ATTACHMENT D

FUTURE CONNECT EVALUATION

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education northwest

CREATING STRONG SCHOOLS & COMMUNITIES

Improving college students' success through comprehensive financial and advising support:

FINDINGS FROM THE FUTURE CONNECT EVALUATION

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Executive summary

First-generation college students and students from low-income families face financial, social, informational, and academic barriers to college completion because of the high cost of postsecondary education, the complexity of navigating college life, misalignment between high school and college academic expectations, and a general lack of guidance and information.

Future Connect is a comprehensive scholarship and advising support program at Portland Community College (PCC) in Portland, Oregon, that seeks to change the lives of first-generation and low-income students. Future Connect has served 1,631 students between fall 2011 (when it began) and fall 2016. The program provides students with a last-dollar scholarship and other financial resources; a college success coach, who provides ongoing, individualized support and advising; free college and career success courses taught by their coach; and other services to help students achieve their academic and career goals.

This report is the first external evaluation of Future Connect. It examines the program's impact on college performance, progression, persistence, transfer, and completion. Additionally, qualitative data were collected to understand the perspectives of coaches, participants, and alumni on the effectiveness of the program and to explore how Future Connect might be impacting students' academic and nonacademic outcomes. The report also provides a more complete understanding of the financial barriers Future Connect students have to overcome to achieve college success, and it offers suggestions for program improvements and next steps.

FINDINGS

Future Connect students face significant challenges to college success

Compared with the overall population of students who enter PCC directly from high school, Future Connect students are much more likely to be low-income and struggling to meet basic needs. Eighty-eight percent of Future Connect students received free or reduced-price lunch in high school, compared with 46 percent of all other students who entered PCC directly from high school. In addition, nearly one in four Future Connect students reported experiencing food insecurity while at PCC, and nearly one in six said they had experienced housing insecurity in the last 30 days.

Future Connect is having a substantial impact on academic outcomes

Our findings suggest Future Connect has large, positive impacts on first-year GPA and credits earned, persistence to the second year of college, and three-year completion and transfer rates. In particular, the program increases college completion or transfer within three years by 11 percentage points.

In addition, Future Connect is:

- Meeting or exceeding its goals related to cumulative GPA, credits earned, and fall-to-fall persistence
- Nearly halfway to its goal of seeing 50 percent of all students complete or transfer to a university within three years
- Having a positive impact across racial/ethnic groups, but the magnitude of the impact varies by group

Offering comprehensive services is key to the success of Future Connect

The positive impact of Future Connect appears to be the result of the program's relationship-based, comprehensive model. In addition to financial support, Future Connect provides students with a community of peers and mentors, giving them a sense of belonging and connectedness. Additionally, the Future Connect college success coaches scaffold advising and mentoring to help students navigate complex systems while building their confidence to independently access resources.

The comprehensive services of Future Connect:

- Help participants see themselves as college students and feel like they belong in college
- Help students feel more confident in accessing resources on their own
- Provide concrete guidance aligned with students' goals

RECOMMENDATIONS AND CONCLUSION

Providing long-term financial and advising support that addresses multiple barriers to college access and success may be the key to substantially improving completion rates for low-income, first-generation, and other underrepresented college students.

To maintain or improve its impact, Future Connect may need to address three areas:

- Providing additional four-year university scholarships and advising for transfer students
- Connecting students to resources to help them meet basic needs
- Developing more targeted programming for black students

Comprehensive programs like Future Connect provide potential models of how we can achieve more equitable postsecondary outcomes for low-income and first-generation college students via relationship-based, student-centered, and holistic support. Continued funding and research are both essential to supporting the improvement, sustainability, growth, and replication of Future Connect and similar programs across the country.

Introduction

A postsecondary education plays a powerful role in facilitating socioeconomic mobility (Baum, Ma, & Payea, 2013). Community colleges, which are lower cost and often closer to home than four-year universities, provide access to higher education for disproportionate numbers of students from low-income, minority, immigrant, and non-college-educated families; community colleges are key to providing access to higher education and a path to upward mobility to historically underrepresented groups (Cohen, Brawer, & Kisker, 2014; Morest, 2012). Yet, the cost of college is prohibitive for many community college students (Goldrick-Rab, 2016). Between 2004/05 and 2014/15, prices for tuition, fees, and room and board at two-year and four-year public institutions rose 33 percent, after adjustment for inflation (U.S. Department of Education, 2016).

The rising cost of postsecondary education intensifies socioeconomic gaps in college access and completion. Although the percentage of low-income students attending college has recently increased, there are still large and persistent gaps in college enrollment based on income. In 2012, for example, 82 percent of recent high school graduates from the highest income quintile ($90,500 or above) attended college, compared with 65 percent from the middle income quintile ($34,060 to $55,253) and 52 percent from the lowest income quintile (below $18,300; U.S. Census Bureau, as cited in Baum et al., 2013, p. 34). In addition, among all the students who enrolled in college in 2003/04, 68 percent from the highest income quintile and 46 percent from the lowest income quintile graduated within six years (National Center for Education Statistics, as cited in Baum et al., 2013, p. 40).

To address barriers to college access, states and higher education institutions across the country have developed financial aid and scholarship programs aimed at improving college enrollment and completion among historically underrepresented students. Our review of the literature found consistent evidence across rigorous evaluations that financial aid programs help students persist in and complete college. For example, the Kalamazoo Promise, a program in Michigan that covers tuition for students from Kalamazoo Public Schools who attend in-state colleges, raised completion rates by 9 to 12 percentage points after six years (Bartik, Hershbein, & Lachowska, 2015). Other financial aid and scholarship programs—such as merit-based aid programs in Arkansas, Georgia, and West Virginia; the Florida Student Assistance Grant; and the Fund for Wisconsin Scholars Grant—have raised completion rates by 3 to 5 percentage points (Castleman & Long, 2016; Goldrick-Rab, Kelchen, Harris, & Benson, 2016; Dynarski, 2008; Scott-Clayton, 2011).

In addition to financial barriers, first-generation college students and students from low-income families face social, informational, and academic obstacles to college completion because of the complexity of navigating college life, misalignment between high school and college academic expectations, and a general lack of guidance and information (Page & Scott-Clayton, 2016). Along those lines, many community college students struggle to earn a postsecondary degree or credential (Morest, 2012). The six-year completion rate (for any type of degree or credential) for students who started at a two-year college is 39 percent nationwide and 33 percent in Oregon (Shapiro, Dundar, & Wakhungu et al., 2017).

Providing long-term financial and advising support that addresses multiple barriers to college access and achievement may be key to substantially improving completion rates for low-income and other underrepresented college students; recent evaluations have found programs that offer these kinds of supports have large impacts on college students' success. For example, the Accelerated Study in Associate Programs (ASAP) at the City University of New York (CUNY), the Carolina Covenant at the University of North Carolina at Chapel Hill, and the Dell Scholars Program provide a substantial amount of funding and ongoing, individualized advising or mentoring to underrepresented college students (Clotfelter, Hemelt, & Ladd, 2016; Page et al., 2017; Scrivener et al., 2015). Further, CUNY ASAP raised three-year completion rates by 18 percentage points, the Carolina Covenant raised four-year completion rates by 8 percentage points, and the Dell Scholars Program raised six-year completion rates by 16 to 19 percentage points.

This report adds to the growing research and evaluation literature on comprehensive financial aid and advising programs through a close examination of the implementation and impact of Future Connect on underrepresented students' college success. Future Connect is a comprehensive scholarship and advising support program at Portland Community College (PCC) in Portland, Oregon, that seeks to change the lives of first-generation and low-income students. The program provides students with a last-dollar scholarship and other financial resources; a college success coach, who provides ongoing, individualized support and advising; free college and career success courses taught by their coach; and other services to help students achieve their academic and career goals.

In addition, this report presents the first external evaluation of Future Connect. Using student-level administrative data, the evaluation examines the program's impact on students' college performance, progression, persistence, transfer, and completion. Many evaluation studies focus on program impact, but little is known about how and why programs lead to student success. This evaluation also uses qualitative data to explore how Future Connect might be impacting students' academic and nonacademic[1] outcomes.

Our findings suggest Future Connect has large, positive impacts on first-year GPA and credits earned at PCC, persistence to the second year of college, and three-year completion and transfer rates. In particular, the program increases college completion or transfer within three years by 11 percentage points. Further, perspectives on Future Connect are overwhelmingly positive; around 90 percent of students said the program is helping them accomplish their career goals, and many students described how Future Connect has changed or is changing their lives. Students emphasized the importance of the scholarship (saying it enabled them to go to college) and their coach (whom they viewed as a motivator and advocate). The program's impact on medium- and long-term academic outcomes may be the result of providing students with a community of peers and

[1] Other terms for "nonacademic skills" include social and emotional learning, soft skills, and 21st-century competencies (Farrington et al., 2012). These competencies include self-control, tenacity, academic motivation, metacognitive strategies, study skills, time management, and problem-solving skills.

mentors they can connect with and learn from throughout their time at PCC, thereby building a sense of belonging. Coaches also give students concrete, specific guidance aligned with their goals to help them navigate complex systems while building their confidence to access resources on their own.

Future Connect evaluation design

Education Northwest (a Portland-based nonprofit that provides applied evaluation, research, and technical assistance) conducted this evaluation of Future Connect to provide a full and detailed description of the program, as well as examine its impact on students. To design the evaluation, we worked closely with the Future Connect program manager and the director of PCC Links, who oversees four programs that support underrepresented college students: Future Connect, Project Degree, Gateway to College, and YES to College.

This evaluation seeks to provide useful findings that:

- Lead to program improvements
- Help Future Connect remain—and grow—at PCC and beyond
- Support decision-making among program staff members, funders, and other key stakeholders

The evaluation research questions and data sources are listed in table 1. This report addresses the third and fourth questions.

Table 1. Future Connect evaluation research questions and data sources

Research questions	Data source(s)
1. What does the evidence say about the impact of college advising and financial support programs on students' college success?	• Literature review
2. What advising and coaching strategies do the college success coaches use?	• Participant and alumni survey • Coach interviews • Participant focus groups
3. What is the impact of Future Connect on students' college success?	• Student-level data from PCC and the Oregon Department of Education
4. What are the perspectives of coaches, students, and alumni on the effectiveness of the various components of the program?	• Participant and alumni survey • Coach interviews • Participant focus groups

The results of the literature review are available at ***http://educationnorthwest.org/resources/how-future-connect-improving-college-success-through-comprehensive-advising-and-financial.*** Coordinators of college advising and financial support programs can use this literature review to understand what kinds of effects they might expect from their program if it is implemented in the same way as others. They can also use the literature review to help develop a case for supporting the creation or enhancement of advising and financial support programs that serve underrepresented college students.

A detailed description of the Future Connect coaching model and services is available at ***http://educationnorthwest.org/resources/how-future-connect-improving-college-success-through-comprehensive-advising-and-financial.*** This brief answers key questions about what the program's college success coaches do to help low-income and first-generation college students reach their goals. It is also intended to help staff members at other colleges as they develop or enhance coaching models for improving the persistence and completion of underrepresented college students.

As part of the evaluation, we interviewed all Future Connect staff members (eight coaches, two outreach specialists, and one transfer specialist[2]); conducted focus groups with first-, second-, and third-year program participants (34 students across all four PCC campuses); and surveyed participants and alumni. We received survey responses from 836 (or 51 percent of) Future Connect participants and alumni. Three-quarters of respondents identified themselves as current PCC students, which represents 92 percent of all current program participants.

To identify the impact of Future Connect on postsecondary education progression, persistence, and completion, we cleaned, linked, and analyzed student-level administrative data from PCC and the Oregon Department of Education (ODE). These data included National Student Clearinghouse (NSC) data, which provide the enrollment and completion information of students at postsecondary education institutions across the country. The impact analysis focuses on Future Connect students who attended public high school and entered PCC directly after exiting high school—which is about 90 percent of all Future Connect participants between fall 2011 and fall 2016.

To identify the impact of Future Connect, we created a comparison group from the population of all direct public high school entrants to PCC. Using propensity score matching, we calculated students' likelihood of participating in Future Connect based on background characteristics that are highly related to being a Future Connect participant and the outcomes of interest: gender, race/ethnicity, free or reduced-price lunch status, performance on the state math assessment in high school, attending a Title I high school, attending a high school in an urban area, being in a migrant education program, and being a high school graduate. Across these baseline characteristics, members of the comparison group look exactly like Future Connect students; the matched comparison group provides suggestive evidence of what the outcomes of Future Connect students might have been in the absence of the program.

However, because there may be remaining differences between the Future Connect and comparison students that explain differences in outcomes, we also conducted a regression analysis with the matched samples to strengthen the validity of the findings. Regression analysis holds constant the background characteristics that students were matched on, thereby reducing any remaining differences across the observed traits between the two groups and improving the precision of the impact estimates (Rubin & Thomas, 2000). We also included in the regression equation an

[2] To protect the anonymity of the outreach specialists and transfer specialist, we refer to all data from program staff members in this report as data from coaches.

indicator of a student's high school to control for differences across high schools that contribute to postsecondary outcomes. This analysis ensures we are comparing Future Connect students to similar students from the same high schools. However, this method cannot account for potential unobserved or unmeasurable differences between students, such as motivation, that may explain differences in outcomes. For more information on the method of analysis, see appendix A.

The Future Connect program and participants

Future Connect has served 1,631 low-income and first-generation college students from fall 2011 (when it began) and fall 2016. Students apply for Future Connect during their senior year of high school. To be eligible, students must graduate from a high school or earn a GED in Multnomah County, Hillsboro School District, Beaverton School District, or other regions in the PCC district supported through state funding. In addition, applicants must be a first-generation college student (neither parent has a bachelor's degree) and/or from a low-income family (eligible for the Pell Grant).

Future Connect begins with early outreach in high school. The program's outreach specialists visit all public high schools in Portland, Beaverton, and Hillsboro, reaching about 3,000 students and over 400 families and high school staff members per year. At the end of their senior year or at the beginning of the summer before college, selected students and their families participate in an orientation on the PCC campus facilitated by Future Connect coaches. At this event, students receive information about the program, financial aid, and PCC, and they participate in bonding activities with their peers and coaches. Through this early outreach, the program seeks to connect with the community, cultivate a college-going culture in local schools, and build trust with students during the transition from high school to college.

The foundation of Future Connect is that students receive ongoing financial and advising support during their time at PCC through a variety of services:

- The **Future Connect scholarship** is intended to cover the cost of tuition after applying other federal and state financial aid for up to three years at PCC. The minimum yearly scholarship is $600, and the maximum is $3,400.[3] Undocumented students receive a $1,500 scholarship. The program also provides **other financial resources,** such as bus tickets and student access to an emergency fund (used on a case-by-case basis), as well as housing support for students in foster care.

Future Connect serves a diverse group of first-generation and low-income college students who have indisputable strengths and face obstacles to postsecondary success.

received **free or reduced-price lunch** in high school.

are experiencing **food insecurity.**

are experiencing **housing insecurity.**

	BLACK	LATINO	WHITE
Future Connect students	16%	41%	26%
All other PCC students who directly entered from Oregon public high schools	6%	18%	61%

Note: For full demographic characteristics and survey responses on food and housing insecurity, see Appendix B.

[3] In the most recent year of Future Connect (2016/17), Oregon implemented a new grant program, Oregon Promise, for recent high school graduates and GED recipients who attend community college. Oregon Promise covers community college tuition after other financial aid is applied. Future Connect students who were awarded Oregon Promise received the minimum scholarship of $600.

- Each **college success coach** works with a caseload of 70 to 120 students to help them reach their postsecondary and career goals. Coaches provide individualized advising and support, primarily in regular one-on-one meetings with students, although they also communicate through emails and text messages. Coaches connect students to resources, and they provide academic, social, and emotional support.
- In their first year, Future Connect students enroll in **two free college and career success courses** taught by their coach (College Survival & Success and Today's Careers). In these courses, students learn essential skills—and connect with their peers.
- Students also have access to optional **leadership opportunities:** a leadership course, internships, and opportunities to act as mentors in local public high schools.
- Students receive **transfer support,** including opportunities to apply for scholarships for Future Connect students to attend Lewis & Clark, Pacific University, Portland State University, and other universities. A small foundation also offers several scholarships per year to Future Connect students to attend any college.

In the short term, Future Connect seeks to bolster students' nonacademic skills, such as sense of belonging, self-efficacy, and leadership capabilities. In the medium term, Future Connect aims to help students become independent and inspire their friends and family. Additionally, the program strives for students to earn 25 credits and a 2.5 GPA in the first year—and for 70 percent of students to persist from the fall term of their first year to the fall term of their second year. Mediated by these short- and medium-term outcomes, Future Connect's long-term goals are that 50 percent of students complete college or transfer within three years and that all participants avoid student loan debt. After college completion, the objective is that students find employment relevant to their goals and make a positive impact on their communities.

We used the Future Connect logic model (figure 1) to guide the evaluation. Using qualitative interviews, focus groups, and surveys, we asked coaches, students, and alumni about the program's impact on the outcomes listed in the logic model, focusing on the nonacademic outcomes we cannot measure using student-level administrative data. The impact analysis identified Future Connect's effect on the postsecondary academic outcomes listed in the logic model.

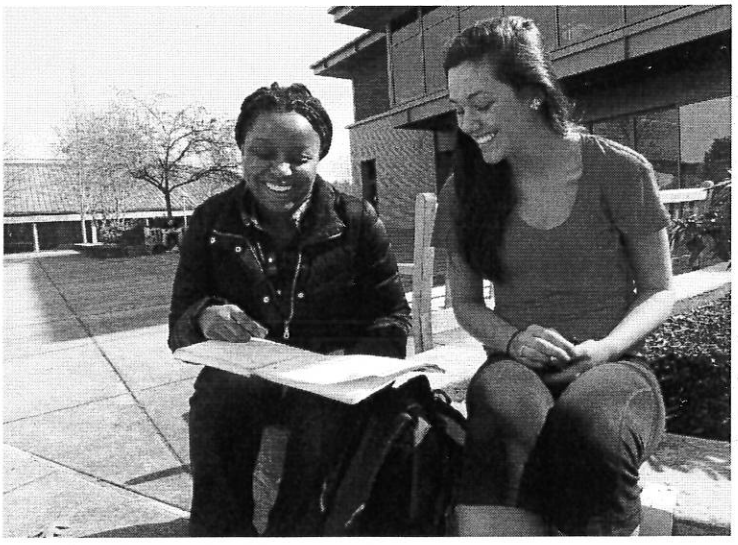
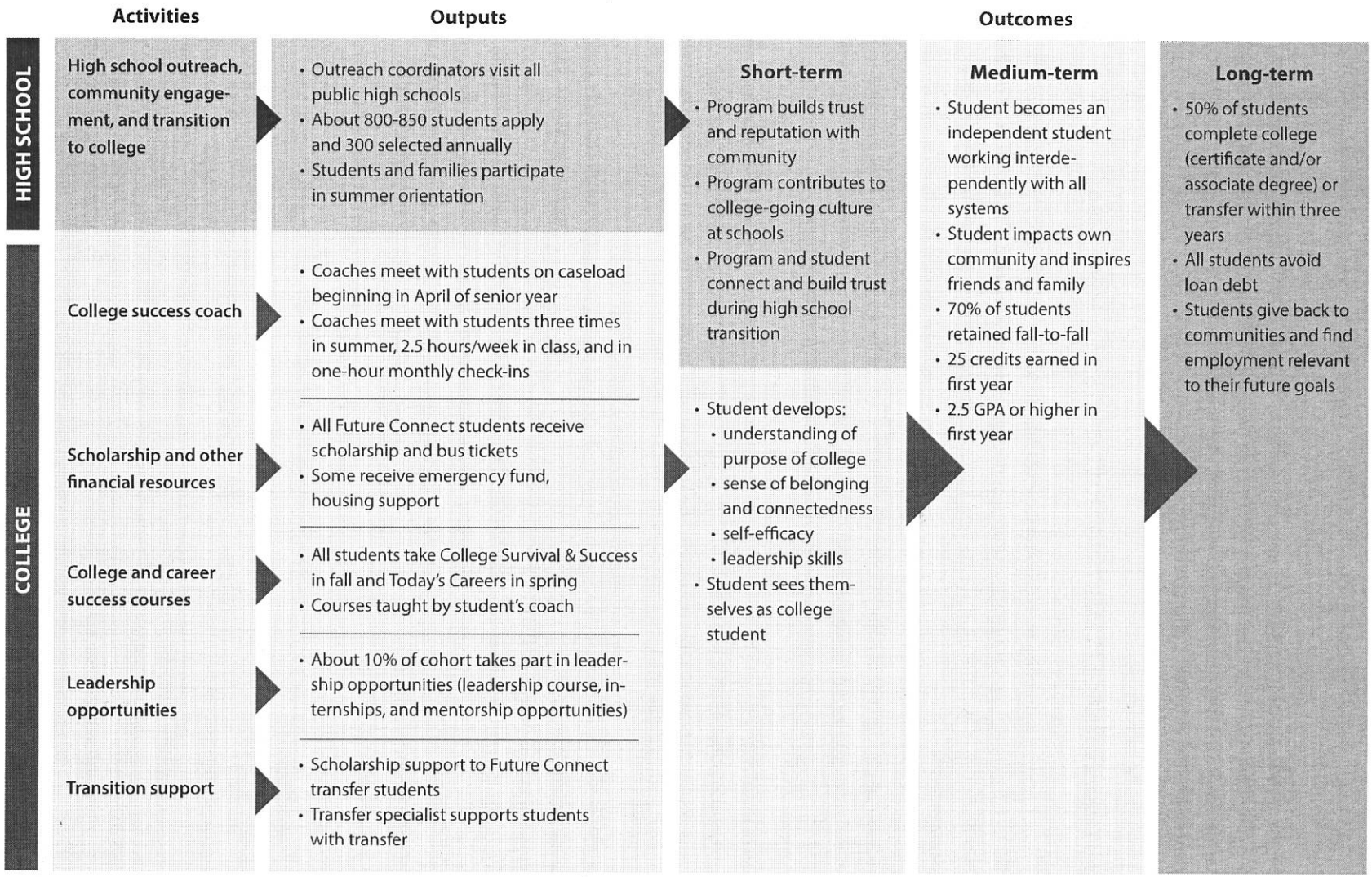


Figure 1.

The Future Connect logic model



Future Connect's impact on academic outcomes

In this section, we present the descriptive outcomes of Future Connect students to understand whether the program is meeting its goals. We also present the findings from the analysis in which we estimated the impact of Future Connect on students compared with a matched group of students with similar baseline characteristics.

FUTURE CONNECT IS MEETING MOST OF ITS ACADEMIC GOALS

Future Connect is meeting or exceeding its goals related to cumulative GPA, credits earned, and fall-to-fall persistence. On average, Future Connect students have earned a 2.5 GPA and 27 credits in their first year, and among students who started in the fall term, 76 percent persisted to the next fall term.

In addition, 91 percent of Future Connect students returned for a second term after their first term at PCC, and among Future Connect students who started in any term in their first year (fall, winter, spring, or summer),[4] 83 percent returned the next academic year in any term.

All of these outcomes are higher than those for all other PCC students who enrolled directly from an Oregon public high school (table B1). However, it is important to note that Future Connect students are not comparable to these students because of large differences in sociodemographic characteristics (table B1).[5]

Additionally, Future Connect is about halfway to its goal of seeing 50 percent of all students complete college or transfer to a university within three years. Among Future Connect students who enrolled at PCC between fall 2011 and winter 2014, 24 percent completed college or transferred to a university within three years. Specifically, 12 percent graduated,[6] and 12 percent transferred. In fall 2016, Future Connect hired a transfer specialist, whose job is to help students with the complex process of transferring to a four-year university. Thus, we have yet to see how the transfer rate of Future Connect students might improve over time as students receive more targeted and

[4] Ninety-seven percent of Future Connect students started in the fall term.

[5] Comparisons between descriptive outcomes do not tell us anything about the impact of the program because we do not know what would have happened to students without Future Connect. On one hand, we might hypothesize that in absence of the program, students' outcomes would have been lower than their peers' because many more Future Connect students are from low-income families; 88 percent received free or reduced-price lunch in high school, compared with 46 percent of their peers. On the other hand, we might hypothesize that students' outcomes would have been higher than their peers', regardless of Future Connect, because they seem to have better academic outcomes. For example, 93 percent of Future Connect students graduated from high school, compared with 77 percent of their peers—although math and reading performance on the state assessment, as well as attendance rates in high school, are not statistically different (table B1).

[6] Of the Future Connect students who completed college, 10 percent earned an associate degree from PCC, and 2 percent earned a certificate.

intensive transfer support. Overall, the rate of transfer or completion within three years is not statistically different between Future Connect students and all other PCC students who enrolled directly from an Oregon public high school (table B1).

FUTURE CONNECT CONTRIBUTED TO INCREASING FIRST-YEAR GPA AND CREDITS EARNED, PERSISTENCE TO THE SECOND YEAR, AND THREE-YEAR COMPLETION OR TRANSFER

The findings suggest Future Connect has had a substantial impact on students across all postsecondary outcomes. To understand the magnitude of the program's impact, table 2 presents the outcomes of the matched comparison group alongside the estimates from the regression analysis of Future Connect's effect on postsecondary outcomes.

Table 2. Future Connect is having a positive impact on postsecondary outcomes.

Postsecondary outcomes	Comparison group outcomes	Future Connect's impact
First-year cumulative GPA at PCC***	2.0	+0.6 point
Credits earned during first year at PCC***	18	+12 credits
First-to-second term persistence at PCC***	66%	+30 percentage points
Fall-to-fall persistence anywhere***	66%	+14 percentage points
First-to-second year persistence anywhere***	71%	+15 percentage points
Completion anywhere within three years***	7%	+8 percentage points
Completion or transfer anywhere within three years***	17%	+11 percentage points

Source: Authors' analysis using ODE data linked to PCC data.

Note: Future Connect's impact is based on propensity score weighting with covariate adjustment; more detailed regression results are in table B5. Stars represent the significance level, or the level of confidence that the results are not due to chance (***$p < 0.001$). For a definition of all outcomes, see table A2.

Future Connect increased students' first-year GPA by 0.6 point, which represents an increase from a C average (of the matched comparison group) to a B average. It also suggests that addressing financial needs, supporting nonacademic skills, and providing individualized advising can have a direct effect on academic performance.

In addition, Future Connect increased the number of first-year credits students earned by 12, which represents an additional term of credits for a full-time student. Early credit momentum in the first year, particularly in a program of study, is tied to increased likelihood of graduation and is an important early measure of a program's effectiveness (Jenkins & Bailey, 2017).

Future Connect students may be earning more credits than their peers because they are passing more classes, as evidenced by their higher GPA—and they are much more likely than their peers to consecutively enroll full time for the fall, winter, and spring terms during their first year at PCC.[7] Community college students tend to have various enrollment patterns, skipping terms and/or enrolling part time throughout their college career (Crosta, 2013). These findings suggest Future Connect is helping students increase their enrollment intensity and continuity at PCC, which in turn accelerates progress toward a degree or credential.

Future Connect has also had a positive impact on persistence. Specifically, it has increased first-to-second term persistence at PCC by 30 percentage points, fall-to-fall persistence anywhere by 14 percentage points, and first-to-second year persistence anywhere by 15 percentage points. These findings align with a large body of research that has shown financial aid contributes to persistence in higher education, as students are more likely to stay in college if the benefits outweigh the costs (Page & Scott-Clayton, 2016). Increases in persistence may also be the result of improvements in academic performance and nonacademic skills, such as a sense of belonging and connectedness.

Future Connect increased college completion within three years by 8 percentage points, representing more than double the completion of the matched comparison group. This difference is almost entirely driven by higher rates of completion at PCC among Future Connect students, providing further evidence that Future Connect helps create a strong connection to PCC specifically.

In addition, the program increased completion or transfer within three years by 11 percentage points (which represents a 65 percent increase in college completion or transfer). Most of this impact is driven by an increase in completion–rather than transfer–within three years. The influence of Future Connect on transfer may grow as the program focuses more on the transition from community college to a four-year university.

On average, it takes community college students 5.6 calendar years to graduate (National Student Clearinghouse, 2017). Therefore, the program's impacts on three-year completion are likely due to decreasing the time to degree by boosting early credit accumulation and persistence. Thus, it is important to continue to track the impact of Future Connect on students' college completion.

FUTURE CONNECT'S IMPACT IS POSITIVE ACROSS RACIAL/ETHNIC GROUPS, BUT ITS MAGNITUDE VARIES

Across racial/ethnic groups, Future Connect consistently has a positive effect on outcomes listed in the logic model, but the magnitude of that impact varies (table 3). The program represents substantial gains for Latino students, particularly in regard to persistence and completion or transfer. The impacts are lower for black students, who have the lowest baseline outcomes, thus exacerbating gaps in outcomes between black students and their peers. Additionally, impacts on Asian/

[7] The regressions results are not displayed.

Pacific Islander students' persistence and completion or transfer are not statistically significant; we cannot be confident there is a difference in persistence, completion, or transfer rates between Asian/Pacific Islander Future Connect students and comparison students.

The completion results are in line with national findings that white and Asian students typically complete college at higher rates than Latino and black students (Baum et al., 2013; Shapiro, Dundar, & Huie et al., 2017). Future Connect is helping close this achievement gap, particularly for Latino students.

Table 3. Future Connect is having a positive impact across racial/ethnic groups, but the magnitude varies.

	Asian/Pacific Islander	Latino	White	Black
First-year cumulative GPA				
Future Connect	2.9	2.5	2.5	2.0
Comparison group	2.4	2.0	2.1	1.7
Difference between groups	*0.5****	*0.5****	*0.4****	*0.3****
Credits earned in first year				
Future Connect	33	28	26	23
Comparison group	22	18	18	14
Difference between groups	*11****	*10****	*8****	*9****
Fall-to-fall persistence				
Future Connect	87%	80%	75%	69%
Comparison group	81%	66%	63%	60%
Difference between groups	*6 percentage points*	*14 percentage points****	*12 percentage points****	*9 percentage points****
Completion or transfer within three years				
Future Connect	32%	24%	27%	17%
Comparison group	29%	14%	19%	12%
Difference between groups	*3 percentage points*	*10 percentage points****	*8 percentage points****	*5 percentage points'*

Source: Authors' analysis using ODE data linked to PCC data.

Note: The table shows the differences in outcomes of Future Connect and matched comparison group students using propensity score matching. We conducted this analysis for the four racial/ethnic groups with a large enough sample size to detect effects. We could not conduct this analysis for American Indian and multiracial students. Stars represent significance levels, or the level of confidence that the differences between groups are not due to chance (***$p < 0.001$; '$p < 0.1$).

Perspectives on and potential mechanisms underlying Future Connect's impact

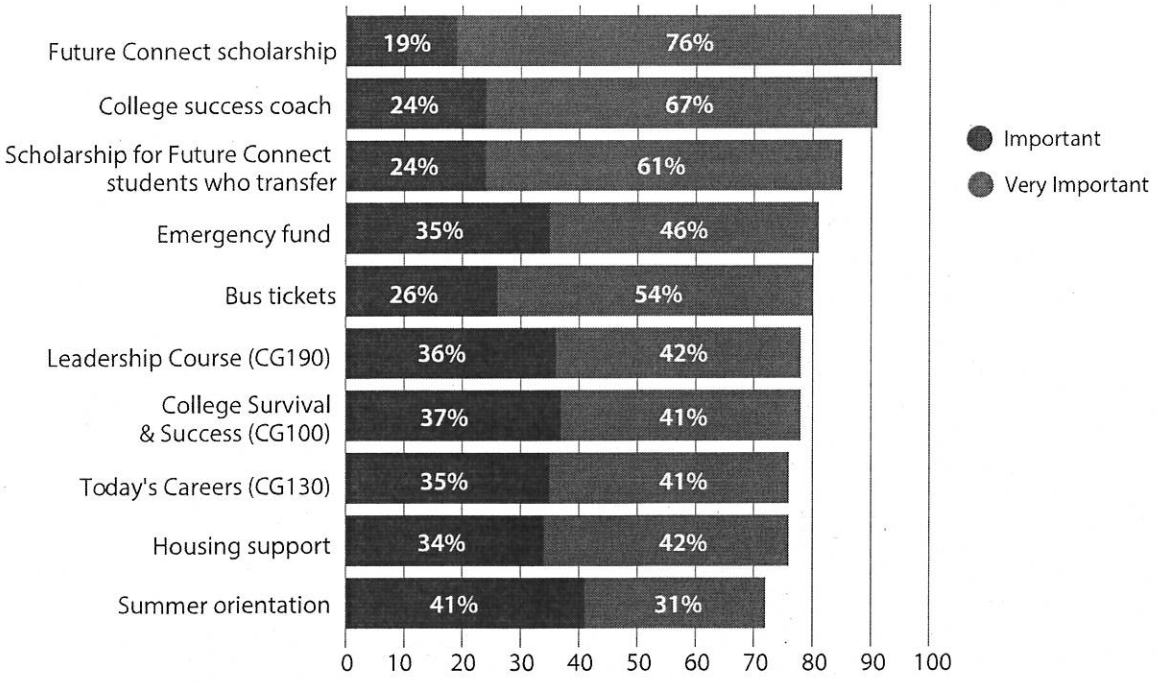
The comprehensiveness of Future Connect's services may account for the program's positive impact, but what exactly are coaches doing to support students—and what nonacademic outcomes may be contributing to students' long-term success?

PARTICIPANTS HAVE A POSITIVE PERSPECTIVE ON SPECIFIC FUTURE CONNECT PROGRAM COMPONENTS

Based on an analysis of qualitative data, we found that participants and alumni overwhelmingly have positive views of Future Connect. Although they said many aspects of the program were helpful, they especially emphasized the importance of their coach and the scholarship in helping them succeed (figure 2).

> *"[Future Connect] has changed my life and is helping me reach my dreams and goals." (Student)*

Figure 2. Students and alumni identified their coach and scholarship as the Future Connect program elements that are/were most important for helping them continue their studies at PCC.



Source: Authors' analysis of survey data.

Note: The figure shows the percentage of survey respondents who selected "Important" or "Very important" in response to the question: "How important are/were each of the following Future Connect program elements for helping you continue your studies at PCC?" Sample sizes for each item exclude respondents who selected "This is not applicable to me." Thus, theoretically, respondents are only individuals who received the service.

Ninety-five percent of students and alumni rated the Future Connect scholarship as important or very important for helping them continue their studies at PCC. Other forms of financial assistance (such as scholarships for transfer students, the emergency fund, bus tickets, and housing support) were also highly rated. Many students said the scholarship enabled them to go to college and that it helped keep them out of debt, putting them at ease.

> *"If it wasn't for Future Connect, I would be struggling to pay for college—or perhaps I wouldn't even be in college." (Student)*

Ninety-one percent of students and alumni rated their coach as important or very important for helping them continue their studies at PCC. In focus groups, nearly all students emphasized the crucial role of their coach, whom they viewed as a motivator and advocate, and cited numerous ways their coach helped them reach their goals.

> *"I can't stress enough how important having a Future Connect coach was to me. I think I would rank that as the most important part of my Future Connect experience." (Student)*

> *"I'm first generation, so if I go to my Future Connect coach, he knows a lot of things about everything. So I can just go to him and ask him questions about whatever I need rather than going to my parents, who have to figure it out for themselves [and] then explain it to me." (Student)*

More than 75 percent of students and alumni rated the two Future Connect-specific courses as important or very important for helping them continue their studies at PCC. Regarding College Survival & Success, students said they appreciated learning about useful skills (such as time management and responsibility) and social and emotional skills (such as grit, growth mindset, and self-reflection), as well as how to navigate college. Regarding Today's Careers, students said they liked having the opportunity to explore potential careers, create resumes, and learn professional skills (such as active listening, interviewing, how to do presentations, and how to write a professional email).

> *"Their resume help was so ridiculously helpful. I have a gorgeous resume, and I know how to edit it every time I get a new job, and it's gotten to a point where I do other people's resumes for pay." (Student)*

In addition, students said their time in the college and career success classes was meaningful, and they described making friends and other personal connections. Along those lines, coaches said the classes play a critical role in building a cohort of students who support one another.

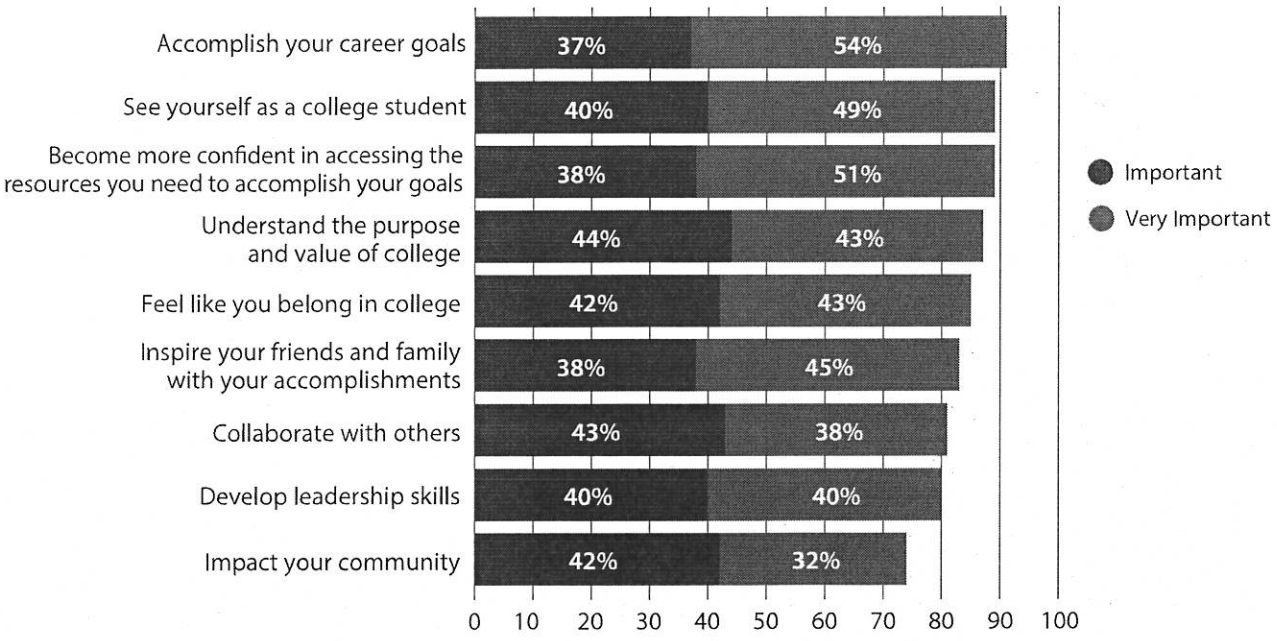
> *"I almost think the cohort classes are as important as anything else because that is really where that deep connection and networking is occurring, where students are really sort of learning in real time with other students about college expectations and ... things that exist as a culture of college." (Coach)*

Finally, 72 percent of students and alumni rated the summer orientation as important or very important for helping them continue their studies at PCC. Students said it introduced them to college and got them excited and motivated. They also said they appreciated receiving information about financial aid, going on a college tour, meeting other Future Connect students and coaches, and learning about registration and which classes to choose.

PROGRAM SERVICES ARE DRIVING STUDENTS' ACADEMIC SUCCESS

Based on interviews, focus groups, and responses to the survey, three main themes emerged that provide insight into the potential mechanisms underlying Future Connect's impact on academic performance, progression, and completion and transfer. First, the program as a whole seems to nurture a sense of belonging and connectedness—key nonacademic measures related to academic success. Second, coaches intentionally scaffold advising and mentoring, building students' confidence to independently access resources and forge their own path to postsecondary success. Third, coaches give students concrete guidance about how to reach their goals. All of these findings underscore that, overall, Future Connect provides a model for supporting students with holistic and comprehensive support.

Figure 3. Future Connect is/was particularly important for helping students and alumni accomplish their career goals and see themselves as college students.



Source: Authors' analysis of survey data.

Note: The figure shows the percentage of survey respondents who selected "Important" or "Very important" in response to the question: "How important is/was Future Connect for helping you…?" The sample size was 836 survey respondents.

Future Connect helps participants see themselves as college students and feel like they belong in college

Research shows that students who feel a stronger sense of belonging are more likely to persist in college (Hausmann, Schofield, & Woods, 2007). Future Connect students are much more likely to persist in college, particularly early on, than their peers, and this may be due in part to how the program helps students feel like they belong in college. Many students said Future Connect was an important factor in helping them see themselves as a college student (89 percent) and feel like they belong or belonged in college (85 percent)—which they largely attribute to ongoing support from their coach and access to a community (figure 3). In addition, Future Connect is helping students develop social and emotional skills related to academic success, including a strong academic identity, perseverance and self-control, and sense of belonging (table 4).

Table 4. Future Connect students are developing social and emotional skills related to educational success.

Statements about social and emotional learning	Survey respondents who said each statement was moderately or very true
Academic identity	
It is important to me to learn as much as I can.	97%
Getting a college education is important to me.	97%
Getting good grades is one of my main goals.	96%
Doing well in college is an important part of who I am.	95%
I am the kind of person who takes pride in doing my best in college.	94%
I am a hard worker when it comes to my schoolwork.	93%
Perseverance and self-control	
I finish whatever I begin.	89%
I don't give up easily.	88%
I stay positive when things don't go the way I want.	82%
I can stay focused on my work, even when it's boring.	73%
Sense of belonging	
People at my college accept me.	91%
I feel comfortable in classes at my college.	90%
I feel like I belong at my college.	87%
People at my college are a lot like me.	61%

Source: Authors' analysis of survey data.

Note: Only current PCC students (n = 625) were asked these survey items, which are sub-scales from the Youth Development Executives of King County's youth engagement, motivation, and beliefs survey.

The College Success coaches provide support early on that may be key to students' early persistence. Specifically, they communicate the message that college is possible, and they provide early case management, social and emotional support, and assistance with financial aid. Coaches also build students' trust and establish a personal relationship by being dependable, reliable, and caring; honoring confidentiality; sharing personal experiences; normalizing students' experiences; and communicating clear expectations.

> *"I just think really letting them know that they can talk to us about anything, that we are safe people and that we are caring adults in their life—and if they need to talk to someone that we are there to build support. I think that builds community, as well." (Coach)*

> *"[Future Connect] makes me feel proud of where I stand in school. It makes me feel like I have a powerful reason to be here in college. It makes me feel like I'm valuable as a student and makes me feel like I belong here in college and in this program." (Student)*

In focus groups, students said that being a part of the Future Connect community or "family" makes a big difference. Many students spoke of being scared and nervous about college but that this fear subsided by having a chance to bond with others over similar experiences. Additionally, many survey respondents (81 percent) said Future Connect was important in helping them collaborate with others. Along those lines, coaches said they facilitated events and projects to give students opportunities to connect and that the college and career success courses also provide opportunities to learn and grow together as a Future Connect community.

> *"At first, I thought college was every man and woman for themselves. I thought people were gonna betray you or throw you under the bus, but with Future Connect, it makes everything better ... In Future Connect, it's like everybody treats each other like family." (Student)*

> *"It was such an amazing experience! Future Connect is not just a program—we are like a family. Everyone there is supportive and understanding. No matter your background, Future Connect will make you feel like you belong in college." (Student)*

Future Connect helps students feel more confident in accessing resources on their own

Navigating college can be extremely complex, particularly for first-generation students, who may not be able to rely on their families for information and guidance. Efforts to help students navigate college processes—from comprehensive guidance programs to low-touch "nudges"—have been found to improve college access and success (Page & Scott-Clayton, 2016). Thus, another key to the success of Future Connect may be that the program helps build students' confidence to access resources independently. The majority of survey respondents (89 percent) said Future Connect played an important role in helping them become more confident in accessing the resources they need to accomplish their goals.

"Future Connect gave me the confidence to believe that I could find more resources. I felt that all those scholarships and counselors weren't so far out of my reach anymore." (Student)

Students said coaches promote their independent navigation of college life by providing support and encouragement, modeling how to access information, and emphasizing that being able to navigate systems on their own is key to their success. Coaches reiterated these points and stressed the importance of scaffolding students' learning.

"They show you what you need, they show you how to access it, they teach you how to access all the resources that you may need so that later, in the future, you don't have to go ask them all the time—you know yourself how to get to this." (Student)

"We model how to navigate the system by doing a lot of hand-holding. We walk to different places, and we talk to different people, and we turn documents in together, and we go through all of the online stuff (like registering), so by the time they do it for the second or third time, they just know how to do it themselves." (Coach)

"I gradually give them more responsibility around self-advising, being more creative in terms of how they approach situations. Early on, if there's some sort of a situation, I might help by reaching out to instructors to sort of do that for them, but as they get further along in their education, I'm just saying, 'You're ready to do this yourself—I need you to take care of that.'" (Coach)

Boosting students' self-confidence may have other positive effects. For example, many survey respondents (80 percent) said Future Connect played an important role in building their leadership skills, and coaches said the college and career success courses, the optional leadership skills course, and ongoing encouragement helped students develop their leadership abilities.

Future Connect provides concrete guidance aligned with students' goals

Community colleges are increasingly redesigning the student experience to provide guided pathways—a key feature of which is helping students clarify their goals and set a clear path to reach them (Bailey, Jaggars, & Jenkins, 2015). Future Connect seems to provide guided pathways, which may help students complete college and reach their career goals. Most survey respondents (91 percent) said Future Connect was important or very important for helping them accomplish their career goals, and many students told powerful stories of how the program had a large impact on their lives.

"I wholeheartedly believe that I would not be the same person I am today had I not been a part of Future Connect. I just received my first set of grades at the university I just transferred to after receiving the Future Connect full-tuition scholarship. It was probably the most difficult term of my entire college career, but I received a 4.0. This marks a year and a half of a straight 4.0 GPA. I finally feel like I am the student I've always wanted to be, thanks to Future Connect. I thank you all so much for all that you do. Future Connect truly changes lives. You all surely have changed mine." (Student)

Many survey respondents also said Future Connect helped them inspire friends and family (83 percent) and impact their community (74 percent). Some students described how their success made their friends and family proud.

> *"Future Connect has helped me so much with my life—I can't make it into words. I am in college. I am so happy. My parents are happy. My siblings are happy. My friends are happy. My ancestors are happy, and most importantly, I am happy. I always knew I could do it. Future Connect helped me believe in myself." (Student)*

In addition, students consistently said their coach provided concrete and specific guidance aligned with their goals, and coaches emphasized the importance of helping students set goals and regularly checking in with students about those goals.

> *"Individually, we do a lot of goal setting; I think goal setting is a very important part of college persistence and completion. We also talk honestly about challenges that students will face and what they're going through." (Coach)*

Coaches help students navigate the financial aid process, set up their class schedule each term, and connect them to internships and job-shadowing opportunities—all with students' goals in mind. Several students also said their coach assisted them in various ways during the transfer process, including helping them figure out what classes they needed to take at PCC to transfer their credits to a four-year university, connecting them to scholarships and financial aid opportunities, and providing a personal recommendation for applications.

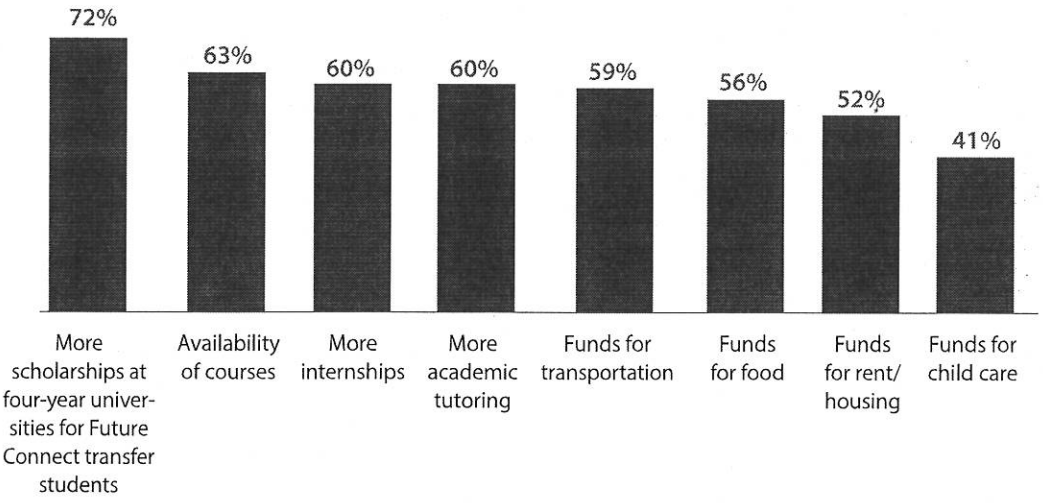
Recommendations: Next steps for Future Connect

To maintain or improve its positive impact, Future Connect may need to address three areas: providing more university scholarships and advising for transfer students, working with students on work-life balance and connecting them to resources to meet basic needs, and developing more targeted programming for black students.

CONTINUE TO INCREASE SUPPORT FOR FUTURE CONNECT TRANSFER STUDENTS

Future Connect opens the door for some students to transfer and attend a four-year university, but this opportunity presents new financial challenges. On the survey, respondents could select areas in which Future Connect could improve, and "More scholarships at four-year universities for Future Connect transfer students" was No. 1—72 percent of respondents selected this suggestion (figure 4). To respond to this need, the program is forging connections with new universities that want to serve Future Connect transfer students.

Figure 4. According to survey respondents, the main way Future Connect can improve is to offer transfer students more scholarships at four-year universities.



Source: Authors' analysis of survey data.

Note: The figure shows the percentage of survey respondents who selected "Important" or "Very important" in response to a question about areas in which Future Connect could improve. The sample size is 836 survey respondents.

Mirroring the survey results, in focus groups and open-ended comments on the survey, students' most frequently mentioned suggestion for improvement was to place more emphasis on second- and third-year Future Connect students, particularly those transferring to a four-year university. To address this need, the program hired a transfer specialist in fall 2016, (as mentioned earlier). Going forward, it will be important to monitor transfer rates and students' transfer experiences.

Students' desire for more advising in their second and third years contradicts Future Connect's model, which calls for providing a lot of support early on and intentionally scaling it back as students move through their college career so they learn to independently navigate systems. But perhaps some students need to receive more intensive support from their coach in their second and third years to persist in college—and by building relationships with students, coaches may be able to determine who should be monitored more closely after their first year. Students also said it could be helpful to take a class in their third year that focused on navigating transfer and attending a four-year university, which may also be something for Future Connect to consider.

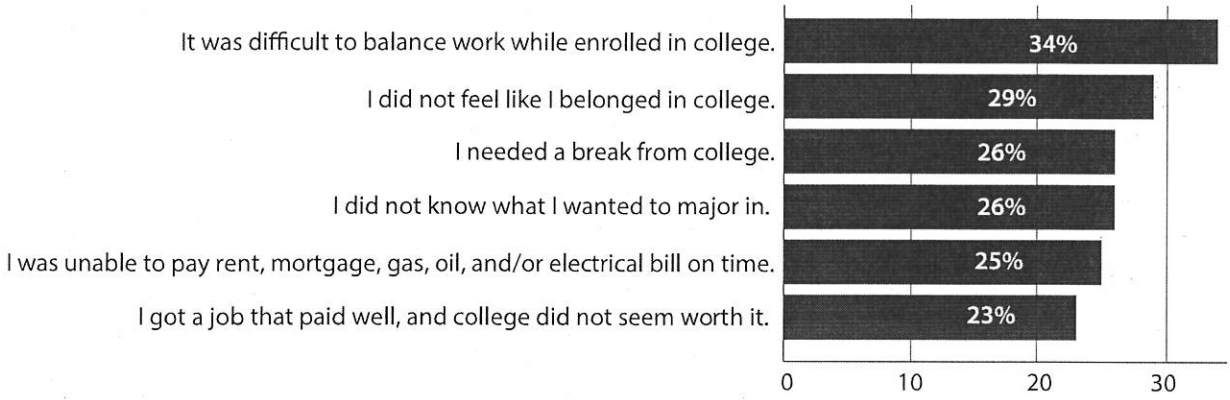
WORK WITH STUDENTS TO ADDRESS BARRIERS TO WORK-LIFE BALANCE AND MEETING BASIC NEEDS

Over half of survey respondents selected "Funds for transportation," "Funds for food," and "Funds for rent/housing" as important or very important areas in which Future Connect could improve, and 41 percent selected "Funds for child care" (figure 4).

Providing funding for transportation, food, housing, and child care may be outside the scope of Future Connect's budget, but these needs could perhaps be met in other ways—and some are already being addressed. For example, Future Connect attempts to respond to food-related needs by providing snacks in common areas, and students mentioned the importance of their coach providing food. In addition, PCC can support Future Connect students who are experiencing food insecurity; the college recently started a food pantry, and students in need of food can apply for it once a week. Regarding housing, coaches work to connect students to community-based organizations that can help, such as New Avenues for Youth.

Other areas of financial need were raised by 46 survey respondents who said they left college without a degree. The most frequent reason these respondents gave for leaving college was "It was difficult to balance work while enrolled in college."

Figure 5. Difficulty balancing work and school was most commonly selected as the major reason participants left college before earning a certificate or degree.



Source: Authors' analysis of survey data.

Note: The figure shows the percentage of respondents who selected "Major reason" in response to the question: "Why did you leave college before earning a certificate or degree?" The sample size is 46 survey respondents. Responses with fewer than 10 respondents are not displayed.

More than a quarter of Future Connect students work while they are enrolled at PCC; 24 percent of survey respondents said they work or worked off campus, and 5 percent said they have or had a work-study job. Students may be working to pay their rent and/or buy food and other basic items—which are needs Future Connect attempts to meet by connecting students to campus and community resources. Coaches also said they talk to students about how to balance outside responsibilities with school. Thus, unless the program can provide more funding, these findings suggest coaches may need to continue to have these hard conversations with students about how to overcome the potential difficulties of working while in school.

INCREASE FOCUS ON IMPROVING OUTCOMES FOR BLACK STUDENTS

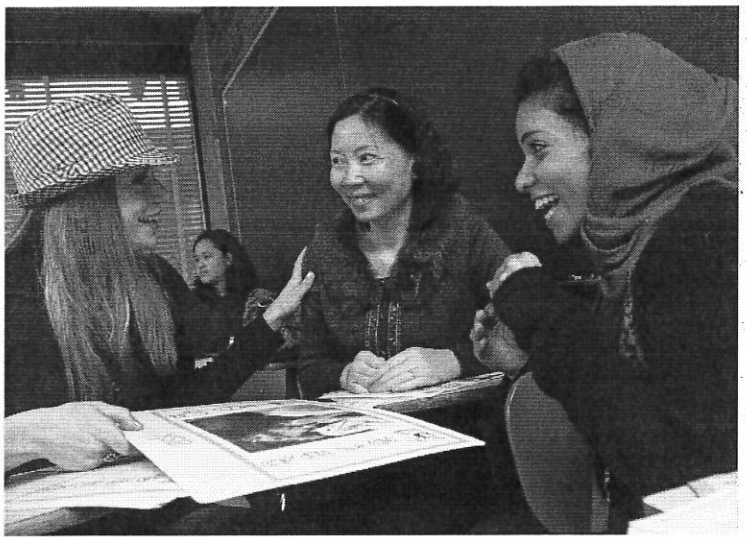
Future Connect's impact is consistently positive across racial/ethnic groups, but the magnitude varies—and black students seem to benefit the least from Future Connect. These findings suggest the program may want to attend more to the needs of black students.

Fostering students' sense of belonging emerged as one of Future Connect's strengths, but it may be an area that requires increased focus for students at risk of dropping out (figure 5) and black students. Multiple coaches at one PCC campus with a large number of Future Connect students who are black spoke of the challenge of retaining black male students, as well as how they rely on other campus programs to ensure black male students feel like they belong on campus.

> ***"I think we retain well Latino men of color. The black men of color that we have coming into [PCC campus]—I think with those students, it's especially important to get them connected on campus to other students, where they can feel like they're part of the community. And certainly I've been working more to get them connected to our Men of Color program that we have on campus, but I still don't know that's enough." (Coach)***

Conclusion

Future Connect offers a promising model for improving the postsecondary academic performance, persistence, transfer, and completion of low-income and first-generation community college students. Through a last-dollar scholarship and ongoing, individualized advising and mentoring, the program addresses multiple barriers to college access and completion. Its positive impact appears to be the result of several mechanisms. Future Connect provides students with a community of peers and mentors they can connect with and learn from throughout their time at PCC, thereby providing a sense of belonging—which is so essential for low-income and first-generation college students. In addition, coaches give students concrete, specific guidance aligned with their goals to help them navigate complex systems while building their confidence to access resources on their own.



Future Connect may continue to improve as it focuses more on the difficult transition from a community college to a four-year university and as coaches continue to connect students to campus and community resources that help meet food, housing, and other basic needs. Further, the program may need to focus more on the needs of specific groups, including black students.

As economic inequities grow in the United States, programs like Future Connect provide potential models of how we can achieve more equitable postsecondary outcomes for low-income and first-generation college students by providing relationship-based, student-centered, and holistic support. Continued funding and research are both essential to supporting the improvement, sustainability, growth, and replication of Future Connect and similar comprehensive postsecondary programs across the country.

Appendices

Appendix A: Data details

QUALITATIVE DATA

Survey. We developed a survey for Future Connect students and alumni, and we administered it via email using SurveyGizmo, an online survey software tool. The survey asked respondents how important each of the Future Connect program elements is or was in helping them continue their studies at Portland Community College (PCC), how important Future Connect is or was in helping them achieve specific nonacademic outcomes, how often they meet or met with their coach, their perspective on coach services, and suggestions for program improvement. The survey also asked current students to rate items that measure certain social and emotional skills—specifically, academic identity, perseverance, and belonging. These survey items are validated sub-scales from the Youth Development Executives of King County's youth engagement, motivation, and beliefs survey.[8] In addition, the survey asked all students to provide feedback on their level of food and housing insecurity. These survey items are from survey measures developed by Broton, Frank, and Goldrick-Rab (2014). The survey also asked respondents who left college without a degree to select reasons why they left. Finally, the survey asked students how they financed their PCC education, as well as their plans for after college.

The PCC Links data analyst provided a list of email addresses for Future Connect students and alumni. We sent recipients an initial request to complete the survey in November 2016, followed by an additional 12 reminders to those who had not yet completed the survey between November 2016 and February 2017. Individuals who completed the survey received a $5 Starbucks gift card as an incentive. Upon closing the survey in February 2017, there were 836 unique responses, for a response rate of 51 percent.

Three-quarters of respondents (N = 625) were current Future Connect students (table A1). The remaining respondents were still in college, had graduated, or had left college without a degree. Because most of the respondents were current Future Connect students, many entered PCC and started the program in 2015 (23 percent) or 2016 (39 percent).

Table A1. Future Connect survey respondents' current student status

Student at Portland Community College	75%
Student at another community college	2%
Student at four-year college/university	10%
Student in graduate school	1%
Earned a certificate and/or degree from Portland Community College; no longer in college	2%
Earned a bachelor's degree from a four-year college/university; no longer in college	1%
Earned a certificate and/or degree from another community college; no longer in college	1%
Earned an advanced degree from graduate school; no longer in college	1%
Did not earn a certificate or degree from college; no longer in college	6%

Source: Authors' analysis of survey data.

[8] http://ydekc.org/skills-beliefs-survey/

Interviews and focus groups. In fall 2016, we conducted interviews with all 11 Future Connect staff members—eight coaches, two outreach specialists, and one transfer specialist. The program staff protocol asked about the work the coaches and specialists do, how their work impacts students, the overall effectiveness of the program, and suggestions for program improvement.

At each of the four PCC campuses, we conducted a focus group with first-, second-, and third-year Future Connect students, for a total of eight focus groups and 34 students. The student protocol mirrored parts of the survey and asked how important each of the Future Connect program elements has been in helping students continue their studies at PCC, how the program is impacting nonacademic outcomes and helping students reach their goals, and suggestions for program improvement.

Analysis. We used content analysis to identify themes within and across interviews and focus groups (Mayring, 2000). We completed the first round of data analysis of all interview and focus group data by producing three analytic memos. The first focused on the services college success coaches provide, the second focused on perceptions of Future Connect's impact, and the third focused on coaches' and students' suggestions for program improvement.

Upon closing the survey, we analyzed the data by running frequencies on all responses. Next, we analyzed the open-ended survey responses for themes and triangulated these data with the analytic memos generated from the qualitative interviews and focus groups. Qualitative data analysis consisted of examining and grouping responses into categories and themes and then pulling out key quotes to highlight the findings.

QUANTITATIVE DATA

Cleaning and matching. To identify the impact of Future Connect, we used student-level data from PCC and the Oregon Department of Education (ODE), which include National Student Clearinghouse (NSC) data. Education Northwest executed data-sharing agreements with PCC and ODE to use and link these data sources for this evaluation. ODE data provided a rich set of characteristics related to demographic background and high school performance. NSC data provided student enrollments for domestic colleges and universities, so we could track persistence and degree completion at postsecondary institutions nationally. PCC data provided course enrollment and completion information for PCC students. To identify Future Connect students in the PCC data, we used a list of student IDs that Future Connect provided.

We conducted all cleaning, linking, and analysis in Stata, version 14.1. We matched students across ODE and PCC data sources using first and last name, birthdate, and gender. We used reclink, a matching program, to create new fields to help with the match (for example, a composite name variable combined with birth year) and weighted the importance of each identifier (for example, last name had more weight than gender). Our algorithm resulted in 1,500 Future Connect students matching to students in ODE data, for a match rate of 92 percent. Some Future Connect

students did not have a match in ODE data because they attended a private school, which was verified by their high school name in the PCC data. Others did not match because we could not find a name, birthdate, and gender match across the datasets.

The sample for this evaluation comprises students who exited an Oregon public high school between 2010/11 and 2015/16 and entered PCC between fall 2011 and fall 2016. To clean the data, we generated student-level characteristic and outcome variables (table B1). Notes on how these variables were cleaned are below.

Demographics. We relied on ODE, rather than PCC, data to create indicators of gender and racial/ethnic group because there are less missing demographic data in ODE data. We replaced any missing gender and race/ethnicity data with students' data from PCC. This resulted in no missing demographic information

Socioeconomic status. We created an indicator variable equal to 1 if a student ever received free or reduced-price lunch in high school and 0 otherwise.

High school programs and discipline incidences. We created indicator variables for the following: if a student ever had an individualized education program, received English learner services, was in a migrant education program in high school, was ever expelled, ever received an in-school suspension, and ever received an out-of-school suspension.

High school performance. Students who were seniors in 2010/11–2014/15 took the Oregon Assessment of Knowledge and Skills in 10th or 11th grade as their state high school assessment. The 2015/16 seniors took the Smarter Balanced Assessment as juniors. To include a single measure of high school performance in reading and math in the regression equations, we standardized students' reading and math scores across cohorts. If students had multiple assessments in high school in the same subject and grade level, we took the highest score. For ease of interpretation, we also created an indicator if a student scored in the proficient range on their high school assessment (table B1). In addition, we created measures for the percentage of days a student attended high school and an indicator of high school graduation.

Characteristics of the primary high school. We created variables that indicated whether a student's primary high school was a Title I school and in an urban area. "Urban" was defined by National Center for Education Statistics codes in the ODE data that indicate school urbanicity. We identified the primary high school as the school a student attended most frequently. If they attended multiple schools for an equal amount of time, we counted the high school they attended senior year as the primary school.

Postsecondary outcomes. We created a set of postsecondary outcomes from PCC and NSC data (table A2).

Table A2. Definitions of postsecondary outcomes

Outcome	Definition
First-year cumulative GPA	Cohorts: Students who entered PCC between fall 2011 and winter 2016
	Definition: Calculate quality points (numeric grade value multiplied by credit hours) and credit hours of courses with a letter grade over the first year (first four terms) at PCC; divide quality points by credit hours
	Data source: PCC
Credits earned in first year	Cohorts: Students who entered PCC between fall 2011 and winter 2016
	Definition: Sum credit hours over the first year (first four terms) of courses with an A, B, C, D, or P grade taken at PCC
	Data source: PCC
First-to-second term persistence	Cohorts: Students who entered PCC between fall 2011 and summer 2016
	Definition: Enrolled in next term after entry at PCC
	Data source: PCC
Fall-to-fall persistence	Cohorts: Students who entered PCC in fall 2011, fall 2012, fall 2013, fall 2014, or fall 2015
	Definition: Started in fall at PCC and enrolled in next fall term anywhere; breaks between fall terms do not matter
	Data sources: PCC and NSC
First-to-second year persistence	Cohorts: Students who entered PCC between fall 2011 and fall 2015
	Definition: Started in any term at PCC and enrolled in any term (fall, winter, spring, and/or summer) in next academic year anywhere (e.g., fall 2011 to spring 2013); breaks between terms do not matter
	Data sources: PCC and NSC
Completion within three years	Cohorts: Students who entered PCC between fall 2011 and winter 2014
	Definition: Started in any term at PCC and completed a certificate or degree within three years from entry anywhere
	Data sources: PCC and NSC
Completion or transfer within three years	Cohorts: Students who entered PCC between fall 2011 and winter 2014
	Definition: Started in any term at PCC and completed a certificate or degree anywhere or transferred to a four-year university within three years from entry
	Data sources: PCC and NSC

Source: Authors.

Analysis. Propensity score matching is a multistep process that begins with calculating the propensity scores, or conditional probability of treatment assignment given a set of confounding covariates:

$$(1)\quad logit(T_i) = \gamma + \delta X_i + \mu_i$$

Equation (1) estimates the predicted probability that an individual received the treatment (i.e., Future Connect) as a function of student-level covariates that include indicators of gender, race/ethnicity, free or reduced-price lunch status, participation in a migrant education program, graduation from high school, attending a Title I high school, and attending a high school in an urban area, as well as a continuous measure of standardized score on the state math assessment.

All variables included in Equation (1) were statistically significant. We did not include variables that were highly correlated with another variable, such as standardized score on the state reading assessment (highly correlated with math scores) and Pell Grant status (highly correlated with free or reduced-price lunch status), and we did not include variables that did not have a relationship with Future Connect status, such as having an individualized education program, receiving English learner services, and being expelled or suspended in high school.

After estimating the propensity score, we matched the treatment and control groups using nearest-neighbor matching with replacement, such that controls with similar propensity scores to the treated are used more than once, and controls without similar propensity scores are discarded. To further ensure good matches, we imposed a caliper of 0.01; controls were discarded if their propensity scores were not within 0.01 standard deviation of the treated individuals. We then checked for balance across covariates for individuals in the matched samples. For balance to be achieved, the absolute standardized differences in means should be less than 0.25, and the ratio of treatment and control group variances should be between 0.5 and 2.0 (Stuart, 2010). We confirmed the magnitude of the differences in means on each pre-treatment covariate was reduced almost to zero, and the matching procedure achieved excellent balance across observable characteristics of students in the treatment and comparison groups. We then calculated the postsecondary outcomes of the Future Connect and matched comparison group students, and we disaggregated these results for each racial/ethnic group, as well.

In the final step in the propensity score matching method, we control for the contribution of the covariates on the outcomes of interest in regression-adjusted linear regression models that weight observations by their propensity to receive the treatment.

$$(2)\ Y_i = \alpha + \beta T_i + \delta X_i + HS + \varepsilon_i$$

Equation (2) estimates the relationship between the postsecondary outcome Y_i of interest and a treatment indicator T_i of being a Future Connect participant, a vector of student-level covariate X_i, and the residual term ε_i that captures the effect of random noise. This model also includes high school fixed effects, which control for any school-level factors that are related to variation in outcomes between the Future Connect and comparison group students. Results for the coefficient estimate on the treatment indicator are in table B5. For a full table of regression results, contact the first author.

Appendix B: Detailed findings

Table B1. Descriptive characteristics and outcomes of students who exited an Oregon public high school between 2010/11 and 2015/16 and directly entered PCC in the next academic year

	Future Connect (N = 1,434)	Did not participate in Future Connect (N = 20,551)
Demographics		
Female***	62%	50%
Male***	38%	50%
Asian/Pacific Islander***	13%	10%
American Indian	1%	1%
Black***	16%	6%
Latino***	41%	18%
Multiracial	3%	4%
White***	26%	61%
Socioeconomic status indicator		
Free or reduced-price lunch***	88%	46%
High school programs		
Had an individualized education program	13%	13%
Received English learner services***	15%	7%
Participated in migrant education program***	3%	1%
High school discipline incidences		
Ever expelled	1%	1%
Ever received in-school suspension***	9%	6%
Ever received out-of-school suspension***	16%	13%
High school performance		
Proficient on state reading assessment	62%	61%
Proficient on state math assessment	45%	47%
Percentage of days attended high school	91%	92%
Graduated from high school***	93%	77%
Characteristics of primary high school		
In urban area***	70%	46%
Title I***	29%	26%
Postsecondary outcomes		
First-year cumulative GPA at PCC***	2.5	2.1
Credits earned in first year at PCC***	27	18
First-to-second term persistence at PCC***	91%	63%
Fall-to-fall persistence anywhere***	76%	66%
First-to-second year persistence anywhere***	83%	70%
Completion anywhere within three years*	12%	10%
Completion or transfer anywhere within three years	24%	25%

Source: Authors' analysis using ODE data linked to PCC data.

Note: Stars represent significance levels, or the level of confidence that the results are not due to chance (***$p < 0.001$; *$p < 0.05$). An absence of stars indicates the group means are not statistically different. Sample sizes and cohorts are different for every postsecondary outcome. For a definition of all outcomes, see table A2.

Table B2. Percentage of survey respondents who selected "yes" to questions about food and housing insecurity

	Respondents who selected "yes"
During the past 30 days, did you ever ...	
Not have enough money or food stamps to buy food?	24%
Eat less than you felt you should because there wasn't enough money to buy food?	24%
Cut the size of your meals or skip meals because there wasn't enough money for food?	25%
Not eat for a whole day because there wasn't enough money for food?	12%
Was there ever a time in the past 12 months when you were unable to ...	
Pay your rent or mortgage on time?	12%
Pay the gas, oil, or electrical bill on time?	18%

Source: Authors' analysis of survey data.

Note: The total sample size is 625 Future Connect survey respondents who indicated they were current PCC students. These survey items are from survey measures developed by Broton, Frank, and Goldrick-Rab (2014).

Table B3. Descriptive characteristics of Future Connect students and students in the matched comparison group

Variables used for matching	Future Connect } (n = 1,058)	Comparison group (n = 14,840)
Demographics		
Female (reference group = male)	61%	60%
Asian/Pacific Islander (reference group = white)	13%	14%
American Indian (reference group = white)	2%	2%
Black (reference group = white)	17%	16%
Latino (reference group = white)	39%	40%
Multiracial (reference group = white)	3%	3%
Socioeconomic status indicator		
Free or reduced-price lunch	87%	88%
High school program		
Migrant education program	4%	4%
High school performance		
Standardized score on state math assessment	-0.11	-0.11
Graduated from high school	93%	93%
Characteristics of primary high school		
In urban area	71%	71%
Title I	37%	37%

Source: Authors' analysis using ODE data linked to PCC data.

Note: The descriptive characteristics are for the outcome "credits earned in the first year." Sample sizes and cohorts are different for every outcome. Matching is done for each outcome, so average characteristics are slightly different for each outcome. However, the samples generally look like these groups of students, and across all outcomes, balance is achieved–meaning there are no differences in the characteristics of Future Connect students and comparison group students. For the characteristics of Future Connect students and the matched comparison group students for every outcome, contact the first author.

Table B4. Propensity score matching findings

Postsecondary outcomes	Future Connect	Matched comparison group
First-year cumulative GPA at PCC***	2.5	2.0
Credits earned in first year at PCC***	27	18
First-to-second term persistence at PCC***	91%	66%
Fall-to-fall persistence anywhere***	77%	66%
First-to-second year persistence anywhere***	83%	71%
Completion anywhere within three years***	12%	7%
Completion or transfer anywhere within three years***	24%	17%

Source: Authors' analysis using ODE data linked to PCC data.

Note: Stars represent significance levels (***p < 0.001). Sample sizes and cohorts are different for every postsecondary outcome.

Table B5. Findings from regression analysis (propensity score weighting with covariate adjustment)

	Performance		Persistence			Completion	
	Credits earned in first year	GPA in first year	First to second term	Fall to fall	First to second year	Completion within three years anywhere	Completion or transfer within three years anywhere
Future Connect	11.813***	0.601***	0.296***	0.141***	0.153***	0.081***	0.112***
	(0.498)	(0.038)	(0.011)	(0.017)	(0.015)	(0.019)	(0.024)
Covariates	X	X	X	X	X	X	X
High school FE	X	X	X	X	X	X	X
Observations	14,851	14,851	15,455	10,309	14,454	8,468	8,468
R-squared	0.235	0.193	0.161	0.090	0.094	0.090	0.153

Source: Authors' analysis using ODE data linked to PCC data.

Note: Robust standard errors are in parentheses. Stars represent significance levels (***p < 0.001). Covariates include all variables in table B3, except school characteristics. High school fixed effects (FE) are indicators of a student's high school and control for variation in outcomes due to school-level factors. If a student attended more than one high school, it is the indicator of the school they attended the majority of their time in high school. If a student attended multiple schools for an equal amount of time, it is an indicator of the high school they attended their senior year. For the tables of full results, contact the first author.

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