars and their comparison group peers from Cohorts 2010 and 2011 as of November 2015. Fifty-seven percent of PUPP scholars had graduated from college as of November 2015, compared to 32% of their comparison group peers (see Table G7 and Figure 9). More comparison group students than PUPP scholars were classified as not enrolled in college at this time (32% vs. 19%).

Our examination of the limited data available on graduate and professional school enrollment and degree attainment suggests that a pattern of differential enrollment rates may be developing. We found that seven PUPP scholars are in graduate school, compared to only one comparison group member (see Table G9).

Results and Their Alignment With the Stated Goals of Princeton University Preparatory Program

Overall, PUPP alumni demonstrated college and high school outcomes indicative of strong academic performance. While not an ideal comparison group, the opportunity to compare PUPP outcomes with those of similarly high-achieving students who were not accepted to PUPP provides some evidence that PUPP may have helped scholars to achieve more than they would have without PUPP. PUPP scholars outperformed comparison groups of peers in all areas with data available.

The results of analyses of PUPP extant data, including the available comparison group data, indicate that PUPP is meeting its goals of preparing low-income, high-achieving high school students to enroll and succeed in colleges. Data on college outcomes, combined with firsthand accounts of alumni who volunteered for focus groups, indicate that PUPP may

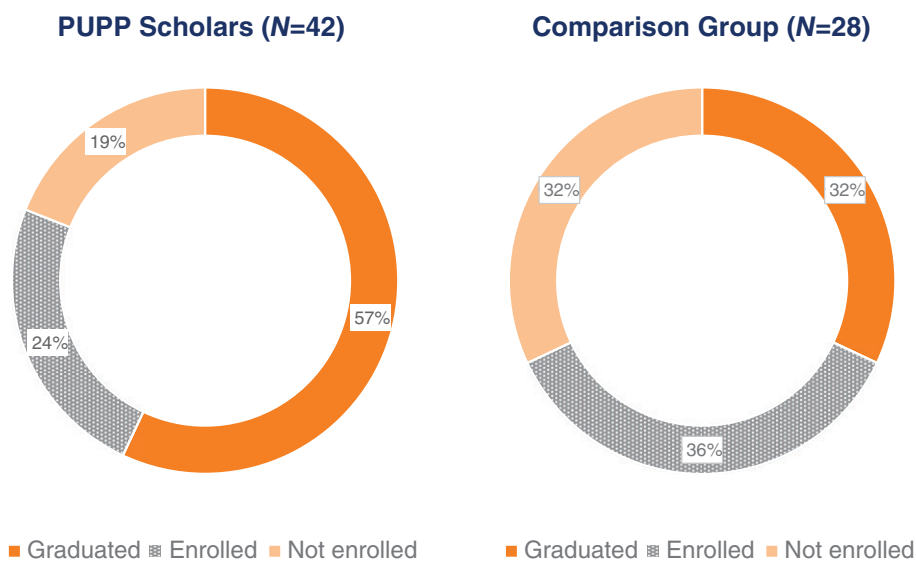


Figure 9 Princeton University Preparatory Program scholars and comparison group enrollment status (Cohorts 2010–2011), November 2015.

be helping students to attend college, whereas they may otherwise not have made it to college on their own. The data also indicate that PUPP is helping some students to attend more selective colleges than they might otherwise have attended, including 4-year rather than 2-year schools. The vast majority of PUPP alumni enrolled in college, and the majority of those alumni graduated from college. Most of those students who enrolled in selective colleges graduated as well. A few alumni transferred out of their selective colleges to a less selective college to be closer to home, ostensibly for personal reasons.

It may also be important to consider the possible successes within the nontraditional outcomes of PUPP alumni. Current and former PUPP teaching staff, in interviews, highlighted how PUPP has supported students through crises and how PUPP alumni had successful college outcomes even if they did not get into college right away or if they took time off from college due to an unintended pregnancy or to deal with family issues. These interviewees noted that PUPP still instilled valuable skills in the PUPP scholars that did not follow a traditional path to a 4-year college degree and that these PUPP scholars demonstrated leadership skills that may have been developed by PUPP.

Princeton University Preparatory Program as an Exemplar for Peer College Access Programs

Data and documentation collected and reviewed for the PUPP evaluation point to several features of the PUPP model that could be described as exemplary college access program practices. As noted, the PUPP model features many activities and experiences that are aligned with the literature on effective college access programs. These include rigorous academic experiences, mentoring, support for parent engagement, help with college and financial aid applications, and ongoing support in college and beyond (Broton, 2009). PUPP’s essential practices, including setting high standards for PUPP scholars, providing personalized supports, and providing adult role models and peer support, also align with research on effective college access programs. In fact, the comprehensive PUPP model seems to include all of the features of an exemplary college access program identified in research (Gullatt & Jan, 2003).

Our findings indicate that PUPP is distinct from other local college access programs in its focus on helping high-achieving, low-income students to attend and succeed in selective colleges and universities. A teaching fellow noted, “I think that PUPP helps students complete more comprehensive college searches [than they might otherwise] by ensuring that they think about selectivity and financial aid.” PUPP was also repeatedly described in interviews, and in comments made by current PUPP scholars and alumni, as successful at helping students identify and apply to colleges that best fit their needs and preferences.

Our findings also indicate that PUPP may provide more in-depth services than some other college access programs in three important ways: (a) by providing an exceptionally high level of personalized supports, (b) by holistically addressing

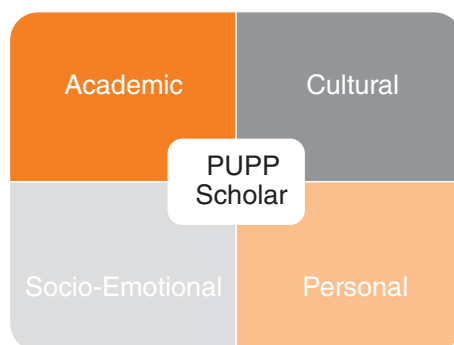


Figure 10 Princeton University Preparatory Program’s holistic approach to working with scholars.

student needs across domains, and (c) by beginning to serve students prior to their sophomore year and continuing through college and beyond. Few college access programs provide such high-touch, personalized services to students for such an extended period of time. Furthermore, the resources provided by Princeton University, and the affiliation with such a prestigious institution, set PUPP apart from other college access programs.

High-Touch Model

As noted, stakeholders repeatedly emphasized how the high-touch nature of PUPP is essential for its success. The strong relationships between PUPP staff and PUPP scholars and PUPP’s provision of financial and social service supports for PUPP scholars’ families are two ways in which PUPP provides highly personalized supports for PUPP scholars. Stakeholders described how close relationships enable PUPP to tailor its supports to meet students’ needs and later to help students identify which schools will be the best fit for them. Similarly, partnerships between PUPP and the partner high schools, and the placement of PUPP staff at the high schools, enable staff to get an even better picture of the needs of each scholar, while also deepening connections with the local community in a way that other college access programs may not. While national programs may get more attention in the media, as noted by Princeton University staff, PUPP may be more deeply involved with its PUPP scholars, more connected to local communities, and ultimately more effective as a result. PUPP staff members also described themselves, and were described by others, as working well beyond the standard 9-to-5 workday. One PUPP staff member noted,

You have to be really invested. You have people’s lives in your hands, so to speak. They are invested in you; they are entrusting themselves and their children to you; there are lots of needs. You sort of put yourself in a position as a resource when they do not really have many other resources, or might have access to resources but do not know how to navigate those.

Holistic Approach

Another exemplary aspect of PUPP’s approach is its focus on supporting students’ skills and meeting students’ needs across all domains—academic, cultural, social–emotional, and personal—throughout the program (see Figure 10). While other college access programs also focus on social–emotional skills or provide academically rigorous experiences, PUPP is one of the few to focus deeply across both areas. It is exemplary in its focus on providing cultural experiences to enhance students’ cultural capital and prepare them to engage in college-level discussions on arts and culture, and it is unique in its provision of social work services, such as financial supports and referrals to social service agencies, for PUPP scholars’ families. One PUPP staff member noted,

I think, for most of our scholars and families, they know that yes, we care about their academic success; but that’s not all that we care about. We care about them as persons and individuals, and they’re not just statistics and trophy pieces that we’re looking to hold up. We really are invested in them and their lives and their families, and their health and their well-being. If we need to try to get them to counseling, we want to do that; if we need to get them tested,

we want to do that; if they need medical care, they need eyeglasses, they need shoes, we want to make sure that all of those needs are met.

Program Length: Starting Early

In interviews, PUPP stakeholders noted that the ongoing and long-lasting nature of PUPP is crucial to its effectiveness. In comparison, many other college access programs provide less intensive support for briefer periods of time, such as during summers only or only during students' senior year of high school. As one college admissions officer noted,

if you can do it, as PUPP does, over a number of summers, it's better. By then, the PUPP counselors, the PUPP staff, they'll know the kids really well. It's not even whether they can take a good guess at where the kid might get in or not get in, but where a good fit is. Where the kid is going to be successful. Where the kid is going to be comfortable.. .. Having a group of people who know a lot about the college application process and about college itself be there, and know them, and be accessible to them, I really think it makes a big difference.

Another college admissions officer described it thus: "That programming, catching students early, working with them throughout the summer, that is huge. They are differently prepared, I think, coming out of PUPP than they are in some of our other programs."

Princeton University Support

In addition to being an intensely high-touch and long-lasting program, PUPP is one of only a few college access programs that is supported, via direct financial contributions and in-kind resources, by an Ivy League university. The connection to Princeton University was repeatedly described by interviewees as an important feature of the program, given the fact that the association with Princeton makes the program prestigious. As one Princeton University administrator noted,

using the resources in terms of Princeton students, who can be fellows, and the Princeton campus, and the long term of that commitment and that relationship strike me as things that really set this program apart and give it a greater chance for success than some of the 6-week thing here, 6-week thing there.

Other stakeholders also emphasized how PUPP's affiliation with Princeton lends it credibility and adds to its reputation as a rigorous and high-quality program. A few stakeholders also noted that none of the other local college access programs available to PUPP scholars, including programs offered through Mercer County Community College, are as comprehensive or as prestigious as PUPP is, owing to its affiliation with Princeton University.

PUPP is also relatively unique in its connection to any university at all—few colleges of any type, whether Ivy League or not, leverage their resources to provide such a program for high-achieving, low-income students from surrounding communities. Several stakeholders, including high school leaders and college staff, suggested that staff at other colleges and universities should look to PUPP as a model for the types of supports that could be provided to local communities.

Conclusions & Recommendations

Imagine that academia is like a plant collector intent on cultivating an excellent conservatory of plants from diverse kinds of climates. Facilities are built, employees are hired and field collectors are contacted to obtain the best and most diverse specimens. The field collectors go out to their respective locales and secure the very best specimens they can find, then prepare them carefully for the long trip back to the conservatory.

When they arrive, some of the plants look weakened by the transport—but most look healthy. The plants are quickly placed in sites that were prepared for them. But soon after, mysteriously, many of the plants begin to wilt. After a week some look as if they will not survive. Concerned, the collector wonders: "What is wrong with the plants?"

The field collectors answer the query: "The plants were carefully selected as the best specimens in each of the sites." Still puzzled yet determined to find out what is wrong with the plants, the conservatory staff also calls the transportation company: "Did something happen on the way?" They learn that, indeed, for a couple of the shipments the conditions on the way were colder than ideal, and one shipment was not watered consistently.

While the staff is processing this information, some plants start to die. Pressed by the urgency of the situation, the chief collector calls a staff meeting and for the first time asks: “Is it something we are doing?” The collector then asks each of the gardeners: “How do you care for the plants you are responsible for?” The collector receives three kinds of answers:

“I treat them all the same,” says the first group, which represents the majority of caretakers.

“I only feed and water the ones that are thriving. Why waste resources?” responds a second group of caretakers.

The third and smallest group replies: “I try to see what each plant needs.”

When the staff examines plants under the care of each group of employees, only the plants being cared by staff using the third style—the responsive style, were flourishing. Not one had died. While few plants died among those cared for by the first group using the sameness style, many plants were not thriving. In the middle group of caretakers who used the “only the thriving ones” style, most of the plants had died. (Ginorio, 1995)

Now consider this: Three professionals from an academically rigorous college preparatory program go out to six local high schools and recruit 24 students to join their program. The students arrive on a college campus where they meet more people—faculty, teaching assistants, and tutors. It is possible that one of three scenarios described about the plants could happen to the students: They could all be treated the same, only the ones who seem to have some potential could be cultivated, or the caretakers—the PUPP leaders, together with their faculty and teaching assistants—could tend to the specific needs of each student so that each thrives not only at PUPP but in the world beyond college and in the postcollegiate years. Given the highly tailored nature of the Princeton University approach to education, you probably would not be surprised that the PUPP community embraces the approach of tending to each student one at a time. Students do not blossom into the people they have the potential to be in a single moment; rather, their growth is influenced by many people’s efforts over time as well as by the characteristics and efforts of the individual students. The holistic, nurturing approach implemented under the PUPP model has been tested and refined over the multiple years of the program.

The results of the ETS evaluation of PUPP highlight the extent to which PUPP carefully tailors its support to the needs of each scholar. Our findings indicate that several factors enable the high level of tailoring that is an important component of PUPP’s success; these include the program length, the small instructional groupings, and the high staff-to-student ratios. These practices enable strong relationships and personalized attention to academic, social–emotional, and other needs, including supports for families’ personal and financial needs. According to data collected for the evaluation, the tailored support provided by PUPP is perceived by PUPP scholars and alumni as nurturing their development of skills and knowledge across multiple domains, including academic and social–emotional skills, knowledge of arts and culture and of the intricacies of the college application process, and the critical steps to take to prepare for college.

The majority of participants reported positive views of the program activities and of their experiences in PUPP. We found that many PUPP scholars and alumni evaluation participants commented on the importance of the relationships they experienced within PUPP, describing them as a key source of support for PUPP scholars and alumni. PUPP staff and leaders, in particular the PUPP director, were generally described as highly dedicated to their work and highly skilled and experienced. Current and former PUPP scholars also indicated that they perceive the PUPP teaching faculty to be highly qualified and competent as teachers, while also serving as mentors providing supports well beyond what teachers generally provide.

PUPP Alumni Survey data and data from the NSC indicate that the vast majority of PUPP alumni do indeed attend college, and many attend colleges or universities categorized as selective by Barron’s, the primary provider of such rankings. Findings from analyses of high school test score data indicate that PUPP scholars perform well academically in high school, particularly relative to their low-income peers. Perhaps most important, the evaluation findings suggest that PUPP is effectively preparing the majority of scholars to enroll in and succeed at colleges and universities that are a good fit for them, including many selective colleges and universities. Our findings indicate that PUPP is meeting its mission in this regard.

The evaluation also revealed that PUPP may be making college attendance a reality for some scholars who may otherwise not have made it to college and that PUPP is leading many scholars to choose more selective colleges than they otherwise would have applied to, including 4-year rather than 2-year schools. Indeed, many participants commented on how PUPP changed their life trajectories by helping them make college attendance a reality or by enabling them to attend a more selective college or university. Some commented that PUPP helped them build their confidence and their belief in their own ability to succeed and confirmed that they could find their place within an institution of higher education.

In his remarks at the 2015 PUPP summer school opening ceremony, David Lee, Princeton University provost, noted that PUPP scholars will “write their own stories of what is possible,” and many seem to be doing so.

Many alumni respondents described great appreciation for the opportunities provided by PUPP and continue to feel connected to PUPP and interested in supporting the program in any way they can. The comment of one recent alumnus captures the sentiments expressed by many alumni evaluation participants. Just after graduating from high school, looking forward to enrolling at an Ivy League university in a few months, she noted,

I am so grateful for the resources and help PUPP has provided to me for the past 3 years. If I could repeat the process again, I would. I wish every motivated, low-income, high-achieving student had the opportunity to be part of a program like PUPP.

Our findings highlight several recommendations for improvements to and growth of the PUPP model and dissemination of lessons learned through the many years of its implementation. The challenges faced by a small minority of PUPP participants also suggest a potential need for enhancements to supports for scholar relationship building, as well as increased alumni supports. Other opportunities for improvements identified by the evaluation include increasing the extent to which PUPP’s work and knowledge are integrated into the larger campus-wide efforts to support first-generation, low-income college students at Princeton University and adding additional personnel to meet current program operations and data analysis needs. If staffing were indeed increased, PUPP could provide a more well-developed program of support services for alumni and expand the number of local high schools it serves and the number of students served at each school, as per the recommendations of partner high school staff. Another possibility is the replication of PUPP at other colleges and universities, building on the experiences the PUPP director has already gained through his provision of guidance for several colleges about how to start their own PUPP-like programs. Finally, PUPP and Princeton University could identify opportunities—such as conferences, written media, and campus collegia—to disseminate lessons learned from the PUPP model to the broader college access field and to colleges and universities across the nation and beyond.

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Notes

- 1 What is a selective college or university? According to rankings compiled by Barron's, the most elite group are the eight Ivy League colleges and universities: Brown University, Columbia University, Cornell University, Dartmouth College, Harvard University, Princeton University, Yale University, and the University of Pennsylvania. *Barron's Profiles of American Colleges* (Barron's Education Series, 2016) lists colleges and universities by their degree of admissions competitiveness, with 93 colleges and universities listed as most competitive, 103 as highly competitive + or highly competitive, and 293 as very competitive + or very competitive. PUPP strives for its students to enroll in and graduate from the two most selective groups.
- 2 Note that these data were compiled by the Princeton Area Community Foundation based on New Jersey Department of Education school lunch data for 2015–2016. The data do not include students attending charter or private schools.
- 3 Ewing High School, Princeton High School, and Trenton Central High School were the first three high schools to work with PUPP. In 2008, PUPP extended the partnership to include Trenton West High School. Although Nottingham High School had one student participate in 2010, it joined the partnership in 2012, as did Lawrence High School.
- 4 Hereinafter, we refer to the "PUPP-approved" target colleges and universities as target colleges.
- 5 PUPP uses the eighth-grade state test as one marker of eligibility. Over the years PUPP has been in operation, New Jersey has shifted tests from the Grade Eight Proficiency Assessment (GEPA) to the New Jersey Assessment of Skills and Knowledge (NJASK8) to the current test, the PARCC. Test scores are reviewed to identify students with scores of "proficient" or better. Beginning in 2016, PUPP is using scores from the new PARCC assessment administered in eighth grade, along with the NJ ASK administered in seventh grade.
- 6 As used in reference to PUPP, *high touch* refers to an organization characterized by very close relationships with its clients, providing personalized services for them (Oxford Dictionaries, 2016).
- 7 <http://www.naviance.com/>
- 8 For details on methodology and findings, see Millett, Rojas, and Kevelson (2018).
- 9 StudentTracker for Outreach Programs is designed to help college outreach programs more accurately gauge the college success of their graduates by answering such key questions as, How many program participants enroll in college? Do they persist and graduate from college? How long does it take for them to get their degrees? Do they go in or out of state, and do they attend a 4- or 2-year school? Which colleges do they most commonly attend?
- 10 Note that Scholar and Alumni Survey respondents were asked to rank the first and second most crucial aspects of PUPP. The forced-choice format of the question did not give them the opportunity, which interviewees had, to respond that all program elements are essential.
- 11 PUPP accesses fee waivers directly from the ACT and works in partnership with a local TRIO, Federal outreach and student services programs that provide services to individuals from disadvantaged backgrounds program to access College Board fee waivers for SAT and Subject Tests. PUPP also works with schools to coordinate payment for AP tests; typically the PUPP scholars qualify for reduced rates on the AP tests, but PUPP pays for these tests.
- 12 The five PUPP scholars who completed the piloted AP Sociology course in 2004 at Trenton Central and in 2005 and 2006 at Princeton High School are not included in Table 4, as no AP exam was developed for this subject. Also Comparative Government and Politics, Computer Science Principles, German Language and Culture, Human Geography, and Italian Language and Culture AP courses are not included, as no PUPP scholars took the class or AP exam.

- 13 For more information about SAT Subject Tests, see the College Board Web site at <https://collegereadiness.collegeboard.org/sat-subject-tests/about/at-a-glance>
- 14 The mean scores for students whose families make less than \$20,000 are (433, 455, 426), and they are (466, 479, 454) for those with families making between \$20,000 and \$40,000 (College Board, 2015a).
- 15 NSC was not able to confirm that one student initially enrolled at Columbia University and that another student initially enrolled at Vassar College. These students are not included in this table.

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Appendix A: Princeton University Preparatory Program Partner High School Profiles

Table A1 Princeton University Preparatory Program Partner High School Demographic Overviews From the State of New Jersey Performance Reports, 2013–2014

	Ewing	Hamilton	Lawrence	Princeton	Trenton West	Trenton Central
Total school enrollment	1,110	1,303	1,163	1,460	651	1,811
Program participation (%)						
Students with disability	17	16	14	9	19	19
Economically disadvantaged	41	54	22	9	82	85
Limited English proficiency	2	8	3	2	1	10
Racial/ethnic subgroups (%)						
White	31	33	48	62	1	2
Black	49	35	19	5	79	50
Hispanic	13	26	15	8	20	48
Asian	4	3	14	21	0	1
American Indian	0	0	0	0	0	0
Pacific Islanders	0	0	0	0	0	0
Two or more races	3	3	4	3	0	0
Gender (%)						
Male	51	49	51	51	43	51
Female	49	50	49	49	57	49

Note. Data are from State of New Jersey Department of Education (2015a, 2015b, 2015c, 2015d, 2015e, 2015f).

Table A2 Princeton University Preparatory Program Partner High School Academic Opportunities From the State of New Jersey Performance Reports, 2013–2014

	Ewing	Hamilton	Lawrence	Princeton	Trenton West	Trenton Central
Total school enrollment, 2013–2014	1,110	1,303	1,163	1,460	651	1,811
AP courses student enrollment ^a	104	146	398	1,474	17	36
Art: History of Art				24		
Biology		11	41	60	8	10
Calculus AB	12	6	36	66		
Calculus BC	6		23	77		
Chemistry		13	45	62		
Computer Science A		7		17		
Economics ^b			38			
English Language and Composition		15		145		
English Literature and Composition	20	13	21	179		
Environmental Science			63	84		
European History	6	3	11	46		
French Language		1	14	48		
Government			21			
Italian Language and Culture				11		
Music Theory				13		
Physics B		6	37			
Physics C				44		
Spanish language	8	6		32		
Statistics		5	26	95		
Studio Art: Two-Dimensional			8			
Studio Art: Drawing Portfolio		3				
U.S. Government and Politics	6	31		121		11
U.S. History	46	26	50	145	9	15
World History				205		
Total number of AP courses	7	14	13	19	2	3
Percentage of students						
Participating in SAT or ACT	81	61	79	97	69	47
Participating in PSAT or PLAN	56	18	65	100	75	64

Note. Data are from State of New Jersey Department of Education (2015a, 2015b, 2015c, 2015d, 2015e, 2015f).

^aThese are duplicated counts. Students who take multiple AP classes will be counted for each class. ^bAP Economics may combine AP Microeconomics and Macroeconomics.

Table A3 Princeton University Preparatory Program Partner High School Student Academic Performance and College Enrollment From the State of New Jersey Performance Reports, 2013–2014

	Ewing	Hamilton	Lawrence	Princeton	Trenton West	Trenton Central
Total school enrollment, 2013–2014	1,110	1,303	1,163	1,460	651	1,811
Academic performance compared to schools across New Jersey	Lags	Lags	About average	Very high	Significantly lags	Significantly lags
Percentage of students Scoring above 1,550 on SAT ^a	30	23	53	80	11	6
Taking at least one AP test or IB test in English, math, social studies, or science	8	7	29	79	12	8
AP tests > +3 or IB tests >4 in English, math, social studies, or science	84	66	83	93	35	16
Average SAT score	1,398	1,372	1,568	1,867	1,227	1,128
Postsecondary enrollment rate (%)						
Schoolwide total	77	73	83	86	64	52
2-year institution	51	65	36	6	52	67
4-year institution	49	35	64	94	48	33

Note. Data are from State of New Jersey Department of Education (2015a, 2015b, 2015c, 2015d, 2015e, 2015f).

^aSAT benchmark score of 1,550 (Critical Reading, Mathematics, and Writing combined) indicates a 65% likelihood of achieving a B–average or higher during the first year of college, which in turn has been found by the College Board’s research to be indicative of a high likelihood of college success and completion.

Appendix B: Princeton University Preparatory Program Target Colleges and Universities

Table B1 PUPP Target Colleges & Universities

New Jersey State Schools (New Jersey Tuition Aid Grant (TAG) Award)	
The College of New Jersey	Richard Stockton College of NJ
Kean University	Rowan University
Montclair State University	Rutgers (New Brunswick, Newark, Camden)
New Jersey Institute of Technology	William Paterson University
Ramapo College of NJ	
New Jersey Private Schools (Higher Total Costs; Tuition Aid Grant Award; Potential for Full Aid/Scholarships and Grants)	
Drew University	Stevens Institute of Technology
Princeton University	
Remotely Possible; Not Recommended as These Schools Do Not Meet 100% of Financial Need	
College of St. Elizabeth	Rider University
Fairleigh Dickinson University	Seton Hall University
Monmouth University	
National Universities: Top-Tier Institutions That Meet Most or All of Student Financial Need	
Boston College (MA)	Lehigh University (PA)
Brown University (RI)	Northwestern University (IL)
Bryn Mawr College (PA)	Princeton University (NJ)
Bucknell University (PA)	Rice University (TX)
Clark University (MA)	Stanford University (CA)
Colgate University (NY)	Tufts University (MA)
Columbia University (NY)	University of Chicago (IL)
Cornell University (NY)	University of Notre Dame (IN)

Table B1 Continued

Dartmouth College (NH)	University of Pennsylvania (PA)
Davidson College (NC)	University of Richmond (VA)
Duke University (NC)	University of Rochester (NY)
Emory University (GA)	Vanderbilt University (TN)
Georgetown University (DC)	Washington University, St. Louis (MO)
Harvard University (MA)	Yale University (CT)
Johns Hopkins University (MD)	
National Small Liberal Arts Colleges: Top-Tier Institutions That Meet Most or All of Student Financial Need	
Amherst College (MA)	Middlebury College (VT)
Barnard College (NY)	Mount Holyoke College (MA) ^a
Bates College (ME)	Oberlin College (OH)
Bryn Mawr College (PA) ^a	Occidental College (CA)
Bowdoin College (ME)	Pitzer College (CA)
Carleton College (MN)	Pomona College (CA)
Claremont McKenna College (CA)	Reed College (OR)
Colby College (ME)	Scripps College (CA) ^a
Davidson College (NC)	Smith College (MA) ^a
Dickinson College (PA)	Swarthmore College (NY)
Franklin and Marshall College (PA)	Trinity College (CT)
Gettysburg College (PA)	Union College (NY)
Hamilton College (NY)	Vassar College (NY)
Harvey Mudd College (CA)	Wellesley College (MA) ^a
Haverford College (PA)	Wesleyan University (MA)
Kenyon College (OH)	Williams College (MA)
Lafayette College (PA)	

^aWomen's college.

Table B2 New Jersey Tuition Aid Grant Awards, Academic Year 2015–2016

School	Tuition Aid Grant award
County colleges	\$2,628
State colleges and universities	\$6,958
Independent colleges and universities	\$12,169
Rutgers (New Brunswick, Newark, Camden)	\$9,284
New Jersey Institute of Technology	\$10,772
Rowan University	\$7,922

Appendix C: Comparison Group Profiles

Table C1 Princeton University Preparatory Program Comparison Group Profile

	Comparison group	%
Total	274	100
Gender		
Female	127	46
Male	60	22
Missing	87	32
Race/ethnicity		
Asian	12	4
Black/African American	70	26
Hispanic/Latino	53	19
Multiracial	4	1
Other	0	0
Pacific Islander/Native Hawaiian	0	0
White	17	6
Missing	118	43
High school		
Ewing High School	56	20
Lawrence High School	24	9
Nottingham High School	29	11
Princeton High School	25	9
Trenton Central High School	91	33
Trenton High School West	49	18
Cohort		
2008	24	9
2009	20	7
2010	23	8
2011	25	9
2012	22	8
2013	27	10
2014	23	8
2015	32	12
2016	26	9
2017	24	9
2018	28	10
Alumni status		
Alumni (2004–2015)	196	72
Current student	78	28

Note. $N = 274$.

Table C2 Princeton University Preparatory Program Scholar and Comparison Groups, Transcript Status and Average Grade Point Average

Cohort	Have a transcript			Average GPA		
	PUPP alumni	Comparison group	Total	PUPP alumni	Comparison group	Total
2008	23	6	29	3.52	2.67	3.34
2009	20	5	25	3.40	3.00	3.32
2010	19	11	30	3.32	2.45	3.00
2011	22	25	47	3.32	2.87	3.09
2012	21	17	38	3.14	2.71	2.95
2013	23	16	39	3.17	3.18	3.18
2014	21	7	28	3.10	2.67	3.00
2015	23	17	40	3.17	3.07	3.13
Total	172	104	276	3.27	2.84	3.12

Note. $N = 276$. Comparisons groups were established in 2008. GPA = grade point average.

Table C3 Princeton University Preparatory Program Scholar and Comparison, Transcript Status and AP Course Participation

Cohort	Have a transcript			Total number of AP classes taken			Average number of AP courses		
	PUPP alumni	Comparison group	Total	PUPP alumni	Comparison group	Total	PUPP alumni	Comparison group	Total
2008	23	6	29	46	13	59	2.0	2.2	2.0
2009	20	5	25	54	22	76	2.7	4.4	3.0
2010	19	11	30	36	18	54	1.9	1.6	1.8
2011	22	25	47	38	21	59	1.7	0.8	1.3
2012	21	17	38	53	11	64	2.5	0.6	1.7
2013	23	16	39	70	26	96	3.0	1.6	2.5
2014	21	7	28	51	12	63	2.4	1.7	2.3
2015	23	17	40	79	29	108	3.4	1.7	2.7
Total	172	104	276	427	152	579	2.5	1.5	2.1

Note. $N = 346$. Comparisons groups were established in 2008. Individual students may take more than one AP course over their high school careers.

Table C4 Princeton University Preparatory Program Scholars and Comparison Group AP Course Taking by Subject (2008–2015)

AP subject	PUPP scholars ^a				Comparison group ^b			
	10	11	12	Total	10	11	12	Total
Art History			1	1				
Biology		16	17	33		7	7	14
Calculus AB		3	54	57		2	11	13
Calculus BC		4	6	10	1	3	2	6
Chemistry		11	8	19		4	2	6
Chinese Language and Culture			1	1			1	1
Computer Science A			1	1		2		2
English Language and Composition		46	5	51		9	1	10
English Literature and Composition			93	93			23	23
Environment Science			5	8			7	7
European History	2	6	7	15		1	2	3
French Language and Culture		1	5	6				
Japanese Language and Culture			2	2				
Macroeconomics	1	6	2	9		5	1	6
Microeconomics	1	5	2	8		3	1	4
Music Theory							1	1
Physics 1: Algebra-Based			4	4			5	5
Physics 2: Algebra-Based			3	3			1	1
Physics C: Electricity and Magnetism							1	1
Physics C: Mechanics			1	1			1	1
Spanish Language and Culture		2	4	6		1	1	2
Spanish Literature and Culture		1		1			2	2
Statistics			5	5			5	5
Studio Art: Drawing Portfolio			1	1			1	1
U.S. Government and Politics			1	21		1	8	9
U.S. History	14	17	23	54	8	7	4	19
World History		15	2	17		10		10
Grand total	18	139	270	427	9	55	88	152

Note. There is a difference in the representativeness of the transcripts for the treatment versus comparison group students. This may result in an underreporting of comparison group students' enrollment in AP classes.

^a $N = 172$ transcripts. ^b $N = 104$ transcripts.

Appendix D: Princeton University Preparatory Program College Tours

PUPP Cohort 2016 toured 30 colleges and universities (only female PUPP scholars visited the two women's colleges):

Sophomore Year

Local Summer Tours

Bryn Mawr College
Haverford College
University of Pennsylvania

Junior Year

Local Summer Tours

Franklin and Marshall College
Muhlenberg University
Ramapo College of New Jersey
Rutgers University–Newark
Swarthmore College
Villanova College

Fall Multiday Southern College Tour

Davidson College
Dickenson College
Duke College
Georgetown University
Gettysburg College
Johns Hopkins University
University of Richmond
Wake Forest University

Senior Year

School-Year One-Day Tours

College of New Jersey
Rutgers University–New Brunswick

Fall Multiday Northern College Tour.

Cornell University
Colgate University
Union College
Vassar College
Yale University
Wesleyan University
Brown University
Trinity College
Amherst College
Mount Holyoke (women's college)
Smith College (women's college)

Appendix E: Museum and Visual Arts and Live Performance Attendance, 2013–2014 to 2015–2016

Academic Year 2013–2014

Live Performances

Proof, McCarter Theater (David Auburn)
In the Heights, Walnut Street Theater (Lin-Manuel Miranda)
Fences, McCarter Theater (August Wilson)
Carmina Burana, Pennsylvania Ballet
Pride and Prejudice, People’s Light and Theater (Jane Austin, adapted by Joseph Hanreddy and J. R. Sullivan)
Don Juan Comes Home from Iraq, Wilma Theater (Paula Vogel)
Don Giovanni, Opera Philadelphia (Mozart)

Museums and Visual Arts, Summer 2013

Metropolitan Museum of Art
 Islamic Society of Central New Jersey

Academic Year 2014–2015

Live Performances

The Barber of Seville, Opera Philadelphia (Rossini)
Antony and Cleopatra, McCarter Theater (Shakespeare)
Great Expectations, Arden Theater (Charles Dickens)
Doubt, Lantern Theater (John P. Shanley)
Macbeth, Arden Theater (Shakespeare)
Brownsville Song (B side for Tray), Philadelphia Theater Company (Kimber Lee)

Museums and Visual Arts, Summer 2014

Princeton Art Museum
 Brooklyn Museum

Academic Year 2015–2016

Live Performances

La Traviata, Opera Philadelphia (Verdi)
Metamorphoses, Arden Theater (based on Ovid)
The Curious Incident of the Dog in the Nighttime, Barrymore Theater (Simon Stephens, based on novel by Mark Haddon)
The Piano Lesson, McCarter Theater (August Wilson)
Sense and Sensibility, People’s Light & Theater (Jane Austen, adapted by Joseph Hanreddy and J. R. Sullivan)
An Octoroon, Wilma Theater (Brandon Jacobs-Jenkins; Cohorts 2016 and 2017 only).
The Secret Garden, Arden Theater (Simon and Norman).

Museums and Visual Arts, Summer 2015

Princeton Art Museum
 Mural Arts Tour, Philadelphia
 Philadelphia Convention Center Arts Collection
 Saint Patrick’s Cathedral
 Museum of Modern Art

Appendix F: Princeton University Preparatory Program Family Needs Assessment Form

Family Needs Assessment 2016–2017

Scholar Name: _____ Cohort: 2017 2018 2019.

Home Phone: _____ Scholar’s Cell Phone: _____.

Parent/Guardian Name: _____.

Parent/Guardian Cell Phone: _____ E-mail: _____.

Please rate the level of support your household may require by placing an “X” in the respective box.

	Needs are met/No support required (1)	Needs are met but with slight limitations (2)	Needs are not being properly met, and family could benefit from some assistance (3)	Needs are unmet, and family needs immediate assistance (4)
Utilities & rent/mortgage				
Food				
Technology				
School supplies				

Please use the space below to detail the concerns you have highlighted in the above chart.

Please use this space to share any other needs with which you may require assistance (e.g. transportation, medical issues, employment, etc.).

Appendix G: Post-High School Educational Enrollment and Degree Attainment

Table G1 Princeton University Preparatory Program Scholars Who Have College Enrollment and Degree Attainment Data From Either the National Student Clearinghouse or Princeton University Preparatory Program, November 2015

Cohort	Total	Have data		Data from NSC		Data from PUPP	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
PUPP scholars							
2004	22	22	100	18	82	4	18
2005	17	16	94	14	88	2	13
2006	16	16	100	14	88	2	13
2007	19	19	100	16	84	3	16
2008	23	23	100	19	83	4	17
2009	20	19	95	16	84	3	16
2010	20	20	100	19	95	1	5
2011	22	22	100	16	73	6	27
2012	21	21	100	16	76	5	24
2013	24	24	100	18	75	6	25
2014	21	21	100	14	67	7	33
2015	23	22	96	19	86	3	14
Total	248	245	99	199	81	46	19
Comparison group							
2010	23	12	52	12	100	–	–
2011	25	16	64	16	100	–	–
2012	22	16	73	16	100	–	–
2013	27	17	63	17	100	–	–
2014	23	12	52	12	100	–	–
2015	32	19	59	19	100	–	–
Total	152	92	61	92	100	–	–

Note. PUPP starting collecting date of birth information in 2007 with Cohort 2010. Date of birth is a key matching variable for the NSC. NSC = National Student Clearinghouse. PUPP = Princeton University Preparatory Program.

Table G2 Princeton University Preparatory Program Scholars Undergraduate Enrollment by Level of Selectivity, November 2015

Cohort	PUPP graduates	Ever enrolled in college ^a	Have first college enrollment record ^b	Selectivity of first college enrollment ^c			2-year
				Most competitive	Very and competitive	Less and noncompetitive	
2004	22	22	19	10	7		2
2005	17	16	15	7	5		3
2006	16	16	16	6	4	1	5
2007	19	19	18	11	5		2
2008	23	23	23	13	8	1	1
2009	20	19	18	14	3		1
2010	20	20	19	10	6	2	1
2011	22	22	22	14	7	1	
2012	21	21	21	13	7		1
2013	24	24	24	18	6		
2014	21	21	21	15	6		
2015	23	22	22	18	3		1
Total	248	245	238	149	67	5	17

Note. These analyses combine data from the National Student Clearinghouse and data provided by PUPP.

^aStatus given if the student has any undergraduate degree enrollment information either from the first college enrolled or the college that awarded a degree. ^bStatus given if the initial college of enrollment is known for a student. ^c“Most competitive” refers to Barron’s (Barron’s Education Series, 2016) most competitive, highly competitive+, and highly competitive categories. “Very and competitive” refers to Barron’s (Barron’s Education Series, 2016) very competitive+, very competitive, competitive+, and competitive. “Less and noncompetitive” refers to Barron’s (Barron’s Education Series, 2016) less competitive and noncompetitive 4-year categories. “2-year” refers to enrollment in a 2-year program.

Table G3 Princeton University Preparatory Program Scholars Undergraduate Enrollment Status and Degree Attainment, November 2015

Cohort	PUPP graduates	Ever enrolled in college ^a	Enrollment status as of 2015			Degree earned ^c	
			Currently not enrolled or graduated ^b	Enrolled ^c	Graduated ^d	Associate	Bachelor
2004	22	22	2	1	19		19
2005	17	16	2	1	13	1	12
2006	16	16	7		9	2	7
2007	19	19	3	1	15		15
2008	23	23	4	0	19		19
2009	20	19	4	1	14		14
2010	20	20	5	2	13		13
2011	22	22	3	8	11		11
2012	21	21	2	18	1		1
2013	24	24	0	24			
2014	21	21	0	21			
2015	23	22	0	22			
Total	248	245	32	99	114	3	111

Note. These analyses combine data from the National Student Clearinghouse and data provided by PUPP.

^aStatus given if the student has any undergraduate degree enrollment information either from the first college enrolled or the college that awarded a degree. ^bStatus given to any student who does not have a fall 2015 enrollment or has not earned an undergraduate degree. ^cStatus is given to students who have a fall 2015 enrollment status. ^dOne student (Cohort 2007) is assumed to have graduated from college, as NSC lists the student as being enrolled in graduate school. ^eStudents who earned associate and bachelor’s degrees are listed as earning a bachelor’s degree.

Table G4 Princeton University Preparatory Program Scholars Undergraduate Degree Attainment by Level of Selectivity, November 2015

Cohort	PUPP graduates	Ever enrolled in college ^a	Graduated	Selectivity of degree awarded institution ^c			2-year
				Most competitive	Very and competitive	Less and noncompetitive	
2004	22	22	19	10	9		
2005	17	16	13	6	5	1	1
2006	16	16	9	5	1	1	2
2007	19	19	14	8	5	1	
2008	23	23	19	13	6		
2009	20	19	14	12	2		
2010	20	20	13	8	4	1	
2011	22	22	11	7	3	1	
Total	159	157	112	69	35	5	3

Note. These analyses combine data from the National Student Clearinghouse and data provided by PUPP.

^aStatus is given if the student has any undergraduate degree enrollment information either from the first college enrolled or the college that awarded a degree. ^bOne student (Cohort 2007) is assumed to have graduated from college, as NSC lists the student as being enrolled in graduate school; however, the student is not included in the graduated counts or the selectivity analysis. ^cThis is reported for the highest degree the student earned. “Most competitive” refers to Barron’s (Barron’s Education Series, 2016) most competitive, highly competitive+, and highly competitive categories. “Very and competitive” refers to Barron’s (Barron’s Education Series, 2016) very competitive+, very competitive, competitive+, and competitive. “Less and noncompetitive” refers to Barron’s (Barron’s Education Series, 2016) less competitive and noncompetitive 4-year categories. “2-year” refers to enrollment in a 2-year program.

Table G5 Princeton University Preparatory Program Scholars Graduate or Professional School Enrollment and Degree Attainment, November 2015

Cohort	PUPP graduates	Earned bachelor’s degree	Ever enrolled in graduate or professional school	Graduate or professional school enrollment ^a					Earned a graduate degree	Graduate or professional school degree earned				
				Master’s	PhD	Medical	Law	Unspecified		Master’s	PhD	Medical	Law	Unspecified
2004	22	19	10	4	3	3			10	4		3	3	
2005	17	12	7	5	1	0	1		5	4		3	1	
2006	16	7	4	1	0	2	1		2	1		1		
2007	19	15	4	0	0	0	2	2	1				1	
2008	23	19	5	2	0	0	0	3	1	1				
2009	20	14	0											
2010	20	13	1	1	0	0	0							
2011	22	11	1	1	0	0	0							
2012	21	1	1	1	0	0	0							
2013	24		0											
2014	21		0											
2015	23		0											
Total	248	111	33	15	1	5	7	5	19	10	0	4	5	0

Note. These analyses combine data from the National Student Clearinghouse and data provided by PUPP.

^aSeven students are currently enrolled in a graduate or professional degree program.

Table G6 Princeton University Preparatory Program Comparison Group Undergraduate Enrollment by Level of Selectivity (Cohorts 2010–2015), November 2015

Cohort	Comparison group	Ever enrolled in college	Have first college enrollment record ^b	Selectivity of first college enrollment ^c			2-year
				Most competitive	Very and competitive	Less and noncompetitive	
2010	23	12	11	1	2		8
2011	25	16	16	3	4	1	8
2012	22	16	16		6	3	7
2013	27	17	17	2	8	1	6
2014	23	12	12	5	5	1	1
2015	32	19	19	1	12		6
Total	152	92	91	12	37	6	36

Note. These analyses use data only from the National Student Clearinghouse. One student has no initial college enrollment data from NSC and hence is excluded from “have first college enrollment record” and “selectivity of first college enrollment.”

^aStatus is given if the student has any undergraduate degree enrollment information either from the first college enrolled or the college that awarded a degree. ^bStatus is given if the initial college of enrollment is known for a student. ^c“Most competitive” refers to Barron’s (Barron’s Education Series, 2016) most competitive, highly competitive+, and highly competitive categories. “Very and competitive” refers to Barron’s (Barron’s Education Series, 2016) very competitive+, very competitive, competitive+, and competitive. “Less and noncompetitive” refers to Barron’s (Barron’s Education Series, 2016) less competitive and noncompetitive 4-year categories. “2-year” refers to enrollment in a 2-year program.

Table G7 Princeton University Preparatory Program Comparison Group Undergraduate Enrollment and Degrees Earned (Cohorts 2010–2015), November 2015

Cohort	Comparison group	Ever enrolled in college ^a	Enrollment status as of 2015			Degree earned ^d	
			Currently not enrolled or graduated ^b	Enrolled ^c	Graduated	Associate	Bachelor’s
2010	23	12	5	3	4	2	2
2011	25	16	4	7	5		5
2012	22	16	6	8	2	2	
2013	27	17	2	15			
2014	23	12	1	11			
2015	32	19	0	19			
Total	152	92	18	63	11	4	7

Note. These analyses only use data from the National Student Clearinghouse.

^aStatus is given if the student has any undergraduate degree enrollment information either from the first college enrolled or the college that awarded a degree. ^bStatus is given to any student who does not have a fall 2015 enrollment or has not earned an undergraduate degree. ^cStatus is given to students who have a fall 2015 enrollment status. ^dStudents who earned associate and bachelor’s degrees are listed as earning a bachelor’s degree.

Table G8 Princeton University Preparatory Program Comparison Group Undergraduate Degree Attainment by Level of Selectivity (Cohorts 2010–2012), November 2015

Cohort	Comparison group	Ever enrolled in college ^a	Graduated	Selectivity of degree awarded institution ^b			2-year
				Most competitive	Very and competitive	Less and noncompetitive	
2010	23	12	4		2		2
2011	25	16	5		4	1	
2012	22	16	2			1	1
Total	70	44	11	0	6	2	3

Note. These analyses only use data from the National Student Clearinghouse.

^aStatus is given if the student has any undergraduate degree enrollment information either from the first college enrolled or the college that awarded a degree. ^bThis is reported for the highest degree the student earned. “Most competitive” refers to Barron’s (Barron’s Education Series, 2016) most competitive, highly competitive+, and highly competitive categories. “Very and competitive” refers to Barron’s (Barron’s Education Series, 2016) very competitive+, very competitive, competitive+, and competitive. “Less and noncompetitive” refers to Barron’s (Barron’s Education Series, 2016) less competitive and noncompetitive 4-year categories. “2-year” refers to enrollment in a 2-year program.

Table G9 Princeton University Preparatory Program Comparison Group Graduate or Professional School Enrollment and Degree Attainment (Cohorts 2010–2015), November 2015

Cohort	Comparison group	Earned bachelor's degree	Ever enrolled in graduate or professional school	Graduate or professional school enrollment					Earned a graduate degree	Graduate or professional school degree earned			
				Master's	PhD	Medical	Law	Unspecified		Master's	PhD	Medical	Law
2010	23	2	1						1				
2011	25	5											
2012	22	0											
Total	70	7	1	0	0	0	0	1	0	0	0	0	0

Note. These analyses use data only from the National Student Clearinghouse.

Appendix H: Barron's 2016 Profiles—Most Competitive and Highly Competitive Colleges and Universities in 2016

Most competitive colleges and universities (N = 93)

Most competitive: Median freshman SAT I score of 655–800; 29+ on ACT; GPA A to B+; top 10%–20% of high school class

Amherst College, MA	Georgia Institute of Technology, GA	Swarthmore College, PA
Bates College, ME	Hamilton College, NY	Tufts University, MA
Boston College, MA	Hampshire College, MA	Tulane University Of Louisiana, LA
Bowdoin College, ME	Harvard University, MA ^a	Union College, NY
Brown University, RI ^a	Harvey Mudd College, CA	U.S. Air Force Academy, CO
Bryn Mawr College, PA	Haverford College, PA	U.S. Military Academy, NY
Bucknell University, PA	Johns Hopkins University, MD	U.S. Naval Academy, MD
CA Institute of Technology, CA	Kenyon College, OH	University of CA, Berkley, CA
Carleton College, MN	Lehigh University, PA	University of CA, Los Angeles, CA
Carnegie Mellon University, PA	Macalester College, MN	University of Chicago, IL
Case Western Reserve University, OH	MA Institute Of Technology, MA	University of Miami, FL
Claremont McKenna College, CA	Middlebury College, VT	University of Missouri/Columbia, MO
Colby College, ME	New York University, NY	University of NC- Chapel Hill, NC
Colgate University, NY	Northeastern University, MA	University of Notre Dame, IN
College of Mount Saint Vincent, NY	Northwestern University, IL	University of Pennsylvania, PA ^a
College of The Holy Cross, MA	Oberlin College, OH	University of Richmond, VA
College of William & Mary, VA	Occidental College, CA	University of Rochester, NY
Colorado College, CO	Ohio State University, OH	University of Southern California, CA
Columbia University, NY ^a	Ohio State University-Marion, OH	University of VA-Main Campus, VA
Columbia Univ.-Barnard College., NY	Pitzer College, CA	Vanderbilt University, TN
Columbia Univ. General Studies, NY	Pomona College, CA	Vassar College, NY
Connecticut College, CT	Princeton University, NJ ^a	Villanova University, PA
Cooper Union-Science & Art, NY	Reed College, OR	Wake Forest University, NC
Cornell University, NY ^a	Rensselaer Polytechnic Inst., NY	Washington and Lee Univ., VA
Dartmouth College, NH ^a	Rice University, TX	Washington Univ. In St. Louis, MO
Davidson College, NC	Rose-Hulman Inst. Of Tech., IN	Webb Institute, NY
Duke University, NC	Santa Clara University, CA	Wellesley College, MA
Emory University, GA	Scripps College, CA	Wesleyan University, CT
Franklin & Marshall College, PA	Smith College, MA	Whitman College, WA
George Washington University, DC	Southern Methodists University, TX	Williams College, MA
Georgetown University, DC	Stanford University, CA	Yale University, CT ^a

Highly competitive colleges and universities (N = 105)

Highly competitive +: Median freshman SAT I score of 645+; 28+ on ACT; GPA B+ to B; top 20%–35% of high school class (n = 41)

American University, DC	Illinois Institute of Tech., IL	Thomas Aquinas College, CA
Bard College, NY	Kalamazoo College, MI	Trinity College, CT
Bennington University, VT	Lafayette College, PA	Trinity University, TX
Bentley University, MA	Kalamazoo College, MI	U.S. Merchant Marine Academy, NY
Binghamton University, NY	Lafayette College, PA	University of Florida, FL
Boston University, MA	Mount Holyoke College, MA	University of Mich., Ann Arbor, MI

Continued

Most competitive colleges and universities (N = 93)

Centre College, KY	New College of Florida, FL	University of Pittsburgh at Pitt, PA
Clark University, MA	Pepperdine University, CA	University of Puget Sound, WA
College of the Atlantic, ME	Polytechnic Institute of NY Univ., NY	University of San Diego, CA
CUNY–City College, NY	Rhodes College, TN	University of Tulsa, OK
Denison University, OH	Sewanee: University of the South, TN	Wheaton College, IL
Dickinson College, PA	Saint John’s College, Santa Fe, NM	Wheaton College, MA
Hendrix College, AR	Saint Olaf College, MN	Worcester Polytechnic Inst., MA
Hillsdale College, MI	SUNY College at Geneseo, NY	
Highly competitive: Median freshman SAT I score of 620–654; 27–28 on ACT; GPA B+ to B; top 20%–35% of high school class (n = 64)		
Allegheny College, PA	Fordham University, NY	St. Lawrence University, NY
Augustana College, IL	Furman University, SC	St. Mary’s College of Maryland, MD
Austin College, TX	Gettysburg College	SUNY/ College of Environmental Science and Forestry, NY
Babson College, MA	Gonzaga University, WA	Stevens Institute Of Technology, NJ
Bard College, NY	Grinnell College, IA	Stony Brook University/SUNY, NY
Baylor University, TX	Grove City College, PA	SUNY University At Stony Brook, NY
Beloit College, WI	Gustavus Adolphus College, MN	Syracuse University, NY
Berea College, KY	Indiana University Bloomington, IN	Texas Christian University, TX
Berry College, GA	Ithaca College, NY	Truman State University, MO
Brandeis University, MA	Kettering University, MI	U.S. Coast Guard Academy, CT
Brigham Young University, UT	Lawrence University, WI	University of California-Davis, CA
California Polytechnic State Univ., CA	Miami University, OH	University of CA-Santa Barbara, CA
Christian Brothers University, TN	Mills College, CA	University of Connecticut, CT
Clarkson University, NY	Muhlenberg College, PA	University of Illinois at Urbana-Champaign, IL
Clemson University, SC	New Mexico Inst. Mining/Tech., NM	University of Maryland, MD
College of New Jersey, NJ	North Carolina State University, NC	Univ. of Minnesota-Twin Cities, MN
Colorado School Of Mines, CO	Province College, RI	University of Texas At Austin, TX
Cornell College, IA	Purdue University/West Lafayette, IN	Univ. of Texas At Dallas, TX
Drexel University, PA	Rollins College, FL	VA Polytechnic Institute, VA
Elon University, NC	Sarah Lawrence College, NY	Westmont College, CA
Emerson College, MA	Skidmore College, NY	
Florida State University, FL	St. John’s College-Annapolis, MD	

Note. N = 198. Factors used to assign the category were for the 2014–2015 freshman class. Data from *Barron’s Profile of American Colleges*, 2016 ed.

^aIndicates Ivy League member.

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