Scholarships, Supports, and Student Success: A Review of the Literature

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Contents

Motivation for the Study

The Hartford Foundation for Public Giving[1] commissioned researchers at Trinity College to review the existing scholarly and field-based literature on the themes of college scholarships and postsecondary student success.[2] The goal of this review project is to inform the Foundation on ways to target its college scholarship aid and its grant-making efforts in the area of student support activities. Specifically, the aim of the review is to maximize the effect of Foundation activities on postsecondary student access, persistence, and credential completion. Thus, in this review, the research team at Trinity College sought to answer three primary questions:

1. How can Foundation scholarships be designed to increase access, persistence, and completion in college?

2. What supports can be tied to scholarships to increase access, persistence, and completion?

3. How can Foundation scholarships best help students from underrepresented backgrounds access, persist in, and complete college? Populations of interest include:

    a. English language learner (ELL) students

    b. Undocumented students

    c. Black students

    d. Latinx students

    e. Community college students

    f. First-generation college students

Methodology

The first round of literature collection used Google Scholar to identify literature, prioritizing studies since 2015 but examining some studies as far back as 2000. Successful search queries included:

- Scholarship + effects + college

- Scholarship + college + completion

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[1] Alternatively referred to in the document as "The Hartford Foundation" or "The Foundation

[2] The Foundation also contracted the Trinity research team to analyze its scholarship recipient data in order to examine trends in the characteristics of scholarship recipients, and to track recipients' persistence and credential completion. At the time of this review, the data analysis is ongoing.

- Scholarship + college + persistence

- Scholarship + low-income + completion

- Scholarship + low-income + access

- Scholarship + low-income + persistence

- Review + scholarship + effects + college

- Need-based + scholarship + effects

- Merit-based + scholarship + effects

- Scholarship + college + completion + supports

After the first round of collection and an initial rough draft of the document, the research team added information from their own expertise on higher education to supplement the results of web searches and fill gaps in the document. The third and final round of editing included input from staff at the Hartford Foundation so that the review would be focused more specifically around the organization's intentions for the document.

A Note on Coverage

There are four primary types of grant (as opposed to loan or work-study) financial aid: federal, state or municipal, institutional, and private scholarships. Given its goal of designing private scholarships that support access, persistence, and completion, ideally this literature review would have chiefly examined published evaluations of private scholarships of sizes similar to the Hartford Foundation's. However, unlike the other types of gift aid, private scholarship data is not often available in institutional or governmental data sets available for research; typically, research about and evaluations of private scholarships are conducted or commissioned by the funder themselves. This research is rarely published in peer-reviewed literature. (One marked exception comes in the form of scholarships offered by large national funders like the Susan T. Buffett Foundation, Bill & Melinda Gates Foundation, Michael & Susan Dell Foundation, and Ford Foundation, which are included in this review.)

Thus, included in the review are literature regarding the effects and designs of college- and state-administered scholarship and financial aid programs. In this review, grants and scholarships are discussed interchangeably: grants and scholarships are both gift aid, rather than loans or expected work contributions. Given the depth of literature on the latter, systemic reviews and meta-analyses are prioritized. The research team excluded literature about institutional grant aid, given the potential effects of other institutional policies.

The team also generally excluded much of the literature on state or municipal Promise scholarships: Promise programs often begin with college awareness programming as early as elementary or middle school; involve a guarantee of funding to high-performers within a local population; and include intensive wrap-around supports in college. Because these models differ from what the Hartford Foundation's scholarship program can achieve, literature about the effects or design of most Promise programs was not useful for this analysis.

Given the relative dearth of research and discussion about private philanthropic scholarships within scholarly literature, the research team also examined a number of non-scholarly resources that have been compiled informally about scholarships, which were often particular to best practices or recommendations for foundations. The team supplemented these resources using traditional Google searches using the following search terms:

- Foundation + scholarship + evaluation + impacts + college

- College + completion + gap + scholarship

- College + enrollment + gap + scholarship

Introduction

The following review of the literature addresses a number of broad issues relevant to the scholarship and grant-making activities of the Foundation. It begins with an overview of postsecondary educational access and completion. The review then proceeds to address discussions of how scholarships are distributed and their relationship to student success. It then examines other forms of postsecondary support that evidence shows to be related to improved student outcomes.

The sections of the review for the most part follow a common structure. Each sub-section of the review identifies an area/topic/population of interest, focusing on its place in the landscape of higher education. Obstacles, problems, or barriers related to the topic are then discussed, followed by a discussion of supports identified in the literature. Each sub-section concludes with one or more recommendations for the Foundation's work in that area or among that population.

Student Success in US Post-Secondary Education

College Access

Access to college – enrollment in college, regardless of type of school or subsequent degree completion – in the United States is fairly high and rising. Despite some year-to-year fluctuations, college enrollment among new high school graduates has been generally increasing for decades. According to the U.S. Bureau of Labor Statistics, 69percent of high school graduates from the class of 2018 were enrolled in colleges or universities in October 2018, up from 63 percent in 1993.

These enrollment rates vary by race, however: in 2018, enrollment rates were 73.4 percent for Asian students, 70 percent for White students, 665.5 percent for Hispanic students, and 64 percent for Black students, thus constituting a **4.1 percentage point Hispanic-White enrollment gap and a 6.0 percentage point Black-White college enrollment gap**. Enrollment rates were slightly less stratified by gender: 71.3 percent for women and 67 percent for men (Bureau of Labor Statistics, 2019).

High school graduates in Connecticut were slightly more likely to enroll in college than the national average, though enrollment rates varied considerably by school district. In Connecticut, among students who graduated high school in 2015-16, the State Department of Education reported that 72 percent entered college during the next year. In Hartford School District, just 62 percent entered college, compared with 94 percent in neighboring West Hartford (Connecticut State Department of Education, 2016).

Nationally, about 2 in 3 entering college students began their studies in four-year colleges (Bureau of Labor Statistics, 2019). Notably, while the overall enrollment gap between White, Hispanic, and Black students is fairly small, **Black and Hispanic students are much more likely to enroll in non-degree granting programs and less selective or non-selective degree-granting schools.** The Hispanic-White "selectivity gap" – the gap between the level of selectivity of colleges attended by White students and those attended by Hispanic students – has remained "relatively unchanged" from 1986 to 2014 while the Black-White selectivity gap grew wider during this period (Baker, Klasik, & Reardon, 2018). These findings are particularly concerning in their implications for future economic inequality among White, Black, and Hispanic students. Black and Hispanic students attending non-degree granting programs are less likely to achieve the caliber of high-paying careers that White students who earn a degree (and one from a more selective school) are. According to Baker, Klasik, & Reardon, persistent and increasing selectivity gaps between these populations will likely perpetuate existing racialized socioeconomic gaps and career outcomes (2018).

College Completion

Rates of college *completion* lag behind rates of college enrollment. The National Student Clearinghouse (NSC) reports that among students who began college in 2012, just 58.3 percent completed a degree within six years. NSC also finds that in Connecticut, 66% of students who began college in 2013 completed a degree within six years compared to 60% nationally (Shapiro, et al., 2018; Huie, Ryu, & Shapiro, 2020). This demonstrates that while college completion rates lag behind rates of enrollment, the overall completion rate in Connecticut is higher than the national rate. Completion rates vary significantly according to the type of institution in which the student first enrolls, however, with four-year private nonprofits (76 percent) and four-year public colleges (66 percent) far surpassing two-year public colleges (39 percent) and four-year private for-profit colleges (37 percent) (Shapiro, et al., 2018).

Two-year public colleges (community colleges) are of particular interest: these institutions are open-enrollment – i.e., near-universal acceptance –, are widely distributed across Connecticut and the country, cost much less than most four-year programs, and offer just-in-time coursework, terminal associate degrees, and a bridge to further education via transfer.

Unfortunately, community college completion rates are relatively low: **among students who started at a two-year public college in 2012, 28 percent completed at their starting institution, 3 percent completed at a different two-year college, and 8 percent completed at a four-year college within 6 years** (Shapiro, et al., 2018). In total, just 16 percent of students who began at community college earned a bachelor's degree (with or without an initial associate's degree) within six years (Shapiro, et al., 2018). The "stop-out rate" – the percentage of students who have left college without a degree – at two-year institutions was 46.1

percent, or twice the rate at four-year institutions (23 percent.) While the overall rate of completion at two-year institutions has grown almost three percentage points since the starting class of 2006, a majority of students still don't have a degree six years after beginning at community college (Shapiro, et al., 2018). These statistics should be understood in the context of the various reasons that students enroll in community colleges, not all of which are degree-focused (cf. Dougherty, 1994). Further in-depth analyses regarding barriers to success for community college students and opportunities to respond are outlined later in this review.

The average elapsed time between initial enrollment and completion is between 5 and 6 years for both bachelor's degree and associate's degree earners. Among students who completed a degree for the first time between July 1, 2014, and June 30, 2015, the average elapsed time was 5.5 years for associate's degree earners and 5.7 years for bachelor's degree earners. However, when examining the enrollment intensity (i.e., full vs. part-time enrollment, and continuous enrollment) the average *enrollment time* is equivalent to 3.3 academic years of full-time enrollment for associate's degree earners and 5.1 years for bachelor's degree earners (Shapiro, et al., 2016). The two figures immediately below are based on National Student Clearinghouse data and plot the proportion of degree completers by the total elapsed time to completion – separately for Associate's and Bachelor's degrees. What is observed is that the modal completion time for Associates degrees is over 6 years, while the mode for complete Bachelor's degrees is 4 years. **This broadly suggests that students pursuing Associate's degrees face institutional and external hurdles to timely completion,** a point we return to later.
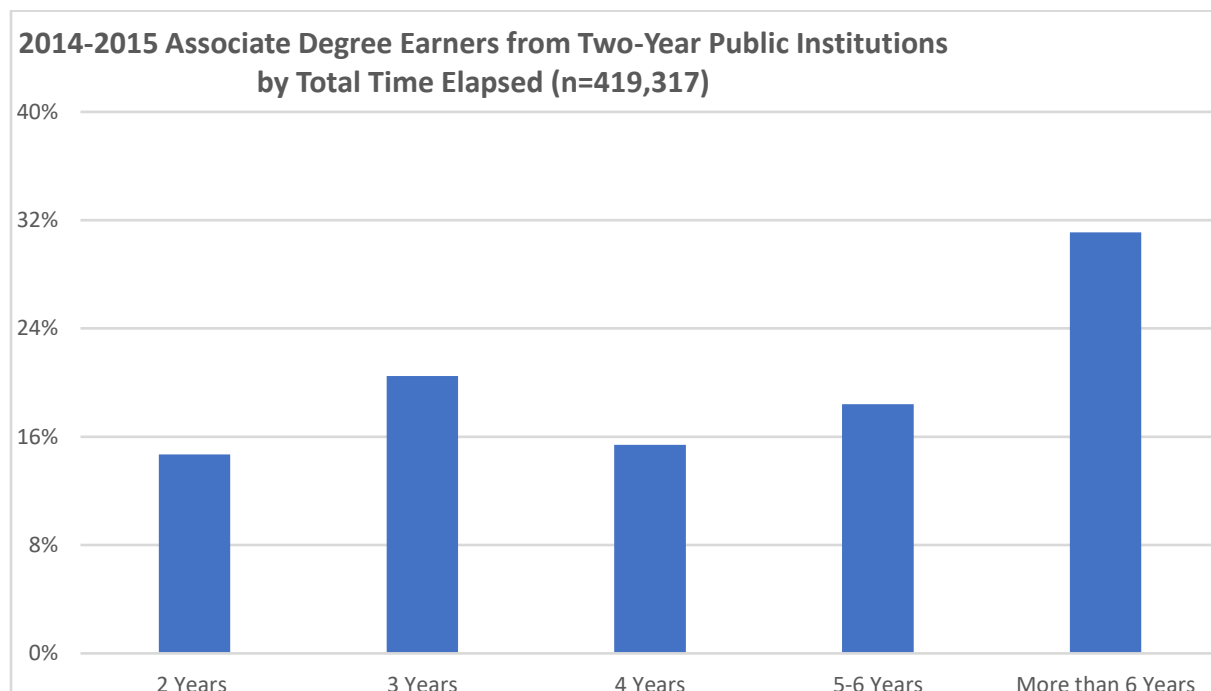
Source: Based on data from (Shapiro, et al., 2016, p. 7)

2014-2015 Bachelor's Degree Earners from Four-Year Public Institutions by Total Time Elapsed (n=1,020,430)
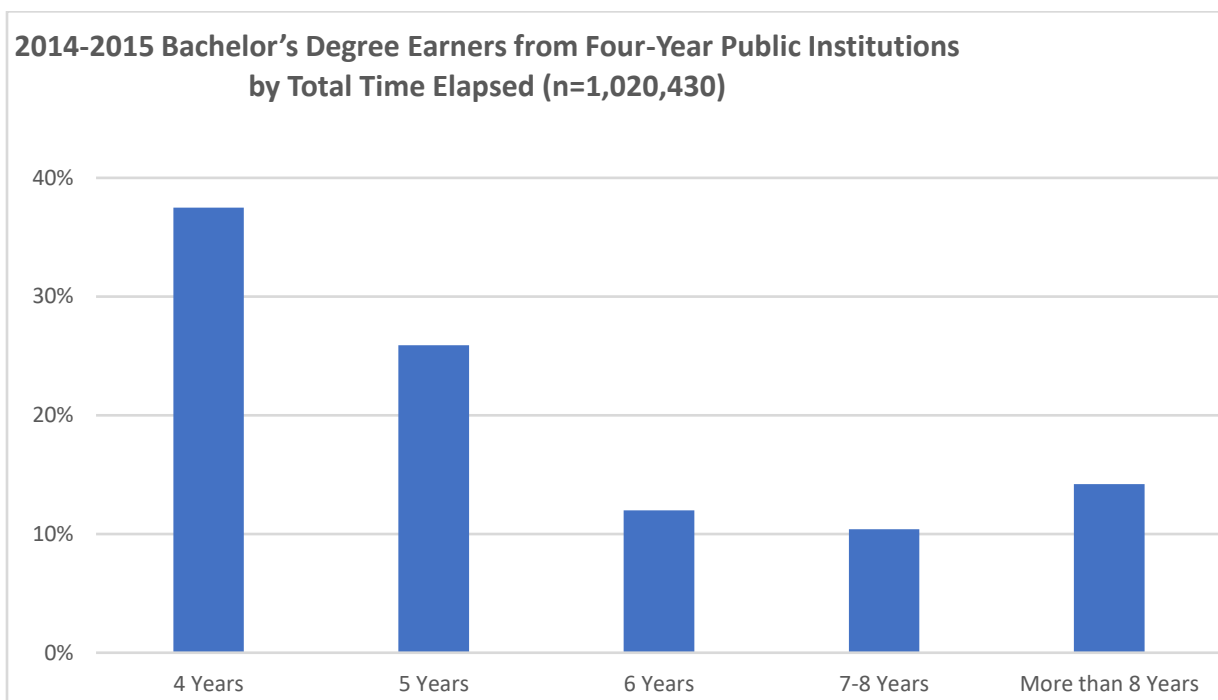
Source: Based on data from (Shapiro, et al., 2016, p. 7)

Race and Ethnicity

College completion gaps between White, Black, and Hispanic students are also significantly wider than gaps in college access rates. While college completion gaps in general have narrowed somewhat since the NSC began reporting these data in 2006, gaps in average completion rates (in any undergraduate program) by race remain substantial. For the class that entered college in 2012, completion rates were 70 percent among Asian students, 67.1 percent among White students, 50 percent among Hispanic students, and 41.0 percent among Black students. This constitutes a 17 percentage point Hispanic-White college completion gap and 26.1 percentage point Black-White college completion gap (Shapiro, et al., 2018)

One study found that within one four-year public college, when controlling for academic choices, enrollment intensity, and academic performance, after six years in school, differences in graduation rates for Black and Latinx students and Pell grant-eligible students and their White or higher-income peers "gradually faded away" (Yue & Fu, 2017). Given that nationally, 25 percent of bachelor's degree earners take more than six years to graduate, supporting students past the traditional four to six years may help narrow racial completion gaps (Shapiro, et al., 2016). Indeed, Attewell and Lavin (2007) demonstrate that many low-income and non-traditional students continue to complete their degrees up to 20 years after beginning college. Given that so many students take longer than six years to complete, financial incentives such as completion scholarships and last-lap funds (discussed later in this review) may also be effective in allowing

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students with financial barriers to complete within the traditional four to six years, thus narrowing completion gaps.

Given that students of different races attend various types (sector and level) of institutions at different rates, and given institutions' unequally distributed success with retaining and graduating different types of students, there are further disparities in the types of institutions from which White, Black, and Hispanic students complete their degrees. The Center for American Progress's analysis of the National Center for Education Statistics' 2013 – 2015 completion data showed that relative to White students, a disproportionate share of college completions for degrees earned by Black and Hispanic students occurred through came from for-profit institutions rather than public or nonprofit four-year institutions (Libassi, 2018). However, research indicates that students who attend for-profit institutions are likely to incur substantially higher costs and to be at a disadvantage in the labor market. As Belfield (2013) discusses, students who attend for-profit institutions (particularly two-year for-profit colleges) borrow four times as much as they would have at two-year public non-profit institutions. This increased borrowing is driven primarily by higher costs of attendance. Additionally, Lang and Weinstein (2012) found statistically significant benefits in the labor market (operationalized by post-completion wages) for students who completed at private nonprofit institutions, but not for those who completed at for-profit institutions.

A comparatively large share of completions for black and Hispanic students occur in the for-profit sector

Share of racial group's completions in each sector, 2013 through 2015

Black student credentials | Hispanic student credentials | White student credentials

Public four-year institutions
- 39.3%
- 30.6%
- 27.1%

Public two-year or less institutions
- 30.4%
- 30.3%
- 30.0%

Nonprofit four-year institutions
- 18.1%
- 12.2%
- 12.8%

For-profit institutions
- 11.3%
- 25.2%
- 28.0%
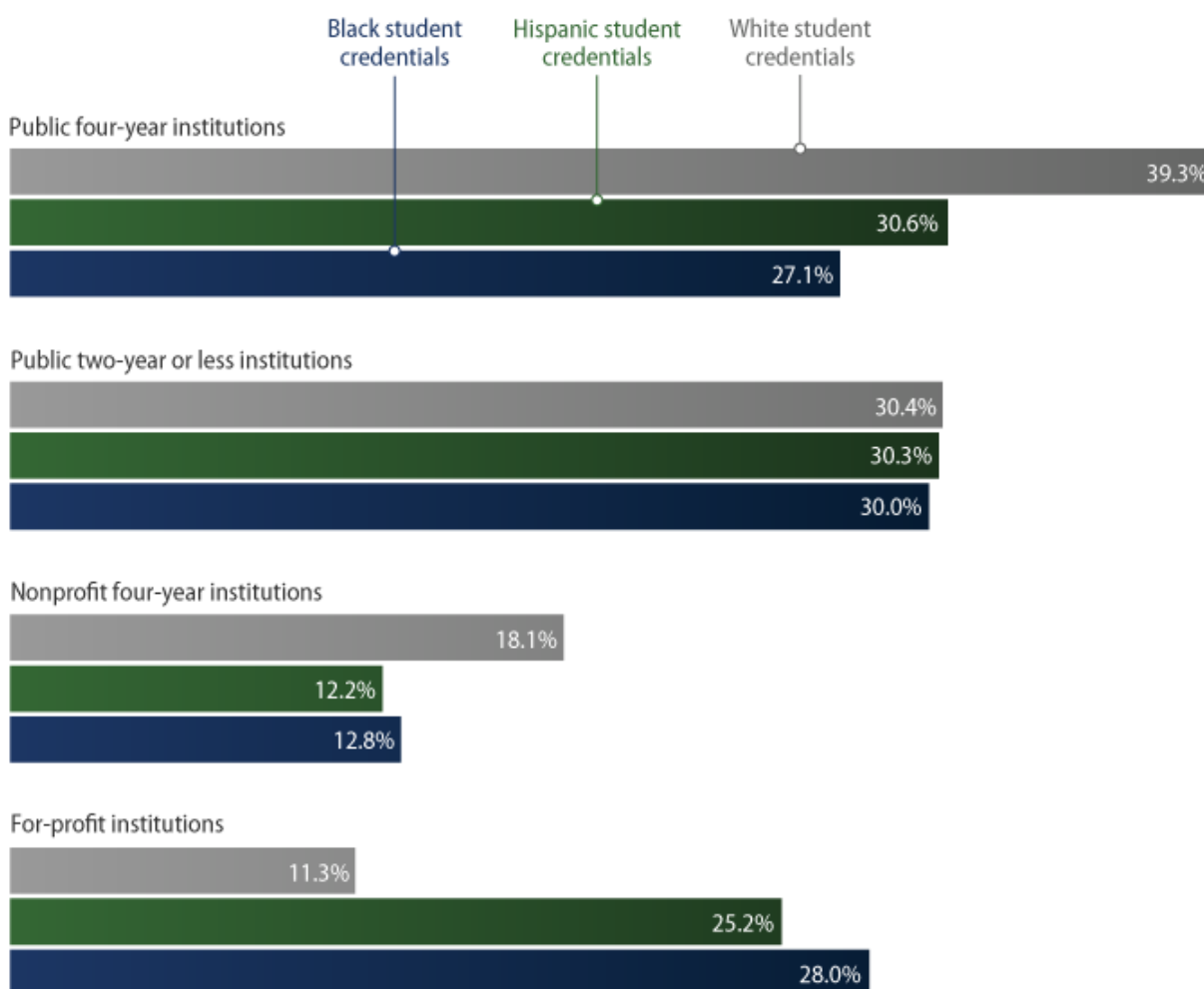
Note: Bar chart includes all students completing a bachelor's degree or below.

Source: Center for American Progress analysis of data from the Integrated Postsecondary Education Data System from 2013 through 2015. See National Center for Education Statistics, Integrated Postsecondary Education Data System, "Use the Data," available at https://nces.ed.gov/ipeds/use-the-data (last accessed April 2018).

CAP

Source: (Libassi, 2018)

Degree Completion in Connecticut

Relative to public college students nationally, students from Connecticut were more likely to complete college within six years (73 percent vs. 66 percent nationally). They were also more likely to complete on-time at their first institution (71 percent vs. 61 percent). Generally, Connecticut students were 1 percentage point less likely to be still enrolled after six years than the national rate, but

6 percentage points less likely to "stop out" of college. Exclusively full-time, exclusively part-time, traditional-aged, and adult learner students in Connecticut all completed college at higher rates than their national peers (Shapiro, et al., 2018).

Completion gaps by race and ethnicity were also much narrower for four-year public college students from Connecticut than for their peers nationally, with a Hispanic-White completion gap of about 10 percentage points (vs. 15 percentage points nationally) and a Black-White completion gap of 16 points (vs. 25 points nationally). Relative to four-year public college students nationally, Black and Hispanic Connecticut students are more likely to complete college in the institution where they started and less likely to stop out (Shapiro, et al., 2018).

Completion rates for students from Connecticut attending 2-year public colleges are lower (34 percent) than the national rates (39 percent), which reflects both a lower likelihood of completing within their initial institution and a lower likelihood of transferring and completing elsewhere. In total, just 12 percent of Connecticut students who start at community colleges complete a bachelor's degree within six years, vs. compared to a rate of 16 percent nationally. Similarly, 50 percent of Connecticut community college students stop-out within six years without a degree, vs. 46 percent nationally. This holds true for students who attend school exclusively full-time, exclusively part-time, mixed-enrollment, and for all age groups (Shapiro, et al., 2018). These completion rate statistics at community colleges are in contrast to those at the four-year institutions outlined above. Whereas Connecticut students attending public four-year institutions are more likely than public college students nationally to complete within six years and less likely to stop out of college, Connecticut students attending two-year community colleges are less likely to complete within six years than community college students nationally and more likely to stop-out.

Connecticut students who enroll in private nonprofit four-year colleges are also more likely to complete their degree than their peers nationally - 83 percent vs. 76 percent (Shapiro, et al., 2018). This stands to reason, given the high selectivity and high tuition rates at many of the state's private not-for-profit colleges and universities (e.g., Yale, Wesleyan, Trinity).

While enrollment gaps have narrowed, there remain substantial inequality in postsecondary persistence, and completion in the Hartford region.
Beyond the state as a whole, and even the Greater Hartford region, where college success is comparatively high, many communities – primarily non-white and of lower incomes – continue to see below average rates of first enrollment and degree completion. Specifically, Hartford, New Britain, and East Hartford have enrollment rates 20 percentage points lower than suburbs just outside of Hartford (59-62 percent vs. 82 percent. Looking at college completion, the same community gaps are even larger at 40 percentage points (23-28 percent vs. 64 percent) (Abraham, et al., 2019).

Enrollment Intensity and Student Success

Many students begin attending college full-time, but ultimately change their status to part-time for at least one semester. Among traditional-age students who graduated high school in 2018 and enrolled in college that fall, approximately 9 in 10 students were attending full-time in their first semester (Bureau of Labor Statistics, 2019). However, among all students in the fall 2012 NSC study cohort, just 47 percent of students enrolled full-time throughout their full time in college; 6 percent enrolled exclusively part-time and another 47 percent experienced a mix of full-time and part-time semesters (Shapiro, et al., 2018).

At four-year public institutions, exclusively full-time students were much more likely to graduate (84 percent) than mixed-enrollment students (698.6 percent) or **exclusively part-time students (29 percent).** Among Connecticut students within the fall 2012 NSC cohort who initially enrolled in four-year public colleges and universities, 71 percent attended exclusively full-time, 1 percent exclusively part-time, and 28 percent mixed enrollment (Shapiro, et al., 2018).

Full-time and part-time status may relate to the need or ability to work. In 2018, 33 percent of full-time college students were in the labor force, as were 74 percent of the part-time college students (Bureau of Labor Statistics, 2019). Using a different metric, data from the National Postsecondary Student Aid Survey (NPSAS) indicate that about 62 percent of college students worked for pay during term-time in 2012, with two-thirds of this group working full-time (Douglas & Attewell, 2019).

Understanding Financial Aid and Scholarships

Undergraduate financial aid consists primarily of the following combination of sources:

1. Grant aid and scholarships, sometimes known as gift aid. Grants may be either "need-based" or "merit-based." Grant aid may be provided by the federal government, state governments, higher education institutions, private organizations, or employers.

2. Student loans, which students must pay back after completing college. Loans may be subsidized by the federal government or unsubsidized coming from private sources.

3. Work-study programs, which are a form of federal aid tied to student work, usually on campus.

4. Veterans' Benefits, such as the GI Bill, which accrue to people who have completed military service.

While federal grant aid remains almost entirely need-based, particularly driven by the Pell grant program, an increasing share of state and institutional aid dollars are spent on merit-based aid, which is awarded to high-performing students regardless of family income (Baum, Ma, Pender, & Libassi, 2018). This shift is often discussed as a response to the rising costs of college: through merit-based aid, increasingly expensive public and private schools can attract the highest-performing students using merit aid as a form of tuition discounting (Nova, 2019). **Unfortunately, the shift to merit-based aid means that less funding is available to low-income students. Research has demonstrated that allocating funds toward need-based aid is among the most important ways that states can bolster college completion rates** (Titus, 2006).

The best available data does not distinguish between financial aid from private funders and aid received through employers, finding that over the past twenty years, private and employer funds combined have comprised between 5 and 7 percent of all undergraduate aid (Baum, Ma, Pender, & Libassi, 2018). As noted in the introduction, the absence of data about private scholarships in state, federal, and institutional databases renders private scholarships difficult to scrutinize. The College Board data discussed above is comprised of estimates "based on data included in NPSAS and on National Scholarship Providers Association surveys of major private student grant providers, supplemented by information from annual reports of selected scholarship providers, data from institutional financial aid offices, and the College Board's Annual Survey of Colleges" (Baum, Ma, Pender, & Libassi, 2018, p. 34). The College Board report is thus unable to report, for example, what proportion of private scholarship aid is based on merit vs. financial need, or on outcomes for private scholarship recipients. This limits the opportunity for a nuanced analysis.

However, organizations that collaborate with and inform foundations who provide private scholarships have devoted significant attention to the role that foundation dollars play within this system.

For example, in a 2010 report, "Dollars for Degrees: Structuring Post-Secondary Scholarships to Increase Student Success," the Funder Strategy Group's Social Impact Advisors argued that private scholarships play an outsized role within student aid, given that they (1) are flexible, (2) can fill gaps in funding from other sources, and (3) increase completion rates by reducing debt burdens, enabling students to attend more selective institutions, enroll full-time, or work fewer hours. They offered three overarching recommendations for designing scholarships:

- "Make access, persistence, and completion the goal."

- "Focus scholarship funding on specific post-secondary institutions, populations, or geographies to achieve deeper impact." (these population-specific supports are highlighted repeatedly in the scholarly literature and are explored in-depth in the "Student-Level Factors in Postsecondary Success" portion of this review)

- "Collect and use data on student outcomes to improve effectiveness." (Kutash, Cohen, Fox, & Pandit, 2010)

It is clear in the literature that foundations may not be as effective at this as they could be. In 2017, the National College Access Network (NCAN) argued that,

> "**...**most [community] foundations fail to channel ... scholarship dollars strategically to support low-income students who otherwise would not complete postsecondary education. Many scholarships housed at community foundations and private funders are merit-based, in effect serving as a reward for students who have excelled in high school — regardless of whether they have significant financial need. Compounding the problem, in almost every case scholarships are small dollar amounts, nonrenewable, and lack support services that many students need to stay on track to graduation.... In the same communities, nonprofit college access organizations and higher education institutions help motivated, low-income students prepare for, enter, and complete postsecondary education, but they often have no relationship with their local community foundation." (Hadley & Morgan, 2017).

For example, the Institute for Higher Education Policy (2005) argues that private scholarship aid stands apart from government and institutional aid in three important ways:

1. "It helps students who slip through the cracks of other aid programs." (p.2)

2. "It facilitates choice and affordability for students of varying income levels." (p.2)

3. "It provides a testing ground for new approaches to student financing." (p.2)

Some of the literature on foundation scholarships presents steps for funders to consider while reevaluating their scholarship designs to consider community needs:

"Based on [the National College Access Network's] work with dozens of cities across the nation on increasing postsecondary degree and credential attainment, we recommend the following steps for community foundations:

- "An assessment of the foundation's current program. How are scholarships currently marketed to applicants and processed? Are best practices being used? Are there barriers to low-income students?

- "A survey of potential partners in your city. Is the community foundation aware of which programs exist, what services are provided, how many students participate, and what the outcomes are for these programs?

- "A look at strategic scholarship management. How is financial need determined, and what role does it play in relation to award amounts? What committees or

volunteers are involved in scholarship selection? How are scoring rubrics or evaluations developed?

- "Incorporating data collection and benchmarking in a standardized way. What data do the community foundation need, how can it be collected painlessly, and what are the right benchmarks for comparison? Most importantly, how does the foundation demonstrate that its scholarship program is making a difference for students?

- "Learning more about how to educate and enlist donors, what to do with selection-criteria funds with heavy administrative burdens, the pros and cons of endowed funds vs. annual funds, and ways to retain and renew donors." (Hadley & Morgan, 2017, p. 6)

In a discussion of innovative scholarship models, the Helios Education Foundation presented a simpler task:

"As the report is read, we encourage readers to keep in mind the following questions:

- What is the problem you are hoping to solve?

- What community are you serving?

- How will you measure your work?" (Boehm & Perrault, 2017)

Scholarship Design Elements: Who is best served by scholarships?

Increasing enrollment, persistence, and completion requires effectively identifying and supporting students at the margin of college success – students who might not succeed without scholarships, and whom scholarships could help propel to and through college. In this section the review examines literature about who these students may be.

Family Income Level

In general, higher-income students' persistence and completion rates are insensitive to changes in price. In *The Shape of the River* (Bowen, Chingos, & McPherson, 2009), the authors find virtually no relationship between the net price of college (i.e., the amount owed after financial aid) and likelihood of graduation for students in the top and third income quartiles. Similarly, using a regression discontinuity analysis of Pell grants, Alon (2011) finds that an extra $1,000 in grant aid has minimal effects (0.01 – 0.03) upon persistence for the third income percentile and no effects for the top quartile. By contrast, for students in the lowest income quartile, a $1,000 increase in net price is associated with substantial declines in six year (- 3 percentage points) and four year (-4.5 percentage points) bachelor's degree completion rates.

Researchers disagree about the comparative sensitivity of the lowest and second-lowest income quartile.[3] Bowen et al. (2009) find smaller effects on graduation rates for the second-income quartile, while Alon (2011) concludes that for students in the bottom-income quartile, an additional $1,000 in need-based grant aid in the first year increases the probability of first-year persistence by about 2 percentage points. For the second income quartile, however, each additional $1,000 increases persistence by about 10 percentage points. Alon concludes that "aid prevents students from both bottom income quartiles from dropping out of college, but the persistence of students who are on the margin of being eligible for need-based aid (i.e., those in the lower-middle income quartile) is the most sensitive to aid increments."

Opportunities for Foundation work:

- Based on the aforementioned research, it would be wise to explore the extent to which current Hartford Foundation scholarships target students below median income.

- If scholarships are serving students in both the bottom and second income quartile, the Foundation could examine relative outcomes for students in these two groups. Methodologically, this would require collecting data on the family income levels of students receiving scholarship awards.

High School Performance

High school GPA more strongly predicts college completion than SAT scores. In a 2018 review of research regarding predictors of college completion, Matthew Chingos (2018) found that when both high school GPA and test scores are examined, high school GPA more strongly predicts college completion, whereas test scores are only predictive of first-year college grades. He argues that "earning good grades requires consistent behaviors over time—showing up to class and participating, turning in assignments, taking quizzes, etc.—so students could do well on a test even if they do not have the motivation and perseverance needed to achieve good grades. It seems likely that the kinds of habits high school grades capture are more relevant for success in college than a score from a single test." (Chingos, 2018, p. 5)

The impacts of scholarships upon students with higher or lower high school GPAs are unclear. Castleman & Long (2016) found greater completion effects for scholarship recipients with GPAs in the top quartile (GPA > 3.4), relative to students in the second quartile. To the contrary, in a quasi-experimental study evaluating the effects of the merit-based Massachusetts Adams Scholarship, which intends to attract talented students to the state's public colleges, Goodman (2008) found that lower-skill students were more sensitive to aid than higher-skill students when choosing a college. In this

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[3] Price sensitivity as used in this review refers to the extent that completion/graduation rates for a student or population are influenced by changes in net price of college expenses. Populations with low sensitivity will experience smaller effects on graduation rates when the price of college goes up than populations with high sensitivity (whose likelihood to complete is more closely related to the amount they are expected to pay).

analysis, low-income and high-income students made similar choices conditional on academic skill. Similarly, an evaluation of the Buffet Scholarship in Nebraska found higher enrollment and retention impacts among students with lower high school GPAs. (Angrist, Autor, Hudson, & Pallais, 2016).

Notably, there is evidence that large-scale Promise scholarship programs with known GPA or test score cutoffs can incentivize higher performance in high school (Pallais, 2009). However, with a relatively small Foundation scholarship lacking a guarantee of funding to all students above a given threshold, we are unlikely to see such effects.

Opportunities for Foundation work:

- Consider further examination of the literature, or GPA criteria chosen by other scholarship providers.

- Within the Foundation's scholarship data, examining relative outcomes for scholarship recipients with a range of high school GPAs would be beneficial. Methodologically, this would require having complete and uniform GPA data (collected at a similar time point) for all scholarship recipients.

Merit vs. Need-Based Aid

The published literature on financial aid is largely dominated by discussions of the federal need-based Pell grant and large state-based merit programs. Given the relative abundance of large, state-funded, merit-based scholarship programs, the literature on scholarships includes numerous reviews of their effects. This portion of the review examines some of these findings to understand the potential impacts of merit-based scholarships more generally.

While need-based aid supports students who are least able to pay for college, by definition all financial aid is predicated upon sufficient merit to qualify for admission to college. In many cases, need-based aid has additional merit qualifications as well; some (though not all) of these programs are labeled "need-merit" programs. Purely merit-based aid, however, is awarded to students who meet certain merit thresholds such as GPA or college entrance exam scores, regardless of ability to pay.

Merit- and need-based aid programs both have a number of positive effects upon individual students' college enrollment, college completion, and outmigration to other states. However, some researchers have argued that merit-based aid may have no impact, or indeed negative (widening) impacts upon population-level completion gaps**.** A 2004 book on merit-based aid, which examined scholarship programs in a number of states, concludes that "traditional measures of merit – including grades, standardized test scores, and curricular framework test scores – result in scholarships that are awarded disproportionately to students who were likely to attend college even without the public assistance. In contrast to need-based aid

programs, which have been demonstrated to have an important role in promoting college access and attainment for underrepresented students, these merit aid programs do little to help close the gaps in college participation in the states" (Heller & Marin, 2004).

A number of subsequent studies and reviews support this conclusion. A 2012 study of Census and American Community Survey data on the educational attainment of 24-to-32-year-olds in 15 states that introduced merit aid programs find that overall rates of degree attainment within a state may decrease slightly with the introduction of merit aid programs, at least short-term. They also find that these programs "appear to alter outcomes for less than 3 percent of a cohort" (Fitzpatrick & Jones, 2012). A 2014 analysis by Sjoquist and Winters of state-based aid across 25 states find "strong consistent evidence that exposure to state merit aid programs have no meaningfully positive effect on college completion." While individual student choices and behavior changed, the displacement of other students who might have attended those colleges meant that overall completion rates did not change (Sjoquist & Winters, 2012). In a 2018 meta-analysis, Nguyen, Kramer, and Evans find that merit-aid programs likely affect students' school selection but not their persistence, whereas grant programs that include a need-based component have an estimated 3 percentage point impact on persistence (Nguyen, Kramer, & Evans, 2018).

Not all research agrees that merit-based programs are less effective. In a review of observational, experimental, and quasi-experimental studies of merit- and need-based programs, (Deming & Dynarski, 2009) conclude that the intensive paperwork requirements for need-based programs such as the Pell grant reduce their uptake and therefore their effects. They conclude that "the best evidence for effective financial aid on educational attainment comes from simple-broad-based programs" – in other words, merit-based programs that are available to students regardless of demonstrated need, finding that although these programs subsidize students who already would have attended college, the effective increase in enrollment for marginal students may be greater than that of need-based programs as presently designed. Stater (2009) also finds that while both merit- and need-based aid have positive effects on GPAs in three universities studied, merit-based aid has a stronger effect early in students' college careers (0.19 vs. 0.10 in year 1, and 0.10 vs. 0.02 in years $2 - 4$).

Opportunities for Foundation work:

- Foundation scholarships should consider the appropriate combination of need and merit, as solely merit-based financial aid may fail to increase population-level enrollment, persistence, and completion among those who wouldn't have been likely to attend college without assistance.

- The Foundation can also review paperwork requirements that may dissuade students from applying for our scholarships, particularly those that are need-based and should ideally target marginalized students.

- Further examination of this literature might help understand the potential impacts of any donor-driven, merit-based scholarships.

Scholarships' Impacts on Student Success

Some studies have examined behavioral impacts of grant aid that may ultimately drive the impacts upon enrollment, persistence, and completion.

School Choice

For example, after a review of quasi-experimental studies, Deming and Dynarski conclude that eligibility for financial aid … "appears to … shift students from community colleges towards four-year schools" (2009, p. 11). Subsequent studies have continued to examine the extent to which financial aid leads students to choose more selective colleges. (Andrews, DesJardins, & Ranchhod, 2010) found that the Kalamazoo Promise incentivized students who took the ACT to send their test scores to Michigan's most selective public universities. Further, they found that after the implementation of Kalamazoo Promise, students with family incomes below $50,000 were 10.4 percentage points less likely to apply to the local community college. The authors conclude that, "these estimates suggest that the Promise allows test-takers who are financially constrained to consider institutions that are higher priced and more selective" (p.736). **This is important given that the literature reveals that school selectivity has positive effects on graduation rates and household income after college.** Long (2008) found that an increase of a school's average SAT score (the measure by which he judged school selectivity) by one standard deviation (116 points) increased the likelihood of graduation by 10 percentage points. These positive impacts of school selectivity demonstrate the significance of financial aid steering students away from community colleges and toward more selective institutions.

Further impacts of college selectivity are found in Witteveen and Attewell's (2017) study of bachelor's degree graduates who did not transfer from a community college and who are employed full-time. They found that the selectivity of a student's college has a significant correlation with earnings four and ten years after graduation. This upward-mobility study revealed that earnings were 21% lower for students graduating from the lowest selectivity colleges than for those graduating from the most selective, and 13% lower for students from selective compared to *most* selective colleges (Witteveen & Attewell, 2017). However, these substantial earnings differences based on selectivity of the college one graduated from are not consistent across gendered lines- college selectivity is therefore not the only determinant of earnings differences, though it is a strong one.

Cohodes and Goodman (2013) found that a Massachusetts aid program that waived in-state tuition led 6.3 percent of students at the eligibility threshold to forgo other colleges

in order to attend in-state public colleges; these in-state public colleges were ultimately less selective and of lower-quality, leading to *lower* college completion rates. Therefore, while financial aid generally induces financially-constrained students to attend more selective institutions, which generally have higher graduation rates, financial aid can alternately induce students to attend *less* selective institutions if designed in a way that incentivizes them to do so.

Loans and Work Hours

Grant funding also impacts other student financial choices and behaviors, such as student loan usage and hours worked. Using a regression discontinuity analysis of Pell grant eligibility at four-year colleges, Evans and Nguyen (2019) found that at the threshold of eligibility, the Pell Grant increases total grant aid by $1,100, resulting, on average, in reductions in both borrowing and hours worked, thus reducing total money earned. After taking gender into account, they find that women reduce borrowing by about $530 and reduce earnings by about $830, leaving them with roughly the same amount of or slightly less overall funding than without the Pell grant (though less debt and more time for academics); men, meanwhile, reduce borrowing but continue working at the same level, leaving them with more overall funding as a result of the Pell grant.

> "In terms of the substitution of borrowing and working, we find suggestive evidence that students use reductions in borrowing and working as alternative responses to increased grant aid. Stated differently, with increase in grant aid, individual students are generally likely to either borrow less or work less but not both. However, there is a subset of students, those with jobs, who appear to do both. We observe little effect of increased grant aid receipt on academic outcomes such as credits attempted and within year persistence, although we do observe positive effects on the GPA of men" (Nguyen, Kramer, & Evans, 2018).

The significance of grant impacts on students' working hours should not be understated. As will be discussed in the "Social Integration" portion and in several later locations throughout this literature review, students who have to work through college (many of whom are first generation, low income, delayed entry, Black, or Latinx) see lower levels of social and academic integration due to their work schedules (Engle & Tinto, 2008). Such lowered social and academic integration is associated with increased risk of drop-out. Therefore, the effect that grant aid has on students' decisions and ability to not work or to decrease hours is related to their college success.

Time-to-Degree

Eligibility for aid increases likelihood of degree completion. As noted in the introduction, on average, bachelor's degree and associate's degree recipients both take

between five and six years to complete their degree (National Student Clearinghouse Research Center, 2016). Some argue that aid may have a greater impact on time-to-degree than on completion rates themselves (Bowen, Chingos, & McPherson, 2009). This may reflect the impacts of reduced student loans and work hours discussed above. Others have found, through regression-discontinuity design studies, that eligibility for need-based aid increased the likelihood of completion within five, six, and seven years (by 3 points, 5 points, and 5 points, respectively), but had no meaningful impact upon the likelihood of four-year degree completion (Castleman & Long, 2016).

Opportunities for Foundation work:

- Scholarship design should be examined carefully to understand the extent to which scholarships incentivize students to attend certain schools, and whether those schools have high graduation rates, or a record of increasing upward mobility for low-income students.

- It is also possible to consider supporting students beyond four years.

Elements of Scholarship Design

Award Amounts

This search did not identify minimum or maximum effective amounts of scholarship funding. However, many studies have attempted to estimate the impacts of additional grant funding, most often examining the potential impacts of increments of $1,000 upon enrollment, persistence, and completion.

Enrollment: In a review of experimental and quasi-experimental evidence, Deming and Dynarski (2009) conclude that "the best estimates suggest that eligibility for an additional $1,000 of subsidy increases college attendance rates by roughly four percentage points" (p. 11).

Persistence and completion : Nguyen et al. (2018) conducted a systematic review of 42 U.S. and five international studies examining causal estimates of grant aid on student persistence and degree attainment. They find that grant aid programs increase the probability of persisting and degree completion between 2 and 3 percentage points. (Effect on within-year persistence is 3 percentage points; 2 percentage points for year-to-year persistence; on-time completion by 2 percentage points and delayed completion by 3 percentage points.) Assuming a linear relationship of aid amount and impact, they estimate that an additional $1,000 of grant aid improves year-to-year persistence by 1.2 percentage points, with smaller effects for degree completion. Results were stronger for programs with additional non-financial supports. The authors find that the effects are weaker for merit-based financial aid than for need-based financial aid.

Opportunities for Foundation work:

- The minimum or maximum effective amount of scholarship funding remains unclear, but scholarships as small as $1,000 can impact enrollment, persistence, and completion.

- An examination of the prevalence of additional non-financial supports and need-based financial aid as opposed to merit-based aid may also underscore beneficial areas of interest in regard to effectiveness of award amount.

First-dollar vs. Last-dollar Scholarships

"First-dollar" scholarships offer a flat-dollar amount to qualifying students regardless of other financial aid. Eligibility tends to be simple, with no need for FAFSA or other financial paperwork. "Last-dollar" scholarships, in contrast, meet part or all of remaining unmet need after all other financial aid sources have been supplied.

No published literature explicitly examines the efficacy of first- vs. last-dollar scholarships. Multiple sources argue that last-dollar scholarships are regressive, since many students with the most need receive other sources of need-based aid (Perna, 2016). However, this argument reflects the fact that most last-dollar scholarships address only calculated unmet need, without recognition of other costs not included within financial aid calculations such as living expenses.

Type	Advantages	Disadvantages
First-Dollar	• *Less chance for delays to students* • *Less administrative capacity to determine award* • *More predictable for provider, college, and student*	• *Less flexibility to meet students' exact needs* • *Possibility of award to a student that is already has ample funding*
Last-Dollar	• *Maximizes providers' and students' limited resources* • *Can more closely identify students' levels of need* • *Can allocate different amounts among students*	• *Less predictable to provider, college, and student* • *More time and resources to gather information and calculate amounts* • *Possible delays in final award package and disbursement, due to communication and negotiation, if required, at the college level*

Source: NSPA (2013)

Opportunities for Foundation work: The tradeoffs between first- or last-dollar scholarships remain unclear for meeting the needs of students. For last-dollar scholarships, stipends for other expenses might help address equity concerns and student needs.

Award Displacement

Ideally, private scholarships would reduce unmet need, if any, followed by reducing reliance on "self-help aid": student loans and work requirements. Financial aid displacement occurs when the provision of one source of aid (such as a federal grant or private scholarship) leads to reduction of another, thus reducing the total amount of financial aid that a student receives.

A Gates Millennium Scholarship evaluation, for example, found that students attending five different universities serving large numbers of GMS Scholars reported experiencing displacement, e.g., they "were billed the balance on their accounts, denied work-study participation, their Expected Family Contribution increased, their summer contribution increased, and/or they had to take out a non-need-based or private loan to cover the unanticipated difference" (Amos, Windham, & Baran, 2009)**.**

The National Scholarship Providers Association recommends that funders avoid award displacement. They found that 80 percent of institutions do reduce unmet need first, followed by self-help aid, followed by other grants and scholarships. However, when a private scholarship covers more than the need determined by the federal financial aid formula, 80 percent of institutions surveyed reduce loans and work requirements, and 50 percent reduced institutional grants or scholarships. Almost one-third increased the overall cost of college, and one-sixth reduced state grants, which are often last-dollar (National Scholarship Providers Association, 2013).

Opportunities for Foundation work: The National Scholarship Providers Association recommends that foundations:

- Provide financial aid literacy supports to students; create a template of questions students should ask colleges about aid, a list of student rights, and a list of colleges' financial aid packaging policies; educate families about award displacement; and help students comply with institutional and government reporting requirements;

- Be flexible about use of funds for different costs, and allow scholarship deferment in the event of an over-award;

- Clearly identify scholarship recipient names and program names on each disbursement check;

- Be sensitive to institutional financial aid deadlines; and coordinate reporting requirements and notification dates with other providers and with the National Candidates Reply Date;

- Develop relationships with financial aid departments; provide concise, standardized summaries of their policies to colleges; and acquire signed FERPA waivers from all scholarship students authorizing providers to discuss financial aid with their colleges to prevent displacement (National Scholarship Providers Association, 2013).

Scholarship Duration

Scholarships range from one-time freshman year awards at one extreme to guaranteed ten-year scholarships like those provided by the Gates Millennium Scholarship. Others are renewable, requiring students to reapply each term or each year.

The total cost of attendance generally rises each year at institutions of all types. At best, gift aid stays constant across a student's tenure in school, but often it declines each year, which increases the financial burden on students and families. Moreover, about 40 percent of surveyed institutions adjust future years' financial aid packages to reflect the expectation of renewed private scholarships: if scholarships are not renewed, students will face an even greater financial burden (National Scholarship Providers Association, 2013).

This literature review did not yield any studies examining the different impacts of one-time, multi-year, or renewable scholarships. However, Nguyen, Kramer, and Evans (2018) **find that aid received in subsequent years after initial enrollment increases persistence**. Their findings "suggest that institutions, states, the federal government, and private scholarship funds will find returns on providing grant aid to students after they have initially enrolled....[front loading aid] may increase the probability of initial enrollment in the institution, [but] it may come at the cost of persistence ..." (Nguyen, Kramer, & Evans, 2018). Additionally, Carruthers & Özek (2016) find that the likelihood of continued college enrollment declines after a scholarship is lost. The likelihood of enrollment falls by 7 percentage points in the semester after a student loses their Tennessee HOPE scholarship, and continues to decline in subsequent semesters. The number of credits students attempt also declines by 1.1 credits (8.4 percent) in the first semester after scholarship loss.

The Foundation Strategy Group argues that, "the fall off in aid mainly affects the prospects of students in the bottom half of the income distribution. For these students, the scholarships or grants they lose after the first year are generally made up either by increased loan amounts or income from work. Both options have negative effects on persistence and completion. Lower-income students are often more averse to loans than their higher income classmates and will often leave school to avoid increasing their debt

burden. More hours spent at work mean less time for studying and for social activities that keep students engaged in campus life and increase their likelihood of completing a degree" (The Funder Strategy Group, 2010, p. 14). FSG and the Oregon Community Foundation (2015) both recommend providing multiyear awards, or even incrementally increasing aid each year to cover rising costs.

Opportunities for Foundation work:

- Foundation scholarships could consider covering multiple years, since, although studies have not explicitly shown the impacts of front-loading financial aid, FSG and a peer foundation both recommend multiyear grants This is because aid received in years after initial enrollment increases persistence.

- Incrementally increasing award aid each year should also be explored, as even consistent aid over multiple years often fails to cover the cost of rising tuition.

- The merits of automatic (multiyear) scholarships vs. scholarships that require students to reapply (renewable) could be considered. All of these recommendations, if adopted should be monitored for effectiveness among Foundation scholarship awardees.

Maintenance (Performance) Requirements

As noted above, even need-based aid involves merit-based requirements. Many scholarships also require that students continue to demonstrate merit throughout their time in college. These maintenance requirements serve three main roles: to communicate performance expectations, to incentivize academic success, and to limit financial expenditures on students who are unlikely to graduate (Scott-Clayton & Schudde, 2017)

Maintenance requirements do change behaviors, and therefore must incentivize choices and behaviors that actually contribute to graduation – for example a longitudinal study found that the introduction of the Georgia HOPE scholarship, which has a 3.0 GPA requirement, led to a 13 percentage point decrease in the number of resident freshmen taking a full course load and increased course withdrawals, but increased summer course usage (Cornwell, Mustard, & Sridhar, 2006). Students who had HOPE scholarships often reduced their course-taking to stall the maintenance requirement evaluation for an additional semester.

Performance is important: students must accumulate credits and maintain a certain GPA in order to remain in school. Moreover, early college GPA predicts later performance and completion. In one study, students with first-semester GPAs below 2.33 – rather than 2.0, a typical threshold for academic probation – were about half as likely to graduate within six years as students with top GPAs between 3.34-3.67. (Gershenfeld, Ward Hood, & Zhan, 2015). These researchers concluded that students with GPAs below 2.33 should be targeted for additional supports. In some cases,

performance-based scholarships have been shown to improve college students' performance (Scott-Clayton & Schudde, 2017).

Other markers beyond GPA predict completion as well. In an observational study of college transcripts of students who completed college and students who didn't, (Adelman, 2006) concludes that to narrow completion gaps, institutions should (a) ensure that students end their first calendar year with 20 or more additive credits, (b) prevent no-penalty withdrawals and no-credit repeats, (c) incentivize summer semesters, and (d) encourage entry into college immediately after high school. While these are observational findings, the trajectories of successful students could inform scholarship maintenance requirements. Quasi-experimental analyses that expand on Adelman's "momentum" theory suggest that pre-college summer bridge programs (+10 percentage points) and enrolling in summer coursework after the first year (+11 percentage points) have positive impacts on six-year degree completion (Douglas & Attewell, 2014; Attewell & Jang, 2013).

Multiple studies point to credit accumulation as a potentially useful maintenance requirement. West Virginia's four-year PROMISE scholarship requires a minimum credit accumulation of 30 per year for the first three years. In an analysis of the program, Scott-Clayton (2011) found that the scholarship increased the likelihood of the accumulation of 30 credits by 20 to 25 percentage points in the first three years, whereas Georgia's HOPE scholarship (which requires a 3.0 GPA but does not include a credit accumulation requirement) *decreases* credit accumulation. Scott-Clayton attributed the difference to the credit accumulation requirement. Additionally, in an evaluation of the Oregon Community Foundation's scholarships to support the acquisition of early care and education credentials, schools that required completion of some credits within the program had higher completion rates (as did schools with GPA requirements; many of these schools overlapped) (Weber, Grobe, & Lipscomb, 2013).

The negative incentive of potentially losing one's scholarship may have adverse effects on persistence. About one-quarter of Pell recipients at public 2- or 4-year schools, and about one-sixth of students at nonprofit 4-year schools or for-profit 2-year schools, earn a GPA under 2.0 in the first year, which elicits a warning about impending loss of aid. In a study of community colleges in two states, Pell recipients who receive warnings due to failure to meet satisfactory academic performance (SAP) requirements in the first term are twice as likely to drop out before spring (29 percent vs. 13 percent). Pell recipients below the SAP-required 2.0 GPA are also several percentage points less likely to persist than non-Pell recipients with the same GPAs, whereas there is no difference in persistence rates above 2.0. The effect is stronger for students who are very far below the 2.0 requirement. Students who return to school do improve their GPAs by 0.03 to 0.07 points, but not typically enough to maintain their financial aid. Moreover, failing to meet SAP requirements seems to reduce students' subsequent cumulative credits attempted by about 3. The researchers conclude that "the primary effect of SAP policy appears to be punitive – simply limiting students' access to aid – rather than formative," (p.6) and they recommend warning students early about

academic criteria and providing supports and outreach when a student struggles (Schudde & Scott-Clayton, 2017).

Being placed on academic probation improves some students' performance but also doubles the probability of dropping out among students with above-average high school GPAs –much more than it does for students of lower ability (Lindo, Sanders, & Oreopoulos, 2008)**.**

FSG concludes that "[t]here is preliminary evidence that providing grants that have some level of academic achievement, GPA and/or course load requirements is effective at getting students academically engaged. However, **the effectiveness of such grants requires that academic support services are available for the grant recipients so they have some help in their efforts to comply with the requirements**" (Cohen, Fox, Kutash, & Pandit, 2010)**.**

Opportunities for Foundation work:

- If Hartford Foundation scholarships include maintenance requirements, they should be reviewed to identify choices or milestones that predict persistence and completion.

- Students falling below these requirements could be considered for additional services to help them comply, and this should be done as early as possible.

- Non-financial academic supports can be targeted toward students with below-average GPAs in combination with maintenance requirements in order to close the completion gap between college students with low GPAs and those with top GPAs above 3.34.

Other Design Elements

Simple Processes. Application process and aid should be simple, clear, and transparent (Dynarski, 2000).

Flexible scholarship funds. An evaluation of The Oregon Community Foundation's Betty Gray Community College Scholarship Program found that flexibility to use funds for a "wide array of purposes" was associated with higher educational attainment (Weber, Grobe, & Lipscomb, 2013)

Combined forms of support. In a systematic review examining financial aid and persistence, Hossler, Ziskin, Gross, Kim, and Kim (2009) find that reviews of programs combining forms of financial aid support (e.g., grants, loans, and work-study) are more likely to report positive effects for financial aid than studies examining just one form, but also finds:

> "empirical support for the conclusion that large, visible programs that are easy to understand and that incorporate extensive information and early

commitments of aid have a small, positive effect on persistence. Programs such as Georgia's HOPE, Indiana's Twenty-first Century Scholars, Social Security Tuition Benefits, and Nevada's Millennium Scholarship compare favorably with programs that provide similar amounts of money but through multiple sources. Overall there is little evidence on this topic, thus, it is impossible to make conclusive statements. However, research results indicate that the expansion and replication of programs that combine early commitment of aid with a far-reaching but simple structure would likely enhance student persistence" (414-415).

Opportunities for Foundation work:

- the Foundation could evaluate its application procedures to ensure they are clear and transparent.

- It could also examine the possibility of making scholarship funds flexible in their use, and explore opportunities for coordination with or by other local scholarship providers to form a larger, more recognizable program.

Incorporating Wrap-Around Supports

In addition to a significant body of literature examining the importance of student support services alone, there is also significant evidence that financial aid has a larger impact when combined with services. (Deming & Dynarski, 2009) found that aid was more effective than services alone, but that aid is most effective when combined with services. Angrist and his colleagues found little effect for either financial aid or nonfinancial supports alone, but found that the combined treatment increased GPAs and number of earned credits (Angrist, Lang, & Oreopoulos, 2009). Similarly, in examining two historical changes in the Carolina Covenant scholarship program, Clotfelter et al. found no evidence that an increase in the value of institutional grant aid impacted academic progress, performance, or completion, while the introduction of nonfinancial supports increased the likelihood of remaining on track to graduate through credit accumulation (Clotfelter, Hemelt, & Ladd, 2018).

Resources that advise funders also generally refer to the provision of pre- and post-enrollment services as best practices. The Funder Strategy Group (2010) recommends that "[s]maller funders should think about partnering with post-secondary institutions, high schools, nonprofits, and potentially other funders to provide non-financial support services or track student outcomes for their scholars" (p. 28). FSG argues that supports should be *proactive* (and potentially required), individualized, and framed in a strength-based way (such as leadership, achievers, scholars), especially when serving African American and minority male students. The next section of the review considers student supports in greater detail.

Opportunities for Foundation work:

- The Foundation can consider partnering with specific post-secondary institutions that their scholars frequently attend in order to provide non-financial supports.

- Partnerships with independent nonprofits specializing in certain supports should also be considered as an avenue to follow scholarship recipients and provide them with necessary wrap-around supports.

Pre-Enrollment Supports

In a review essay, Page and Scott-Clayton (2015) discuss the many points at which a student may misstep in ways that impede their access to college. Some never access or complete pre-college courses or testing. Some are unable to engage optimally with the application process, for reasons that include lack of information about colleges, an excess of information that is difficult to parse, or decision-making based on poorly chosen factors (such as dormitory quality or application complexity). These decisions often lead to an "undermatch" in which students attend schools that are poorly suited for their credentials or have lower success rates. Summer transitions bring further challenges, particularly including paperwork and financing.

FSG argues that the top-three pre-enrollment supports which help students overcome these challenges and enroll in college are: academic preparation, application assistance, and financial aid guidance (Kramer, Parkhurst, & Vaidyanathan, 2009).

Academic Preparation

Academic preparation includes helping students access advanced placement courses, dual enrollment programs, and generally rigorous secondary education. Though such supports are necessary to address the gap in student academic preparation and readiness upon college entrance, it is important to note that academic/cognitive preparation is only the first half of the problem; academic under-preparedness often leads to issues of self-esteem, aptitude, and lack of integration into one's college environment once students attend college. Research suggests that providing pre-enrollment supports of academic preparation, then, is necessary in order to minimize the need for post-enrollment supports for such non-academic factors. Both components are necessary in a holistic view of supporting students (Wilmer, 2008).

Opportunities for Foundation work:
- The Foundation should examine opportunities for partnerships with independent nonprofits that provide extra academic preparation to high school students.

- Funding to scholarship recipients for existing academic preparation programs that pose significant costs such as: Advanced Placement courses and exams, dual enrollment programs, etc. should be considered.

Application Assistance

Existing literature on application assistance focuses largely on the effectiveness of mentoring and college coaching for applications throughout the summer following high school graduation. Carrell and Sacerdote (2013) found that such a college intervention mentoring program was effective not only in rates of college attendance, but in persistence as well. Interventions based exclusively on financial incentives or on providing information alone did not prove to be effective, however. The authors argue that the effectiveness of personal mentoring interventions in college enrollment and persistence is because these services often made up for a lack of skilled parent/teacher guidance and encouragement that would otherwise guide students in the application process.

College counseling and mentoring over this crucial summer was also found to be effective (Castleman & Page, 2015). The authors conducted two cost-effective interventions: periodic text message "nudges" regarding upcoming deadlines for the application process, and near-age mentoring throughout the summer. In their study, both interventions increased college enrollment in students who had less access to college counseling during the academic year. College counseling providing information on deadlines and emotional support throughout the summer after high school also shifts the focus of enrollment for its recipients toward 4-year colleges that have better financial aid and graduation rates than schools students would have otherwise applied to (Castleman & Goodman, 2014). This is particularly significant for students of color, first-generation college students, and other historically disadvantaged groups of students who are overrepresented in community colleges and other non-selective institutions with poor completion rates.

Opportunities for Foundation work:
- An examination of the proportion of scholarship programs under the scope of the Foundation that provide mentoring services during the summer immediately following high school would be beneficial.

- Depending on the results of this examination, more investment in application-process mentoring programs should be considered, as should text-based notification systems.

    - These could be services provided directly through the Hartford Foundation for Public Giving or through a partnership with a nonprofit that provides such services.

Providing low-income, high-achieving students with information about colleges well-suited to their level of preparation can induce them to enroll in more selective colleges, which often have higher graduation rates. They tested providing students with (a) information about match, reach, and safety schools and their deadlines, requirements, and graduation rates; (b) information about net costs

at an array of colleges; and (c) low-paperwork application fee waivers. This intervention cost approximately $6 per student (Hoxby & Turner, 2013).

Students assigned to this intervention submitted more applications; applied to more selective institutions; were subsequently admitted to more colleges; and were 31 percent more likely to be admitted to a "peer" (appropriate to their level of preparation) college. The intervention did not affect the likelihood of completing the FAFSA. However, on average, students in this intervention also enrolled in a college that was 19 percent more likely to be a "peer" institution, with 6 percent higher graduation rates. Students who could recall having seen these support materials experienced all of these effects at a rate 2.5 to 3 times higher than students who had simply been assigned to the intervention: thus, **students who recalled seeing these materials enrolled in a college 46 percent more likely to be a peer institution, with a 15.1 percent higher graduation rate**. Effects seemed stronger on students who did not attend "feeder high schools" and on less affluent students. After follow-up, the grades and persistence into second-year of students who were induced to attend more selective colleges were not statistically different from the comparison group (Hoxby & Turner, 2013).

Researchers also identified the following lessons about implementation:

1. Families strongly preferred paper materials that did not look like college brochures.
2. Families worried that materials may come from for-profit firms selling college advice. Researchers note that they "believe that credibility would not be an issue if the same interventions were conducted by a well-known non-profit organization with a public presence" (Hoxby & Turner, 2013, pp. 12-13).
3. Often, one family member (most often a parent, the student, or other adult) vetted all college-related mail and email.
4. Fee waivers increased the credibility of associated information.

Financial Aid Guidance

Helping families complete FAFSA forms can increase enrollment more than merely giving them information about financial aid. In a frequently-cited study, Bettinger et al, (2012) conducted a randomized experiment with families with dependent high school children and with independent adults aged 24 to 30 earning under $45,000 per year who use H&R Block to file their taxes. The total cost of the program was under $100 per participant.

The effect was strongest among dependent students. Dependent students in the first experimental group were offered streamlined assistance in completing and submitting their FAFSA, and personalized aid estimates. Treated students were 16 percentage points more likely to file the FAFSA than the control group (56 percent vs. 40 percent). The second experimental group of dependent students was provided personalized aid estimates without help completing the FAFSA; this intervention had no effect on the likelihood of completing the FAFSA.The college enrollment rate for the experimental

group who received assistance completing the FAFSA were 42 percent (compared to 34 percent among the control group). The experimental group also saw a 11 percentage point increase in Pell Grant receipt. Most of the enrollment increase occurred at public colleges, while the rate at which students attended selective institutions doubled. The increase in enrollment was stronger for females and for children whose mothers had college degrees. Rates of consecutive college enrollment for two years also increased, from 28 to 36 percent.

Among independent adults aged 24 – 30 with no prior college experience, FAFSA completion assistance increased the likelihood of completing the FAFSA (from 16 percent to 43 percent), the likelihood of enrolling in college (from 10percent to 11 percent), and the likelihood of receiving the Pell grant (from 11 percent to 14 percent). Again, most of the increase in enrollment occurred in public colleges. The rate of consecutive college enrollment also increased from 10% to 11%.

By contrast, for independent adult participants with some prior college (which likely included some students currently in college or intending to reenroll), FAFSA completion assistance increased the likelihood of FAFSA completion (from 32 percent to 52 percent) but had no impact on enrollment or Pell grant receipt.

Opportunities for Foundation work:

- The Foundation should consider providing a support service wherein families receive assistance completing the FAFSA.

- The Foundation might also refer students to organizations who currently provide one-on-one assistance in completing the FAFSA (and fund the use of such resources).

Post-Enrollment Supports

Post-enrollment services are more diverse and complex than pre-enrollment services. College persistence and completion involve far more factors; the length of time involved is longer and the process is more complicated. In the case of private scholarships, students are often dispersed across a number of schools; and scholarship recipients may be difficult to single out within a larger student population. While research is clear that post-enrollment supports make scholarships more effective, there is no clear consensus in the research literature about *which* post-enrollment supports are most effective. It would be in the Foundation's best interest to continue to monitor and evaluate future literature in this area.

Broadly, some potentially feasible categories of nonfinancial supports discussed within scholarship literature include academic engagement; social engagement; counseling; college coaching; mentorship; monitoring of students' performance with intensive

supports for students who are struggling; financial guidance; emergency funding (small grants to help students overcome short-term financial hardships); and completion scholarships – grants to help students who are near completion to finish their final coursework (Goldrick-Rab, 2010).

Among these, FSG recommends focusing on academic engagement, social engagement, and financial guidance and support, including emergency funding. However, most of the supports discussed in the preceding paragraphs can take myriad forms. For example, academic engagement may include learning communities, faculty mentorship, tutoring, or summer bridge programs, among others. Foundations with scholarship programs and other post-enrollment supports must also decide whether to make these supports available to all students within a geographic area/group of colleges or to specifically target only scholarship recipients.

Academic Engagement

Post-enrollment supports for academic engagement most supported in the literature are 'summer bridge' programs, learning communities in which first generation students are put in cohort-style classes to establish faculty and peer relationships, close monitoring of student progress, tutoring, and extensive advising or coaching programs.

Summer Bridge Programs. Summer bridge programs have students enroll in summer coursework even before officially starting college. **The nature of the coursework is usually subject-based (math being most common), and some colleges allow students who failed placement exams to retake them after completing summer bridge. This can reduce the rate of enrollment in remedial classes, which results in increased chances of graduation.** These bridge programs appear on students' college transcripts as actual courses taken, though they may not always count for credit. According to Douglas and Attewell (2014), at community colleges and less selective 4-year universities students who participated in summer bridge programs were 10 percentage points more likely to complete within 6 years than students who did not. Other studies have reiterated this positive effect of summer bridge programs on retention and completion, yet most only analyze the two-year period following the program.

Learning Communities. Beyond summer bridge programs in which students receive targeted help in subject areas, cohort-style classes (called learning communities) during their first year allow students, especially first-generation and low-income students, to establish faculty and peer relationships in the academic setting that promote a culture of success (Engle & Tinto, 2008). Learning communities generally involve the co-enrollment of a cohort of students in two or more classes with linked curricula. Some learning communities offer additional supports such as enhanced tutoring or counseling (Weiss, et al., 2014). These communities seek to increase student integration into college with the hope of increasing completion. Many studies have shown that the increased integration does in fact have positive effects on student engagement,

retention, and completion. In a randomized trial evaluation of learning communities at Kingsborough Community College, researchers found that students who participated in a one semester learning community earned more credits toward graduation and completion than their peers who did not participate- this result remained robust seven years after random assignment (Weiss, et al., 2014). Similarly, Lenning & Ebbers (1999) found that student learning communities resulted in higher academic achievement, better retention rates, and increased curricular/academic integration.

Student Monitoring and Advising. Engle and Tinto (2008) advocate strongly for close monitoring of student progress as a means to increase academic engagement and success. Such early monitoring which alerts students, faculty, and staff of a student's slipping engagement aims to catch the issue before it becomes detrimental and results in the student failing classed or facing academic dismissal. As a component of many early monitoring programs, students needing intervention may be required to engage in peer tutoring and increased advising and/or counseling. In this way, many suggested best practices for academic engagement of low-income and first-generation college students incorporate not only classroom supports but outside services as well.

Enhanced Advising: The notion of enhanced advising mentioned above is explored in great length in the literature, although and a majority of findings have been drawn from studies that rely on: dichotomous studies of participation (examinations of students who received advising interventions vs those who did not), student reported perceptions of advising quality, or frequency of advising sessions (Hatch & Garcia, 2017). However, **much of the research that has been done on effects of advising have found positive impacts on persistence**. In a study of centralized advising (that is, advising done by non-faculty staff typically in an advising center) at a large metropolitan public university, Kot (2014) found that students who used centralized academic advising showed an increase in their first term, second term, and first year cumulative GPA. Furthermore, Kot discovered that students who used centralized advising in their second term showed decreased levels of attrition compared to peers who did not undergo any advising (2014).

Bahr (2008) argues that contrary to a notion of advising having "cooling out" effect of discouraging students from pursuing their academic ambitions, advising is in fact beneficial for students' persistence and success (particularly those who face academic deficiencies). Hatch and Garcia (2017) take this analysis regarding influences of advising on persistence one step further in their study on the 2010 Survey of Entering Student Engagement (SENSE), where they examine effects of varying types of advising on intentions to persist among community college students. Researchers in this study found that prescriptive advising, which takes a more informational and directive stance, was associated with higher odds of students planning to return. Developmental advising, which entails a more advanced and collaborative student-advisor process aimed at increasing student decision-making skills (and is typically regarded as the preferable form) was actually associated with increased non-persistence intentions. Hatch and Garcia's findings surrounding the varied effects on persistence intentions between prescriptive vs. developmental advising do not shed light on actual persistence behaviors, however; they merely indicate impacts on persistence intentions.

Academic Momentum. In addition to the supports listed above, it is also critical to note in reference to post-enrollment academic engagement that "academic momentum" serves as a strong predictor of whether or not a student completes their degree. Academic momentum is defined by Attewell, Heil, and Reisel (2012) as the notion that **the number of courses an undergraduate student attempts in the beginning of their college career is predictive of that individual's college completion**. Through growth curve modeling of undergraduate transcript data, these researchers found that although attempting a lower number of credits during the first semester of college had a negative association with degree completion, no positive effects from attempting high numbers of credits (18 or more) was found. This suggests that while there are no demonstrated gains in completion odds from attempting many credits, there also is no evidence of negative effects (a burnout effect) due to over-commitment in the first semester (Attewell, Heil, & Reisel, 2012).

While completion of 18 or more credits during the first semester did not show positive effects on college completion predictability, one type of positive momentum did: enrollment in summer classes after a student's freshman year of college. On the contrary, delayed entrance to college after high school was associated with lower levels of degree completion. Is crucial to note that according to these researchers, existing academic and social inequalities are exacerbated in the above trends of academic momentum: lower SES and less academically prepared students are less likely to enroll in summer classes after freshman year due to financial feasibility, and are more likely to delay college entrance for the same reason (Attewell, Heil, & Reisel, 2012).

Social Engagement

Engle and Tinto (2008) argue that a major factor in first generation students' struggle once they arrive on college campuses is their lack of social engagement and involvement during their first year. Because these students often put off extensive social integration until they feel they have a solid grasp on their college academics (Terenzini, et al., 1994), their social engagement regrettably falls short eventually contributing to their dissatisfaction with their college experience and increased chances of dropping off. Engle and Tinto argue that low-income first-generation students' lack of social engagement on campus is also linked to their financial need to live and work off campus and/or take less classes than their peers in order to work full time off campus.

In order to address low-income, first-generation students' lack of social engagement, the literature advocates for institutional supports during the first semester of enrollment. Although the literature is vague on specific examples of such supports, they can take the form of peer tutors and/or learning center staff who were themselves first-generation relaying their experiences (Stebleton & Soria, 2013). Social engagement supports can also begin with early orientation programs that socialize students to the expectations of the school, and can later be incorporated into interaction-based classroom structures, according to Engle and Tinto (2008). These authors claim that such efforts on behalf of the institution have the biggest impact in reaching first-generation and low-income

students when services are mandatory for all students. The cost of these services must be examined in order to prevent a financial barrier for the intended recipients. Thinking about the Foundation, the best practices for addressing student social engagement mentioned above would likely involve partnerships with colleges or funding of non-profit organizations that help socialize students to college culture.

College Coaching

Most successful wraparound supports include some sort of coach or mentor who provides academic and personal guidance to the student. The role of college success coaches is to serve as a general resource and to assist students in maximally utilizing resources on their campus. One example of such a coaching program is Knox Achieves, which was originally offered to all Knox County, Tennessee high school seniors who demonstrated interest in college, regardless of financial need or merit qualifications. These students received financial assistance as well as a college coach for five consecutive semesters of community college enrollment (Carruthers & Fox, 2016).

This extended college coaching, paired with financial services, had dramatic impacts on college enrollment. Students who participated in Knox Achieves were 24 percentage points more likely to attend any college and 30 percentage points more likely to attend a community college than their peers who were not in the program (2016). In another program similar to that of Knox Achieves, Ann Arbor Community Foundation's 2016 launch of the Community Scholarship Fund provided economically disadvantaged scholarship recipients living in Washtenaw County, Michigan with a college coach in addition to a financial award, reaping similar benefits (Boehm & Perrault, 2017)**.**

In a randomized experiment assigning first-year nontraditional college students to a college coach who assisted in building time management, self-advocacy, and study skills, Bettinger and Baker (2014) found that recipients of a coach were 5 percentage points more likely to persist in college than students without a coach. This effect on persistence remained in the years following the end of the program. Such college coaching supports are also more cost-effective than additional financial aid for many institutions.

The Posse Foundation serves as another example of the effective intertwining of post-enrollment college coaching/mentors and scholarships, where recipients of this full-tuition scholarship are matriculated onto their college campus alongside a small group of fellow recipients, known as their "posse". In addition to pre-collegiate training and bonding as well as comprehensive career development supports while on campus, Posse scholars receive extensive college coaching/mentoring throughout their 4 years at selective institutions via the foundation's Campus Program. Faculty mentors meet with Posse students as a group weekly and meet with scholars individually biweekly for the first two years of their college experience (with less mandatory meetings in their last two years), in addition to visits from Posse staff members 4 times a year (The Posse Institute, 2014). Such extensive investment in consistent college coaching is demonstrated to be highly effective; in addition to student qualitative reports expressing the value of the mentoring component of the scholarship, Posse has a 90% graduation

rate at 4-year universities among its recipients suggesting a significant positive impact on college retention and graduation.

Financial Guidance and Support

Another necessary component of financial support documented in the literature is emergency funding. One common reason that low-income students to drop out of college is lack of financial support, often in the midst of unexpected financial hardship. These financial hardships, such as lack of funds to pay rent or utilities may result in students having to discontinue their studies. According to Boehm and Perrault, the creation of emergency funding for precisely these situations where students' basic human needs need covered has proven to make a significant difference in a student's ability to continue schooling and in rates of completion (Boehm & Perrault, 2017). Emergency scholarships for students in need are typically small one-time grants around $1,500 that do not need to be repaid, although some emergency scholarship programs offer wraparound supports such as financial aid counseling as well (Boehm & Perrault, 2017).

Christian Geckeler's report on the Dreamkeepers and Angel Fund Emergency Financial Aid Programs revealed that in the programs' first two years, more than $845,000 in emergency funding was given to 2,400 students. Recipients of these awards – who often received money allocated exclusively toward the cause of financial distress, i.e. housing expenses, transportation, childcare, etc. – were more likely than their peers to be older nontraditional students and to be women and/or African American students (Geckeler, 2008). **These findings suggest that emergency funding could be integral in reaching demographics of students most in need of financial support to complete college.**

Completion scholarships show considerable benefit, though these may take the form of grants or loans. These awards are given primarily to students close to graduation who are at risk of dropping out due to financial hardship. Frequently, low-interest completion loans are forgiven if the student successfully graduates and meets additional requirements, such as meetings with their advisor (Boehm & Perrault, 2017). Completion scholarships tend to target the same demographic of students as other emergency funding, with 73% of recipients being racial/ethnic minorities and a large number being older nontraditional students.

Comprehensive Support Programs

All of the aforementioned post-enrollment supports have been found to be individually significant in improving college retention and completion. However, according to a review of the City University of New York's ASAP (Accelerated Study in Associate Programs) Program, **the positive effects of combining multiple interventions into one program far surpasses the positive effects of each support when isolated** (Scrivener, et al., 2015)**.** This report on ASAP programs at three CUNY

community colleges showed that the comprehensive support program (which included required full time enrollment, enhanced advising, tutoring, first-year blocked or linked courses resembling learning communities, financial assistance covering the gap between financial aid and remaining tuition/fees, free public transportation, and free use of textbooks) substantially improved academic and graduation outcomes for participants. Students who were randomly assigned to participate in ASAP's program showed increased persistence, greater total credit accumulation, increased enrollment during intercessions, increased likelihood of graduating in 3 years, and increased likelihood of enrolling in a 4-year university in three years compared to students who merely received usual college services. Recipients of this comprehensive support program saw a 22% increase in credit accumulation in 3 years over their non-participant counterparts, and 28% of the overall effect on this credit accumulation occurred during intercessions (such as winter or summer terms). Additionally, 40% of program members graduated from community college in 3 years compared to non-program members in which only 22% graduated in 3 years (Scrivener et al., 2015). Not only was ASAP highly effective in improving student success, but due to the increased number of graduates produced by the program compared to usual college services the cost per degree was actually lower in ASAP than in the control condition. This in-depth analysis of ASAP's comprehensive support program sheds light on the significant positive impacts that multiple combined interventions have on student success.

Opportunities for Foundation work: Given the potential for scholarships to be most effective when paired with supports, Foundation staff should review post-secondary supports and consider feasibility of offering supports that reach Foundation scholarship recipients. Several examples are listed below.

- Investing in emergency funding scholarships that reach communities in need .

- Due to the positive impacts on academic momentum that summer classes offer, the Foundation should consider efforts to provide funding for students to participate in summer classes following their first year of college (these classes typically present financial barriers to low-income students but increase persistence when utilized)

- The Foundation could invest in funding or allocating resources to higher education institutions' existing programs for peer tutors/early orientation programs in order to improve social engagement

- Investing in or partnering with Connecticut colleges to match current students with local alumni would prove to be a valuable and feasible way of incorporating "college coaching" services

- An examination of potential opportunities to combine the services/supports listed here into **a comprehensive support program** (similar to ASAP Program) could be done by the Foundation both in accordance with best practices and for consolidation purposes.

Student-Level Factors in Postsecondary Success

In addition to the findings above on potential scholarship and wraparound services and their effects, the existing literature also underscores student factors in retention and graduation. Due to a variety of extenuating circumstances and disadvantages that disproportionately affect community college students; Latinx, Black, and first generation students; delayed entry and adult learners; undocumented students; and English language learners, it is crucial to examine the profile of these students in order to effectively move forward in assisting them through college.

Community College Students

Profile and Barriers to Success

Because community colleges are open to all students and do not pose selective admissions requirements, working students comprise a significant proportion of the community college population. More than half of community college students are also workers, compared to the 37% of 4 year university students (Goldrick-Rab, 2010). Community college students are also more likely to be low-income, part-time, first generation, and delayed entry learners. As has been discussed previously in this literature review, whether a student works off campus in addition to their studies, has delayed entry, or possesses any of the above qualities has significant negative impacts on their social and academic integration on campus. This poor social and academic engagement is strongly associated with decreased retention and completion rates. **Goldrick-Rab explains that only 16% of first-time community college students who enrolled in 2003 received a credential of some kind (i.e. a certificate, associate's degree, bachelor's degree) within three years, which rises to 36% within six years** (2010)**.**

A thorough examination of community college students includes an analysis of the macro-level opportunity structures for such students, institutional practices, and the social, academic, and economic attributes that community college students bring with them (Goldrick-Rab, 2010). These components will therefore be explored below.

Macro-Level Opportunity Structures. One aspect of macro-level opportunity structures that exists within community colleges and disadvantages students is the institution's source of funding. Community colleges are primarily funded by state and local funds, from which they receive 60% of their revenue compared to a mere 15% from federal funds including federal financial aid (Goldrick-Rab, 2010). This dependence on state and local funds means that community colleges are especially susceptible to fluctuations in the economy. Furthermore, their lack of federal resources and the ensuing limited amount of funds that community colleges have available to allocate towards students likely contributes toward their low student completion and success rates. This limited spending per student at community colleges indeed has concrete consequences. For example, Dowd and Ventimiglia (2016) find in a cost evaluation of a high-quality remedial program in Massachusetts that these remedial courses – which not only focus

on subject matter but also train students how to be successful in college – are significantly more expensive than typical remedial instruction. Community colleges thus by and large use non-developmental remedial programs which are shown to have less positive (and indeed often negative) effects.

The limitations in financial aid provided to community college students is another example of a macro-level opportunity structure that has negative impacts on completion. While the literature establishes that government funded financial aid, specifically grants, is associated with decreased chances of dropping out of community college, these grants are awarded in a problematic manner. **Students who are enrolled less than half-time are ineligible to receive any form of financial aid (and therefore are at increased risk of dropping out).** As previously discussed, a large percentage of community college students also work and are unable to enroll full time, thus these high-need students who must work to pay their way through college are restricted from maintaining financial aid for doing so and are less likely to persist.

The three most noteworthy institutional practices at community colleges which serve as barriers to success are assignment to developmental/remedial coursework, the limitations of under-resourced faculty, and the widespread loss of credits upon transfer from community college to a 4-year university.

*Developmental Education***.** One of the most significant challenges facing students who begin their postsecondary education at community colleges is assignment to sequences of developmental, or remedial, coursework. About 60 percent of first-year students at US colleges are assigned to some form of developmental coursework (Grubb, et al., 2011). Furthermore, researchers suggest that few students assigned to these sequences ever complete them – 33% for those assigned to a math sequence, 46% for those assigned to a reading sequence (Bailey, Jeong, & Cho, 2010). Indeed according to some policy researchers, **remedial coursework, particularly in math, may be the single largest barrier to student degree completion** (Complete College America, 2012; Attewell P. , Lavin, Domina, & Levey, 2006). Further complicating the path to completion for students assigned to these sequences, federal regulation limits financial aid for developmental classes to 30 attempted hours (The Funder Strategy Group, 2010).

Under-resourced Faculty. Several important issues are present when examining the faculty at community colleges and how they contribute (or fail to contribute) to student success. First, community colleges experience a shortage of professors in fields such as nursing and health services and STEM (Sciences, Technology, Engineering, and Mathematics), which are positions in high demand within higher education (Hardy, Katsinas, & Bush, 2007). Due to minimal financial resources, community colleges are often unable to offer teachers the higher wages and comprehensive benefits they would receive at better-funded 4-year institutions and therefore struggle to recruit faculty. Furthermore, the faculty they can afford to onboard (often younger and less experienced individuals) are less likely to be highly qualified and possess the skills necessary to aid in student success (Goldrick-Rab, 2010).

An equally important issue within the realm of community college faculty and their impact on students is the heavy reliance on part-time adjunct professors (also due to the community college's limited financial resources). Adjuncts often teach multiple classes at multiple colleges, and receive low wages and no benefits. According to Goldrick-Rab, not only does this lack of time and financial resources from the college effect these professors' ability to put together effective lectures and lesson curriculum for students, it also leaves them with little incentive to pursue professional development that may drastically improve their influence on student success with the minimal spare time that they have. Instead, these adjunct-professors are often merely exposed to one-time professional development workshops that research has proven to be ineffective (Goldrick-Rab, 2010).

Credit Loss Upon Transfer. A third institutional barrier to success, which is less the sole responsibility of the community college and more an institutional issue of transfer between types of institutions, is that many community college students transfer to 4-year institutions, yet when they do they often experience a significant credit loss, which negatively affects their rates of bachelor's degree completion. According to Monaghan & Attewell (2015), among those community college students who initially reported intentions of BA attainment and eventual transfer to a 4-year institution, 42% eventually transferred. Furthermore, their study revealed that when students did transfer, many of their community college credits were not accepted by the 4-year transfer institution which led to significant consequences for graduation rates. Importantly, credit-loss put aside, students who transferred from community colleges performed as well academically as those who began at 4-year institutions. About 14% of community college transfer students essentially had to start from scratch at their new college because less than 10% of their credits transferred over, though the proportion of credits that do transfer varies widely. Some students are able to keep a majority of their earned credits while others lose some or most of theirs. Monaghan & Attewell (2015) discovered that students who had all or almost all of their credits transferred were 2.5 times more likely to graduate than students with less than half of their credits transferred.

Student Attributes. As briefly discussed at the beginning of this section, barriers to community college student retention and completion are also related to the risk factors that accompany the positionality of many community college students. These students are more likely to be of color, low-income, delayed entry, and to have lower academic preparation than students who immediately enroll in 4 year institutions. These student traits will be discussed in more detail in subsequent sections.

Perhaps the most broad-reaching barriers for community college students are associated with being low-income. Low-income community college students are more likely to have taken more vocationally-focused secondary education and less academically rigorous courses than their higher-income peers. They are also more likely to have attended schools with fewer resources, less qualified teachers, and less college preparation-coursework than students who do not come from low-income backgrounds (Goldrick-Rab, 2010).

Additionally, economically disadvantaged students face issues of not having the financial resources to fund long periods of time spent in college (due to impacts of remedial coursework on time-to-completion) and are less likely to have knowledge of the financial aid process than their economically advantaged peers. Kantrowitz (2009) found that many community college students who were eligible for federal grant aid in fact did not file a Free Application for Federal Student Aid (FAFSA) form and therefore did not receive aid that would have reduced their loan and work burden and increased their chances of degree completion. This study showed that in the 2007-2008 school year, only 44% of students at public 2-year institutions filed a FAFSA form compared to the 63% at public 4-year institutions and 72% at private 4-year institutions who did so (Kantrowitz, 2009).

<u>Supports and Services</u>

Addressing Developmental Coursework. Recent studies have suggested three approaches to addressing the problem of developmental coursework. Students starting at community colleges – who are far less likely to take college admissions tests, and typically are not required to submit their high school transcripts upon admission – are usually placed into developmental coursework based on scores received on placement tests administered by the community college. Researchers have found that these placement tests have high rates of "severe under-placement," meaning that they assign students to developmental coursework who would have otherwise done well in college-level coursework (Scott-Clayton, Crosta, & Belfield, 2014). As a response, the first approach to the problem, many colleges have begun using systems of multiple measures assessment and placement (MMAP) systems – which rely on high school grades and coursework indicators to supplement or replace test-based placement methods. Studies have shown that MMAP systems reduce rates of developmental under-placement, and are more reflective of students' potential to succeed in college (Bahr, et al., 2019; Belfield & Crosta, 2012; Barnett, et al., 2018).

The other two approaches to the problem of developmental course assignment change the nature of the courses themselves. One of these is an acceleration approach, whereby students are asked to complete remedial courses early in the college career and/or the courses are compressed in time either before college begins or during the semester. One quasi-experimental study of this approach suggests that students in accelerated programs were more likely to complete developmental coursework within three years (Smith-Jaggars, Hodara, Cho, & Xu, 2014). More recent evidence from a random assignment study suggests that acceleration also increases the likelihood of students' completing college-level math requirements (Douglas & Putorti, 2018). A related approach is co-requisite developmental education – which places students assigned to remedial coursework directly into related college level work, with additional academic support to ameliorate any outstanding academic needs. Non-experimental data have shown mixed results of co-requisite remediation. But a recent experimental study has conclusively demonstrated that students assigned to developmental mathematics who are placed in co-requisite courses complete those courses at higher rates, accumulate more college credits, and ultimately graduate at higher rates than their peers placed in

developmental coursework (Logue, Watanabe-Rose, & Douglas, 2016; Logue, Douglas, & Watanabe-Rose, 2019)

Financial Aid Assistance. Economic disadvantage and lack of knowledge about the financial aid process is described in this section as a barrier to student completion, in that many community college students fail to even file a FAFSA form which would provide them with necessary financial aid to continue their studies. Therefore, financial aid supports and assistance such as those outlined previously in this literature review are particularly applicable to community college students. Bettinger et al.'s (2012) analysis of the beneficial effects that streamlined assistance completing and submitting the FAFSA had on student rates of filing a FAFSA form and receiving benefits provides particular insight into one way the proportion of community college students who file and receive federal financial aid benefits can be increased.

Additionally, text-based reminders of due dates and "nudges" as defined in Castleman & Page's (2015) study have proven to be effective in increasing student execution of pre-matriculation tasks (such as completing financial aid applications), and similar methods should be utilized in efforts to increase community college student FAFSA applications.

Opportunities for Foundation work:

- Because remediation can serve as a significant barrier to community college student completion, implementing placement test preparation services may help community college students perform better on the placement tests that otherwise funnel them into remedial/developmental education courses. The aim here is to prevent student enrollment into remedial courses.

- Providing scholarship recipients with free pre-enrollment developmental coursework (or information guiding them toward such services offered by independent organizations) would limit the amount of time and money students waste on remedial courses after enrollment that are not credit-bearing.

- Providing scholarship recipients with information about availability of multiple measures of assessments for college course placement (which rely on high school grades rather than mere placement tests) will also improve their chances of success via non-remedial coursework. Students should be informed about these options and informed which institutions have implemented them.

- Supports explained previously in this review such as financial aid guidance (and text-based "nudges") are certainly within the scope of the Foundation and would increase community college students' likelihood to file a FAFSA form and receive necessary federal aid to earn a degree.

- Counseling and advising services regarding which institutions will accept community college coursework are necessary to limit the number of students who unexpectedly have to start from scratch upon transfer to a 4-year college or university due to lack of credit transfer (out-of-state 4-year colleges and universities often will not accept the community college transfer credits).

Latinx Students

Profile and Barriers to Success

Latinx students are likely to be low-income, first-generation, and to work while attending college. According to Excelencia in Education (2019), the average Latinx students' family income ($58,923) was significantly lower than the general population ($88,267), and that over 51% of Latinx students worked 30 hours or more a week, with 32% working full-time. Being low-income and first-generation are associated with an abundance of risk factors for failure to complete college, as has been addressed in this review and will be further addressed in the "First-Generation" section. In addition, working while attending college also has negative impacts on likelihood to complete due to inability to socially and academically engage on a college campus in the same way that non-working students do. This will be explored in greater detail in the "First-Generation" section as well.

In addition to being more likely than their white peers to be low-income, first-generation, and student-workers, Latinx students also experience very low rates of Bachelor's degree attainment when compared with students of other ethnicities. As a broad category (as opposed to a gender analysis of college completion within race/ethnicity categories), Latinx students are the least likely ethnic group to earn a Bachelor's degree, according to Arbona & Nora (2007). These low rates of college completion are accompanied by high rates of drop-off (Nora & Crisp, 2009). Latinx students have also been found to be overrepresented in community colleges. Arbona & Nora found that in the fall of 2000, 58% of Hispanic-identified students enrolled in college were enrolled in 2-year institutions compared to the 42% of African American students and 36% of White students who were (2007).

Latinx students often additionally experience a sense of culture shock and a dissonance between their home culture and the culture of predominately white institutions of higher education upon enrollment (Engle & Tinto, 2007). This culture shock is also experienced by Black and first-generation students and can lead to lowered social and academic integration due to sentiments of not feeling accepted or at home and due to a lack of what many educational theorists refer to as "cultural capital" - broadly defined as a collective possession of the ideas, tastes, preferences, and social requirements/subjective knowledges of a particular environment, that allow one to successfully navigate the social demands. In the context of Latinx students and college, this environment refers to predominately white institutions of higher education where Latinx students (especially if students are first-generation) may lack the knowledge of how to navigate the cultural arbitraries and requirements/assumptions that align with wealthy white expectations.

Supports and Services

Additional Support Scholarships. The literature suggests that Latinx students have a strong aversion to debt and are less likely than Black or White students to accept federal loans in order to finance college, even though their average family income is less than that of the total student population (Excelencia in Education, 2019). For this reason, it is argued that scholarships (not loans) that are large enough to lessen Latinx students' needs to work during college, and increase their chances of attending more selective institutions could greatly improve Latinx college completion. These scholarships include those that provide additional services beyond merely monetary awards. Renewable scholarships that fund childcare costs, transportation assistance, and special tutoring as needed for Latinx students are among the most convincing supports in the literature (Santiago, 2011). One such program that focused on educating more Latinx students to enter and succeed in the nursing field in Chicago (where they were grossly underrepresented) provided the aforementioned services among others to Latinx recipients, and within the five years it has been operating the number of Latino LPNs (Licensed Practical Nurses) graduating in the state has tripled. **Thus, renewable scholarships which invest in additional services such as childcare costs, transportation assistance, and special tutoring are effective in making college completion financially feasible for Latinx students.**

Information Distribution. In addition to scholarships that provide support services such as those outlined above, investment in efforts to educate Latinx parents and families about the educational pipeline and pathways to college enrollment and completion for their students early on has proven to be particularly beneficial. The distribution of these knowledges should be community-based and can be scholarship-driven, emphasizing the aspects of preparation, access, choice within the college process. Univision's campaign "Es el momento" ("this is the moment") is an example of such a program. "Es el momento" was targeted toward Spanish-speaking families; it exposed them to information regarding how best to prepare their children for college and the resources and opportunities available (financial and otherwise) to aid in college completion (Santiago, 2011).

Efforts focused on informational distribution do not have to be exclusively targeted to families. **Santiago argues, in fact, that such efforts should also be directed toward educators, administrators, and school counselors** (2011). The College Board's "Prepárate" program is one example of informational training for secondary school faculty in which education professionals are provided with tools to best educate and prepare Latinx students for college enrollment and completion. These programs ought to focus on areas for improvement as well as increasing overall Latinx student preparation for college, access to college and to assistance, and college choice.

Peer Mentors. Since many Latinx students experience culture shock upon enrollment in predominately white institutions, resulting in feelings of isolation and decreased college involvement and completion. The literature argues that Latinx students may benefit from support and bonding from peers of the same ethnicity. This may take the form of institutionally guided early orientation programs catered to the experiences of specific student demographics, in which Latinx students are surrounded by a community of individuals from similar backgrounds and are prepared for expectations of the college,

as suggested by Engle & Tinto (2008). They may also take the form of peer mentors who are not designated by an institution's orientation program and instead are student leaders of the same ethnicity who provide guidance regarding college resources and faculty in addition to providing companionship in what can otherwise be an isolating new setting (Harper, 2012).

Opportunities for Foundation work. Supports most relevant to the Foundation are scholarship-based services that increase Latinx families' knowledge surrounding college pathways for their students early on in their educational careers.

- The Foundation could create informational materials that emphasize college preparation, access, and choice, and distribute these materials to the Hartford Community.

- Alternatively, the Foundation could partner with other organizations to incorporate such material into efforts geared toward middle-school/early high school student scholarships.

- Informational material should be distributed to Hartford schools and their faculty.

- Additional supports for Latinx students should be included in their renewable scholarships, including: childcare costs, transportation assistance, and as-needed special tutoring or mentoring.

Black Students

Profile and Barriers to Success

Black students as a group tend to experience lower rates of college persistence and graduation than their white peers, and higher rates of attrition. Black men in particular demonstrate low rates of college enrollment, with Black men comprising only 4% of students enrolled at institutions of higher education in 2002 (Harper, 2012). **Additionally, Black men experience the lowest college completion rate of males, females, and all racial/ethnic groups in the United States**. According to Harper (2012), a full two-thirds of Black males who began their higher education career in public universities failed to graduate within 6 years. The literature offers three key reasons why Black college students experience these poor rates of success: social estrangement/discrimination on campuses, lack of finances, and low academic preparation. Social estrangement and discrimination is the most widely discussed among these and offers the most room for supports and services.

Social Estrangement and Discrimination. Eller & DiPrete (2018) found that many Black college students experienced levels of social estrangement and lack of belonging that their white peers did not, especially at predominately white institutions, which was

closely correlated with high drop-out rates among Black students. Likewise, Harper (2012) discusses the notion of tokenism as a major self-reported reason that Black students feel uncomfortable in higher education and one that is related to high rates of attrition. He explained in a report on academically successful Black male college students that they are often either the only or one of very few people of their race in a classroom. At best, this leaves them feeling as though they are being looked at as a representative or spokesperson for their entire race and are forced to navigate a racially politicized space with few other members of their race (termed "onlyness"), and at worst results in subtle (or overt) forms of discrimination from professors and peers.

The subtle forms of discrimination that Black students face in college classrooms are demonstrated by Black student reports of white students and professors being surprised (and skeptical) when they perform well on academic tasks due to bias and a presumed lack of intelligence. Discrimination is also reported among Black students when reflecting on the many times they have been told by peers that they were only admitted because of affirmative action. They discuss their interactions with white students and faculty alike who assumed they were on the basketball or football team, could rap, dance, and liked hip-hop, and came from high-poverty urban neighborhoods and fatherless homes (Harper, 2012). These forms of subtle, aversive racism are incredibly harmful and pose a major obstacle to Black students' mental well-being, sense of belonging, and academic success.

Finances. One of the largest contributors to college drop-off among Black students is lack of finances. Participants in Harper's study reported that a vast majority of their peers who left college did so for financial reasons (2012). However, it is important to note that lack of finances for Black students not only plays an important role in post-enrollment success, but it also poses a barrier to pre-enrollment success. Academically successful Black male college students in Harper's study all emphasized the integral role their parents played by providing them with college information and enrolling them in college preparation courses (2012). While this is a source of encouragement if these resources are free, and even if they're not free if all Black families can financially afford to engage in this way, this is not the case. Due to systemic issues beyond the scope of this review, many Black families lack the resources to pay for transportation and enrollment fees for such programs. Therefore, lack of finances poses a barrier to success for low-income Black students long before college.

Academic Preparation. Black college students also tend to exhibit lower academic preparation than their peers, which is correlated with lowered college enrollment and retention rates among this population. Merritt, Bergman, & Berry (2017) and others indicate academic preparation through both rigor of high school courses and SAT scores. Although SAT scores have been proven to be biased and problematic in the types of cultural capital and knowledge that they reflect (i.e. an arbitrary preference for and advantage towards white middle class demonstrations of knowledge), they continue to be used as a predictor of collegiate readiness when coupled with high school GPA (Soares, 2011). Given this weight that standardized test scores such as the SAT hold, it is significant to note that in addition to taking less academically rigorous courses in high

school (e.g., Kelly 2009), a 185-point Black -White student performance gap on the SAT likely contributes to access barriers among Black students (College Board, 2001).

<u>Supports and Services</u>

Several interventions for Black college students have been shown in the literature to be effective and to provide promise in improving college success. Among these services, the following have particularly strong support: summer bridge programs, student mentoring from same-race upper classmen, equipping families with "college knowledge" through free education courses about the college enrollment and financial aid application process, and increased public marketing about scholarships designed specifically for Black students.

Summer Bridge Programs. Harper (2012) found that summer bridge programs were effective in providing Black students with academic knowledge that they may not have received pre-enrollment. This summer programming decreased the academic preparation gap between Black and White students discussed above, and also acclimated students to their college campus in an influential way. Black male students in Harper's study explained that participating in a summer bridge program on campus allowed them to interact with faculty, administrators, and older students who served as peer mentors. They also allowed students to familiarize with campus resources and campus life (2012).

Same-Race Peer Mentoring. Perhaps the most widely effective support discussed in the literature (and by Black students themselves) is having same-race upper classmen students available as mentors during their first years on campus. Black male students reported that older Black male student leaders who reached out and developed relationships in their first semester were influential in the students' ability to persist. These peer mentors addressed real concerns with students, connected them to networks, resources, and faculty, gave insight on campus matters, and were able to relate to students in a way that well-intentioned administrators could not (Harper, 2012).

Free Education Courses and "College Knowledge". As discussed above, many black families (particularly those with parents who have not attended college) lack knowledge of the intricacies of the application process and procedural requirements, yet also lack the financial resources to enroll their children in expensive college preparation courses that address these gaps. Therefore, equipping students and families with college knowledge in an accessible way is crucial in increasing enrollment rates for Black students. Harper discusses the need for free education courses in low-income Black communities (and low-income communities at large). He argues that these courses should educate families about the different types of colleges and universities and what makes them unique, and assist them in planning not only how to get into college but how to graduate within 6 years (Harper, 2012).

Scholarship Marketing/Awareness. While the literature does advocate for a quantitative increase in scholarships designed for Black students and Black males specifically, it also

suggests that college administrators and independent scholarship providers should invest in increased marketing strategies to entice more black students to apply for already available scholarships (Harper, 2012). A key issue is that too many black students are unaware of the extent of financial assistance or where to find these scholarship opportunities. Thus, it is of the upmost importance that differentiated marketing approaches are created and utilized in order to maximize the number of intended scholarship recipients who actually apply and receive necessary aid.

Opportunities for Foundation work:

- The Foundation may consider funding summer bridge programs for scholarship recipients, as there is strong support for their benefits at large and particularly for Black college students.

- Funding for free education courses centered on post-secondary education options to increase Black families' college knowledge should undoubtedly be pursued. This may take the form of partnerships with existing programs or the creation and staffing of such courses within the Foundation either online or in-person.

- The Foundation may not be able to provide on-campus same-race peer mentors but should investigate possible avenues to foster such mentorships outside of campus, throughout college years.

- Increasing attention and resources paid to the marketing and advertising of existing scholarships targeted to Black students would be beneficial in increasing awareness of scholarship opportunities among this population.

First-Generation Students

Profile and Barriers to Success

First-generation college students are more likely to be black or Hispanic, low-income, and female. They are more likely to delay entry into postsecondary education, to begin at two-year institutions, to work while taking classes, and to lack academic preparation and knowledge about the college process (Engle, 2007). According to Ishitani (2003), first-generation students are also at increased risk of attrition in their first year, compared to students who have two parents who attended college. Barriers impacting first-generation students can generally be separated into pre-enrollment issues affecting college access and post-enrollment issues affecting college completion.

Academic Preparation. Engle (2007) reports that first-generation students are significantly less likely to be academically prepared to enroll in 4-year universities than their peers (indicated by rigor of high school courses). First-generation students disproportionately take less rigorous high school mathematics coursework which can often be tracked back to course-taking gaps in middle school. This variable of advanced/rigorous math course enrollment is not arbitrary; **taking advanced math**

classes in high school more than doubles a first-generation student's chance of enrolling in a 4-year university (Horn & Nuñez, 2005). Therefore, a first-generation's student's lack of enrollment in this gateway course to advanced high school math (often because their school does not provide an 8th grade Algebra course) is a strong predictor of high school course rigor/academic preparation and their ensuing chances of college enrollment.

College Intentions & Family Encouragement. First-generation college students also have lower college-going intentions than their peers, due in part to low teacher expectations (because of student academic preparation) and due in part to family expectations. According to Engle's (2007) analysis of nationally representative data, only 53% of twelfth grade first-generation students reported expectations to earn a bachelor's degree, compared to the 90% of students whose parents had earned a college degree. These expectations are significantly influenced by encouragement from high school teachers to attend college. Given that teachers tend to verbalize college-going encouragement to high-academically achieving students, and that first-generation students tend to be enrolled in less rigorous courses, first-generation students may receive less encouragement than their peers, leading to lower college expectations.

Parental/family expectations also have an important impact on first-generation students' college going intentions. Many first- generation students come from low-income families. Due to financial stressors, then, Engle (2007) argues that many families of first-generation students expect their children to begin (or continue) financially supporting the family by entering the work force immediately after high school. Additionally, parents of first-generation students frequently have misconceptions about college regarding the cost of attendance and the financial aid process. They are therefore more likely than parents who attended college to view college as not financially feasible and thus to either be passive or discourage their children from college enrollment.

College Knowledge. One of the largest barriers that first-generation students face to college access is personal and familial lack of what has been coined in the literature as "college knowledge". College knowledge is essentially the social and cultural capital that one possesses about the world of higher education. This includes knowledge about how to navigate the college application process, financial aid, and college culture itself once a person arrives. This includes knowledge about how to navigate the college application process, financial aid, and college culture (Engle, 2007). College knowledge is critical even before beginning applications, however. Research shows that the early stages of planning for college (understanding the importance of high school academic and social involvement for college enrollment, preparation for college entrance exams, the process of school selection, etc.) are influential in setting the trajectory for a student to enroll in college, and yet they require a great deal of college knowledge.

Since first-generation students do not have parents who have experience or extensive knowledge of these processes, parental involvement is low in the college planning stages and first-generation students are left navigating a world they do not know without the assistance that many of their peers have. This has serious consequences for students:

significantly fewer first-generation high school graduates took a college entrance exam (SAT/ACT) or applied to a 4-year institution compared to students whose parents had college degrees (Engle, 2007). **Lack of social and cultural capital about higher education, or "college knowledge", is a clear barrier to first-generation students' college enrollment, yet many scholars have found that chances of these students successfully enrolling in college is greatly increased when students receive guidance about financial aid.**

Financial Resources. Because a large percentage of first-generation students are low-income, overall cost of attendance plays a critical role in determining what college or university they attend. Berkner & Chavez (1997) found that first-generation students were likely to attend colleges that allowed them to live at home (thus limiting room and board costs) and considered their ability to work while enrolled when selecting a college. Because lack of financial resources has a significant impact on the schools that first-generation students apply to and enroll in, for the reasons listed above they disproportionately enroll in community colleges or non-selective 4-year universities close to home. Engle & Tinto (2008) find that first-generation students were more than seven times as likely to earn a bachelor's degree if they started at a 4-year university, yet only 25% of them did so. Additionally, only one in ten first-generation students who started at a 2-year institution actually transferred to a 4-year institution within 6 years, suggesting that for many first-generation students who begin at community colleges never leave or complete an advanced degree.

Culture Shock. Many first-generation students struggle upon entering college campuses due to a sense that they are living and immersed in an environment that is incongruent with the norms, values, and experiences of their home community. Engle & Tinto (2008) describe first-generation students as feeling as though they are living in two entirely different worlds but are accepted by neither; relationships with people from home who did not attend college get strained, yet they also do not feel a sense of belonging at college. This isolation on campus is often due to feeling "othered" because of their racial, ethnic, or socioeconomic identities. It is evident that wrap-around supports for first-generation students experiencing this culture shock and isolation are crucial in increasing their chances of completion.

Academic and Social Integration. Another barrier to first-generation college students' success and completion is their low academic and social integration on college campuses. Engle (2007) explains that first-generation students are less likely to engage with other students in study groups, spend less time interacting with faculty outside of class (through advising sessions, for example) and are less likely to utilize support services on campus than students who are not first-generation. In addition to limited academic integration, first-generation students are often less socially integrated than their peers. They are less likely to socialize with faculty and students outside of class and less likely to be involved in school clubs and activities. Scholars have found that first-generation students tend to postpone social involvement in extracurricular activities until they feel as though they have the academic demands of college under control (Terenzini et al., 1994).

It is important to underscore that first-generation students' lack of academic and social integration is not an issue of motivation. To the contrary, their lack of integration typically stems from one of two things: lack of social/cultural capital in the college environment or financial demands that place them off campus frequently. The former can be seen through the fact that many first-generation students lack skills, expertise, and general knowledge about how to navigate bureaucratic components of college academic life such as registering for classes, picking a major, and meeting with advisors (Engle, 2007). They therefore may not know which sources to seek out, where and how to seek them out, or feel comfortable asking for help. Even when first generation students are at an equal level of academic preparation as their non-first-generation peers, they often lack the confidence and know-how to successfully navigate college in a manner that leads to heightened campus integration.

Due to financial demands that their peers may not have, many first-generation students work and/or live off campus. Large amounts of time spent away from campus have predictably negative impacts on first-generation student academic and social integration (Engle, 2007).

Supports and Services

Increases in financial aid via grants, scholarships, and work-study for first-generation students specifically has positive effects on their ability to work less, spend more time on campus and integrate, and therefore persist. These financial supports should not consist of loans, however, which have adverse effects on first-generation student persistence due to a generalized aversion to debt that causes these students to work through college in order to avoid accumulating debt. Engle (2007) argues that because funding for federal aid such as the Pell Grant and work-study remains relatively stagnant while tuition costs consistently rise, the impact of additional (non-federal) grants is exacerbated as they help to reduce the gap created between steady federal funding and rising costs of attendance. Without a widespread increase in grant availability (and access), first generation students' need to work in order to pay for college remains and is heightened, further putting them at risk for non-persistence and completion due to the ensuing barriers to social and academic integration that they experience.

Opportunities for Foundation work:

- Emphasis on scholarships and grants (not loans) specifically for first-generation students will help bridge the financial gap these students face and may address the issue of work-school balance they frequently encounter.

- Increased investment in wrap-around services that aim to educate first-generation students and their families on college processes early on (e.g. college counseling, high school tutoring, college admissions and financial aid workshops) will provide these students with the "college knowledge" to more successfully navigate college-enrollment requirements.

- Other services that would increase first-generation student completion include specialized enhanced advising and mentoring programs that connect students to supportive peers who share their background and increased scholarships for students who work more than part-time.

Delayed Entry and Adult Learners / Non-traditional Students

Profile and Barriers to Success

In addition to the fact that students who delay entrance into college are older, several key characteristics distinguish delayed entry learners from their immediate enrollment counterparts. Students who do not enroll in college immediately following high school are more likely to be low-income, parents, workers, veterans, and students of color than those who do not delay. Additionally, they are more likely to speak English as a second language and to be first generation college students. Because delayed entry students are often workers, they are less likely to be able to enroll full time in college, and this part-time enrollment compromises their financial aid situation. They are also more likely to attend community colleges and to pursue vocational training and/or short-term credentials than students who do not delay (Horn, Cataldi, & Sikora, 2005)

Research suggests that one reason delayed entrants may find themselves at community colleges in such high proportions is due to a lack of academic preparation; while only 25% of immediate entrants in 2000 were not academically prepared for 4-year university coursework due to rigor and extent of high school coursework, 59% of delayed entrants were academically unprepared on these grounds. The demographic characteristics outlined above indicate that students who delay enrollment in college are fundamentally different from those who do not; they are more likely to have family and educational experiences that put them at greater risk of not completing college (Horn, Cataldi, Sikora, 2005).

Length of Delay. Because the length of time in which students delay enrollment after high school varies greatly, it would be insufficient to merely group delayed entrants into one large group for analysis. Although delayed entry students are more likely than immediate entrants to be low-income, students with longer delay periods (more than 2 years) are typically higher-income than students with a shorter delay period (1-2 years). White students also compose a greater proportion of delayed entrants as the length of delay increases, with 62% of students who delayed 1 year being white compared to the 78% of students who delayed 10 years that were white (Horn, Cataldi, Sikora, 2005).

In addition to socioeconomic and demographic differences by length of delay, differences in trajectories also exist between these two groups of delayed enrollment students. Longer-delay students are less likely to being enrolled in a bachelor's degree programs and more likely to enroll in a vocational and certificate programs. Students' reported degree aspirations also reflect this trend. When asked to report the highest level of education they hoped to achieve, only 13% of students who delayed 10 years or

more reported aspirations for an advanced degree compared to the 42% of students who delayed one year who reported advanced degree aspirations.

Impacts of Delay on Completion. The literature suggests that delayed enrollment into college after high school largely has negative effects on graduation probability for students. According to Attewell, Heil, and Reisel, delayed entry among students in their 20s is associated with a 9 percentage point decrease in bachelor's degree attainment at 4-year universities and an 8 percentage point decrease in associate's degree attainment at 2-year universities compared to those who enroll immediately after high school graduation (2012). Horn, Cataldi, and Sikora pursued this further and found that the likelihood of earning a bachelor's degree within 6 years decreased significantly as the number of years between high school graduation and college enrollment increased (2005). But given the finding regarding students' aspirational differences, we should be careful not to make the simplistic conclusion that length of delay is simply harming students' chances of earning degrees.

Supports and Services

Prior Learning Assessments. Due to the profile of delayed entry learners in which many are parents, workers, and veterans who have life experiences and obligations prior to enrolling in college, prior learning assessments (PLA) are explained in the literature as being a primary support for this community. Prior learning assessment is geared toward adult/delayed entry learners and reward students with academic credit for college-level learning experiences outside the classroom such as work, military, or even certain personal experiences. They are awarded by the institution that the student attends. To earn credit for their college-level learning outside of higher education, students may: submit a written prior learning portfolio (PLP) in which their experiences are described and analyzed and are subsequently examined by a team of faculty for credit, be assessed and credited for subject-area exams, or be assessed and credited for completion of certain evaluated programs (Hayward & Williams, 2014).

In a study of prior learning assessments at four community colleges, Hayward & Williams (2014) found significant positive impacts of PLA on adult-learner graduation rates. Overall, PLA improved graduation rates of adult learners, with a 28% graduation rate among adult PLA students compared to a 12% graduation rate for adult non-PLA students. Furthermore, these researchers found distinct differences in student graduation rates according to method of PLA: delayed entry students who earned credit through exams had a 52% graduation rate, whereas those who did so through completion of certain evaluated programs had a 24% graduation rate and those who earned credit through submission of a portfolio had a 12% graduation rate. Some students also earned credit through a combination of these three methods, and the graduation rate among this population was 30%. Therefore, Hayward & Williams, among other researchers, have found that not only are prior learning assessments effective in addressing low graduation rates among delayed entry learners, they also vary in effectiveness based on method of PLA (with credit through examination performance resulting in the highest graduation rates).

Opportunities for Foundation work:

- Due to the fact that an abundance of students who delay college enrollment also work and have family/educational experiences that are associated with decreased completion rates, supports that target delayed entry students may include scholarships specifically for working students that allow for part-time and non-continuous enrollment and/or that cover childcare costs.

- Informing delayed entry scholarship applicants of institutional prior learning assessment opportunities (especially those in which credit is earned based on examination performance) is something the Foundation can do to assist delayed entry students' college completion.

Undocumented Students

Profile and Barriers to Success

The largest barrier that undocumented students face to college enrollment and completion is access to financial assistance. A vast majority of undocumented students are first-generation and low-income and are therefore in a financial situation that prevents them from being able to afford college without significant financial aid. However, because of their migration status they are ineligible for federal financial aid. U.S. Supreme Court case Plyler v. Doe (1982) established that undocumented students have a right to a K-12 education, but that is where their protection stops. The decision offers no regulations or protections regarding their right to higher education admittance, and therefore institutional policies about undocumented student admittance varies state by state. According to Gildersleeve, Rumann, & Mondragon (2010), some colleges require students to provide proof of citizenship or legal immigration status in order to be admitted. Even those colleges that do not require such proof often refuse to provide these students with in-state tuition rates, forcing undocumented students to pay up to seven times the in-state rate in order to attend (Gildersleeve, Rumann, & Mondragón, 2010).

In addition to being denied federal aid and frequently being denied in-state tuition at institutions of higher education, a majority of U.S. states require proof of legal residence in order to receive state-funded grants or financial aid (only a handful including Texas and New Mexico provide undocumented students with state-funded aid, though this number is increasing). Many outside scholarships also require proof of legal residence to be eligible for benefits, further constraining undocumented students' access to already limited financial aid (Gildersleeve & Vigil, 2015)

While financial barriers are the major contributor to low enrollment and completion rates among undocumented students, they are not the only barrier. Undocumented students are also likely to experience heightened levels of shame, uncertainty, fear, and hopelessness when faced with pursuing a college education. According to Pérez et al.

(2010), due to the state and institution variation in regulations for admittance and financial aid, undocumented students lack a sense of consistency and are faced with a system that is difficult to navigate and poses a perceived risk of exposure and removal from the United States. Research has shown that undocumented students are also very aware of the fact that even if they beat the odds and enroll, persist, and graduate, their job opportunities are limited due to their legal status; this can lead to a sense of hopelessness and discourage students from enrolling and/or persisting (Gildersleeve, Rumann, & Mondragon, 2010).

<u>Supports and Services</u>

Opportunities for support are currently sparse, but Gildersleeve & Vigil (2015) highlight one program at University of Texas at Austin (UT) that effectively supports its undocumented students through comprehensive support including administrative, academic, and wellness services. The Longhorn Dreamers Project discussed in this piece provides informational services to undocumented students prior to enrollment, during their time on campus, and post-graduation. This includes information on college applications, financial aid, health services for current undocumented students, graduate school admissions, and post-graduation employment opportunities. The Longhorn Dreamers Project also provides faculty and advisors with extensive information surrounding undocumented students' rights, bridging a frequently wide gap between student needs and staff knowledge/understanding.

UCLA's student group, Improving Dreams Equality Access and Success (IDEAS), and the institution's program called the Undocumented Student Project provides similar services to support undocumented college students. This two-pronged approach to support (student-lead, and institutional supports) collectively provides undocumented students with peer-to-peer support, workshops surrounding relevant laws and practices, and online question and answer pages regarding campus and community resources (Gildersleeve & Vigil, 2015). Arizona's local nonprofit Scholarships A-Z and similar organizations also provide community-based support (that partners with educational institutions) for undocumented students before they arrive on college campuses. According to the authors, these supports include personal advising sessions and training on immigration law with support strategies for students, families, and concerned educators (2015). Support services for undocumented students that provide encompassing community-building, knowledge on current rights and laws, and advising toward next steps are beneficial in aiding undocumented students through their college experience.

Opportunities for Foundation work:

- Renewable scholarships that do not require proof of legal residency would provide this community with financial assistance that they are not awarded elsewhere.

- An examination of existing services within the foundation, and if necessary, an expansion of services that provide undocumented students with accessible

information (online and via mail) regarding their unique and often convoluted process of college enrollment and financial aid would also prove beneficial in supporting this demographic.

- Scholarship programs that provide (or partner with) campus support programs specifically for undocumented students in which pre-enrollment, post-enrollment, and post-graduation advising is offered would also greatly help increase enrollment and completion rates among undocumented students.

English Language Learners

Profile and Barriers to Success

English Language Learners (ELLs) are students who do not speak English as their native language and have not yet mastered fluent speaking and/or writing in English. These students are faced with several factors that contribute to their underrepresentation in 4-year institutions and low rates of bachelor's degree completion. They typically come from non-English speaking households and are commonly Latinx, low-income, and are more likely than their peers to be first-generation students and immigrants (Nunez, Rios-Aguilar, Kanno, & Flores-Montgomery, 2016).

Performance Gaps and Misidentification. ELL students experience large performance gaps when compared to their English-speaking peers in reading and writing, and less drastic performance gaps for science and mathematics. The reading/writing performance gap is perhaps obvious, as ELLs attend English-speaking schools where they are expected to read and write in a language that is not their own. In addition to performing lower than their peers in low-stakes reading and writing tasks due to language barriers, ELL students are regularly and disproportionately misidentified as being learning disabled and placed in remedial high school classes (which steers them away from a 4-year university path). According to Spinelli (2008) and Cook, Pérusse, & Rojas (2015), this misidentification is largely due to high school's reliance on academic placement exams that are given in English. When ELL students do not perform well on these tests, they are presumed to be low performing/learning disabled and put into remedial classes that are not indicative of their mental abilities and put them on a path that is not geared toward college enrollment.

Due in part to factors including but not limited to those mentioned above, the literature shows that English Language Learners have lower rates of enrollment and degree attainment than their English-proficient and English-native-speaking peers, especially at 4-year institutions. According to Kanno & Cromley (2015), 4-year college access and bachelor's degree attainment seemed much more out of reach for ELL students than their peers, with a mere 18% of ELLs advancing to 4-year institutions after graduation compared to the 43% of monolingual English-speaking students who did so. Furthermore, Kanno & Cromley (2015) found that these trends of low 4-year college enrollment and completion rates stem from problems during the early stages of college

planning (i.e. college aspirations and obtaining college qualifications/appropriate academic preparation). In tenth grade, only 58% of ELL students in their study reported expectations to earn a bachelor's degree (while 70% of English-proficient and native English-speakers did), and only half of those ELLs who had 4-year college aspirations actually became qualified for admittance (as demonstrated by high school course rigor and performance).

Language Requirements and Remediation. Additionally, ELLs face specific obstacles upon college enrollment. Many 4-year institutions have contingencies for admittance that require students who speak a language other than English to demonstrate a certain level of proficiency in English; if this proficiency is not demonstrated, the college may conditionally accept the ELL student but require them to take language courses either pre- or post-enrollment (Bergey et al., 2018).

These remedial language courses are typically not credit-bearing, and serve as a barrier to degree completion. The reason for this is two-fold. First, because colleges and universities are often not equipped to address ELL students' linguistic and academic needs, these students are often put into courses that do not match their needs. Secondly, and perhaps most significantly, being required to enroll in several remedial language courses puts students off track to graduate in time or at all, as it increases the amount of time and money required of students before they can complete. Due to these extra demands of resources, ELL students (many of whom must enroll in remedial courses) are less likely to persist and attain a degree if they take remedial classes than if they do not (Bergey et al., 2018).

Supports and Services

The literature surrounding scholarship supports and non-institutional services for ELLs is vague, although several best practices for colleges and universities are addressed. Bergey et al. (2018) discuss various institutional supports that could be implemented toward ELL students including: multiple adaptive and ongoing measures of a student's literacy needs to more accurately match them to appropriate courses, remedial coursework with career-related and academic-success skills (and not merely language skills), and use of technology to individualize learning in a more flexible manner. Multiple and ongoing measures of an ELL's linguistic and literacy needs would limit misplacement into courses that do not match their level of mastery. This, combined with remedial coursework that does not focus solely on language acquisition and instead incorporates language learning into content and field-related knowledge, would work to address remediation as a barrier to ELL student completion. Instead of spending time in classes that are a poor fit and/or hinder their progress toward academic and career-goals, ELL students could gain language support while still advancing their content knowledge. Bergey et al. also emphasize the crucial role of technology in individualizing the ELL college experience; they argue that technology can and should be leveraged to provide students with unique scaffolding, allow them to move at their own pace, and have access to qualified teachers and tutors that their institution might otherwise not be able to provide.

Opportunities for Foundation work: Multiple adaptive measures of student literacy and career-related, academically stimulating remedial language coursework are outside the scope of the Foundation's resources. However, the following are areas of feasible potential involvement:

- Increased investment in and incorporation of technology in coursework for ELL students would be an effective way to support this community.

    o The Foundation could purchase the licenses to technology-rich content that would allow differentiated paces for ELL students to more successfully navigate curriculum (e.g. ALEKS, MindTap), and offer such programs to ELL scholarship recipients.

Supplemental Table. Student Level Barriers, Supports and Foundation Opportunities

Student Group	Barriers to College Success	Evidence-Based Student Supports	Opportunities for Action
Community College Students	• Work/school balance issues • Financial Aid barriers for part-time students • Developmental/Remedial Coursework • Credit Loss during Transfer	• Streamlined Financial Aid • Alternative approaches to remediation (e.g., Multiple Measures, Corequisite courses) • Transfer-focused student advising	• Financial Aid literacy and student reminders to complete forms • Support preparation for placement testing • Information about colleges' alternatives to remediation • Programming for students intending to transfer
Latinx Students	• Low Financial Resources and Family Debt Aversion • Low college knowledge • College Culture Shock	• Scholarships integrated with non-academic supports • College information distributed to families and high schools • Co-ethnic peer mentoring programs	• Collaboration with local school districts to increase college knowledge and scholarship awareness • Information sessions in Hartford communities • Support for peer mentoring
Black Students	• Social estrangement in college (especially Black men) • Low financial resources • Low Academic Preparation	• Summer Bridge Programs • College information sessions and scholarship marketing • Same-race peer mentoring	• Support for college summer bridge programs • Community events to market scholarship opportunities • Support for peer mentoring
First Generation Students	• Lower teacher and family college expectations • Low financial resources • Academic and Social integration issues	• Targeted grant and scholarship aid • Integration-focused student supports (e.g., advising) • Peer learning communities	• Grant and scholarship programs that specifically target first-generation students

Student Group	Barriers to College Success	Evidence-Based Student Supports	Opportunities for Action
Delayed Entry/Adult Students	• Work/school balance issues	• Prior-learning assessment to earn credit for work-based learning	• Information for adult students about college PLA policies
Undocumented Students	• Ineligibility for federal and state financial aid • Perceived risks in revealing undocumented status to colleges	• Pre-enrollment information sessions focused on student rights • Community based information-building events • Peer supports in colleges	• Supporting scholarships without documentation requirements • Increased information availability for undocumented students • Partnership with/support for on-campus programs for undocumented students
English Language Learners (ELLs)	• Misidentification by standardized tests leads to remedial placement • Requirement to take non-credit English language courses	• Coursework that combines English language instruction with academic subjects • Technology-based ELL resources	• Leveraging technology to facilitate flexible learning for ELL students

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