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Effects of Service-Learning and Community Engagement Programs on the Academic Outcomes of Underrepresented Undergraduate Students

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Abstract

This study examines the effects of service-learning and community engagement programs on the academic outcomes of undergraduate students, focusing on underrepresented students. Prior studies documented the positive impact of community engagement on students' academic engagement, sense of belonging, and persistence, especially for underrepresented students. We explore the effects of four service-learning and community engagement programs on students' persistence (GPA, credits earned, retention) and college completion at the University of Illinois Chicago. We use propensity score matching to compare outcome variables of the treatment and control groups. We found varying degrees of statistically significant academic outcomes across the four programs (trending positive overall). To complement the quantitative findings, we carried out focus groups with each program. We found that for underrepresented students, service-learning and community engagement activities, especially when mentorship is involved, offer connections with their communities that help improve their academic engagement, sense of belonging, and persistence.

Keywords: service-learning, community engagement, underrepresented students, academic outcomes

Universities face a growing challenge of meeting the educational needs of a wide variety of learners, including underrepresented students and students from low-income and culturally diverse communities. For many of those students, their communities and experiences are not well matched to the communities of affluence and privilege that are present at many universities (Manning, 2000; Martin Lohfink & Paulsen, 2005). Manning suggested that underrepresented students, like all students, arrive at college with a strong desire to learn the skills that could fulfill their future hopes and dreams, and advance the future of their communities. Underrepresented students also bring with them a good understanding of the challenges their communities confront, and they aspire to use higher education as a tool to improve their lives and the conditions of their communities (Karp, 1986). However, the college experience immerses underrepresented students within a new environment that is, or may appear, isolated from the societal and cultural issues they care most about (Karp, 1986; Langhout et al., 2007, 2009; Walpole, 2003). This clash impacts these students' capacity to develop a sense of belonging and engagement to the university, which is critical to college persistence and success (Banks, 2007; Ostrove & Long, 2007).

We hypothesize that if colleges and universities were perceived as places that address issues important to their students, underrepresented students would view universities as the places to fulfill their dreams and aspirations of improving the world and their communities. Furthermore, we support the

literature that asserts that by engaging college students in community-based learning and broader community engagement efforts, universities can help students, especially underrepresented students, to bridge cultural divides between campus and community while providing skills to improve their academic achievements (Astin & Sax, 1998; Celio et al., 2011; Eyler & Giles, 1999; Tinto, 1993, 1997). This study is part of a research project funded by the 2014 First in the World (FITW) Program. The broader project targeted students at six research universities to measure the effect of service-learning (SL) and community engagement (CE) programs on the academic outcomes of undergraduate students and underrepresented students. At the University of Illinois Chicago (UIC), we assessed four different service-learning or community engagement programs to answer the following question: What is the overall effect of underrepresented students' involvement in SL/CE activities on persistence (GPA, credits earned, retention) and college completion in comparison to the students that do not participate in these types of programs?

Underrepresented Students' Challenges and Opportunities to Improve Academic Outcomes

Improving academic outcomes of underrepresented students in college has been a recurrent concern for researchers as well as educators and institutions (Alicea-Planas, 2017; Immerwahr, 2000; Kinzie et al., 2008; Maruyama et al., 2018; Song et al., 2017). Some studies have identified challenges faced by diverse groups of underrepresented students. Others focus on understanding paths for academic improvement, such as service-learning and community engagement initiatives, and campus–community partnerships that provide meaningful opportunities to increase both academic and civic outcomes.

Challenges faced by underrepresented students are well-known to researchers, educators, and institutions. Recurrent accounts refer to parents' fears that their children will lose their links to their communities and families; students' expectations and struggles to balance social, family, and community life with academic demands; and students' financial burdens of attending college and fear of debt. Several authors have discussed how the cultural divide between the live-in campus and the community is wider for underrepresented groups (Aries & Seider, 2005; Banks, 2007; Barnes et al., 2009; Langhout et al., 2007, 2009; Pelco et al., 2014). This divide has been evident for first-generation students who struggle both academically and psychologically in this new environment (Billson & Terry, 1982; Davis, 2010; Pascarella et al., 2004; Pelco et al., 2014) and whose parents lack higher education experiences relevant to their struggles. More specifically, the lack of experiences with college culture and the lack of understanding of the functioning of higher education landscapes make it difficult for students to navigate the educational system (Davis, 2010; Martin Lohfink & Paulsen, 2005; Pelco et al., 2014).

For underrepresented students, college can be an opportunity to learn things that will help them change the world and improve their life conditions and those of their communities (Manning, 2000). However, they do not always find or see the connection between their college experience and the real-life issues and problems they and their communities face (Karp, 1986). Instead, they find a culture of privilege (Aries & Seider, 2005) that makes them feel isolated (Langhout et al., 2007, 2009; Torres, 2009; Walpole, 2003), influencing their sense of belonging and increasing their likelihood of dropping out of college (Langhout et al., 2009; Ostrove & Long, 2007; Watt & Badger, 2009). This cultural clash also imposes new social and financial demands that students struggle to balance. For example, studies have found that first-generation students are more likely to work and to spend many more hours working (Billson & Terry, 1982; Pascarella et al., 2004; Pelco et al., 2014) than their non-first-generation peers. These financial struggles add to the fear that both parents and students share about debt and the cost of attending college (Boatman & Evans, 2017; Callender & Mason, 2017). This fear, according to Burdman (2005), decreased the chance of attending and completing college.

These accounts illustrate some of the cultural, social, financial, and academic challenges that students face during their college experience. These challenges can lessen students' capacity to engage with their academic work, to develop a sense of belonging as a college student, and, ultimately, to persist in completing their degrees. The mismatch between a student's background and that assumed within higher education

institutions is likely to make underrepresented students' adjustment across different environments more difficult. In recent years, institutions of higher education have sought to bridge the campus–community cultural divide by investing in and attending to community engagement programs, pedagogies, and partnerships (Jay, 2008; Ngai et al., 2018; Schulzetenberg et al., 2020; Soria & Mitchell, 2018). Because the community–higher education divide is most pronounced for underrepresented students, it is important to examine the ways in which community-based learning opportunities enhance those students' capacity to succeed in higher education studies.

Traditional models of outreach, where experts from higher education go to the community to solve its problems, raise questions (Bridger & Alter, 2006). Particularly concerning is the efficacy of traditional outreach programs in improving academic and civic outcomes (Billig et al., 2005; Fleck et al., 2017; Ngai et al., 2018). These questions have led to more engaged approaches of service-learning in which community assets, experiences, and expertise are joined with those of higher education to codevelop and coproduce collective outcomes (Fleck et al., 2017; Sandy & Holland, 2006; Shor et al., 2017). According to Furco (2010), these models embrace public engagement initiatives to truly integrate community into academic functions and students' college experience. By doing so, they provide opportunities that offer greater meaning and connect students' personal and societal interests with their college experiences (Ngai et al., 2018; Pelco et al., 2014). This shift is especially critical for effective work in low-income, challenged communities where the cultural divide between the campus and the community is the widest (Barnes et al., 2009; Harkavy & Puckett, 1991a, 1991b).

Several studies have found that participation in community engagement experiences, especially when integrated with academic coursework, can enhance students' social responsibility (Ash et al., 2005; Eyler & Giles, 1999; Ngai et al., 2018; Song et al., 2017), deepen their understanding of diversity and cultural competence (Simons & Cleary, 2006), increase their citizenship and civic skills (Celio et al., 2011), and strengthen their sense of community and belonging (Astin & Sax, 1998). Furthermore, these treatments increase persistence of students at greatest risk of dropping out of school and help increase underrepresented students' sense of belonging (Eyler & Giles, 1999; Scales et al., 2006) and college commitment (Astin et al., 2000), which have been found to be associated with student college persistence (Pascarella et al., 2004). Other research has demonstrated that service-learning is related to increased multicultural competence (Einfeld & Collins, 2008) and decreased ethnocentrism (Borden, 2007). Among positive outcomes, students developed multicultural skills such as empathy, patience, attachment, reciprocity, trust, and respect.

Literature on student–community engagement, student development, and campus–community partnership suggests that engagement of underrepresented and underserved low-income students in challenged communities provides an opportunity to link their college experiences with their lives (Fleck et al., 2017; Manning, 2000; Maruyama et al., 2018; Ngai et al., 2018; Pawley, 2013; Shor et al., 2017). These links further impact a student's sense of belonging, which leads to retention (Langhout et al., 2009; Mishra, 2020; Watt & Badger, 2009). Finally, commitment from the universities to engage challenged communities should provide a strong message to communities about the role and responsibilities of universities, and help people outside universities to better understand what universities do (Furco, 2010; Sandy & Holland, 2006).

With this study, we hope to add to the literature on service-learning and community engagement by examining the relationship of service participation and academic outcomes of undergraduate underrepresented students in four different SL/CE programs. Additionally, this article offers a qualitative account of students' perspective on the impact of SL/CE on their own college experience.

Setting

The study evaluated four different university programs to explore the notion of university–community engagement and the programs' impacts on underrepresented students' educational success. At UIC, the following categories are defined as underrepresented students: (1) African American, (2) Hispanic, (3) Native, (4) first-generation college student (i.e., neither parent with college experience), (5) low income (i.e., Pell grant eligible), and (6) students

Table 1. Summary of Program Characteristics

Program	Honors College (HC)	Urban Public Policy Fellowship Program (UPPF)	CE Component BA in Urban Studies (UP)	La Casa Student Housing and Resource Center (LC)
Type of SL/CE	Cocurricular service-learning (CSL)	Community-based internship (CBI)	Academic (credit-bearing) SL (ASL)	Extended community engagement (ECE)
Targets underrepresented students	No	Yes	No	No
Component	Honors credits	Internship experience	Internship experience	Community service
Requirement	Optional	Required	Required	Optional
Year in college	Sophomore & junior	Upperclassman	Sophomore & junior	Anytime
Relation with UIC	Internal	Internal	Internal	External

with disabilities. Three programs are part of the "internal" diversity programming: the Service-Learning Component at the UIC Honors College (HC); the Urban Public Policy Fellowship Program (UPPF); and the Community Engagement Component in the BA in Urban Studies (UP). The fourth case is an "external" case: La Casa Student Housing and Resource Center (LC), where UIC students attend together with students from other colleges and universities in Chicago. This program was run by The Resurrection Project (TRP), a community partner of the Great Cities Institute (GCI) and other units within UIC.

These four programs, each with a community engagement component, have different programmatic characteristics, such as type of SL/CE, target population, and moment of engagement. In the case of UIC, each program corresponds with a specific type of SL/CE that could potentially lead to differential outcomes. Table 1 summarizes the characteristics of the programs evaluated at UIC.

The types of SL/CE correspond with the following types of treatments identified in the analysis across different programs in all six universities that were part of a multisite larger study, Students' Success Through Community Engagement:

1. Cocurricular service-learning (CSL): Students provide a service to the community in a setting where learning is not linked to or integrated with the objectives of any academic credit-bearing courses in which a student is enrolled.
2. Community-based internship (CBI): Students participate in community-based activities that blend workforce development and the advancement of societal issues. Activities are not integrated with their credit-bearing courses. Internships may be paid or unpaid.
3. Academic (credit-bearing) service-learning (ASL): Students provide a service to the community that is linked to and integrated with academic learning objectives of a credit-bearing course in which they are enrolled.
4. Extended community engagement (ECE): Students participate in a variety of community engagement experiences. These activities have an organizational structure that intentionally links the experiences together to provide a set of opportunities.

Methods

To examine the effect of SL/CE programs on the academic outcomes of undergraduate students (GPA, credits earned, retention), this study compares academic outcomes of students who participated in any of the four

programs evaluated at UIC with other UIC students who did not participate in those programs. To complement the quantitative findings, we collected qualitative data through focus groups, to gain insights into underrepresented students' experiences during their time at UIC regarding barriers, supports, and strategies for reaching graduation.

We used existing quantitative data on background and outcome variables, which were collected with the participation of the four programs as well as the collaboration of the Office of Institutional Research (OIR) at UIC. All data sets were properly deidentified before sharing with the research team. Outcome variables (retention, persistence, and graduation rates) were assessed through students' academic records. Retention and persistence were measured as continued enrollment term-by-term, return after stopping out, full-time and part-time status, remedial course taking, credit completion, moving toward graduation/completion, and relation to state formulas for progress. Graduation rates were measured as graduation/completion, 2-year degrees and certificates, 4-year degrees, and time-to-completion rates.

Eligibility as part of the treatment groups was dependent on students' association to the programs under study. Only students over 18 years old were eligible to take part in the treatment or comparison groups. For the Honors College, we selected only specific freshman cohorts that allowed us to group students to the same academic year and where no participants had previous secondary education credits. Another caveat specific to the Honors College program was that both treatment and comparison groups belonged exclusively to the Honors College. For the other three programs (UPPF, UP, and La Casa), the treatment groups were participants of the program and the comparison groups were selected from the overall university population. As we describe below, comparison groups were selected through propensity score matching (PSM) techniques. This procedure yielded a single score that represented the combination of background variables for each participant in the treatment group and the comparison group.

We used the same logical model for studying all four programs; however, the propensity score–based matching process and the structure of the cohorts in each program led to methodological variances in the quantitative analysis. A summary of the research design for the four programs is presented in Table 2.

Data Collection, Cohorts, and Groups

Group 1: Cocurricular Service-Learning (CSL)—Honors College

For the Honors College, a CSL program type, we collected academic data (GPA, credits

Table 2. Summary of Research Design

Type of SL/CE	1. CSL	2. CBI	3. ASL	4. ECE
Program	Honors College (HC)	Urban Public Policy Fellowship Program (UPPF)	CE Component BA in Urban Studies (UP)	La Casa Student Housing and Resource Center (LC)
Design	QED-PSM Full-matching	QED-PSM Optimal Pair	QED-PSM Nearest neighbor	QED-PSM Optimal pair
Sample	Only freshmen matched	All UPPF students	Only students enrolled in the Bachelor in Urban Studies degree	UIC students at LC
Cohorts	2013–2016	2015–2017	2012–2018	2012–2018
Frequency	Yearly	Yearly	Semester	Yearly
Treatment	Service as honors credit	All UPPF students	Students registered in UP 491	UIC students at LC
Comparison	HC students not in service	Other UIC students	Other UIC students	Other UIC students

earned, enrollment, and graduation) on four cohorts of freshman students: 2013, 2014, 2015, and 2016. The treatment group included all students enrolled in the Honors College as freshmen for the cohorts under study that participated in any SL/CE activity as honors units. The comparison group was selected from all other Honors College freshmen in the same cohort that did not take any SL/CE activity as honors units. Students were excluded from the study if, as a member of a comparison group, they later enrolled in any of the other three treatments under study at UIC. To accurately determine the relation of SL/CE with students' outcomes, we also excluded students who dropped out during or before their fourth semester of college. This procedure allowed us to compare students with equal chances of participating in SL/CE within the Honors College program.

Academic data were collected for each student, in both treatment and comparison groups, at two time points: at the end of spring semester 2017 and 2018. The analysis of the impact of SL/CE activities on academic outcomes differs for each cohort based on the availability of data. For the 2013 and 2014 cohorts we conducted analysis on persistence and graduation outcomes, but for the 2015 and 2016 cohorts only persistence outcomes were analyzed. A detailed description of the analyzed variables for each cohort is available in the Appendix.

Group 2: Community-Based Internship (CBI)—Urban Public Policy Fellowship Program

For the Urban Public Policy Fellowship Program, a CBI program type, students who are accepted can participate in the program for only one year. For this reason, we separated the treatment by cohorts, including in the treatment group all students who enrolled in the program in 2015, 2016, and 2017. In the absence of being able to randomly assign students to a condition, we conducted propensity score matching to select the comparison group from a larger pool of other UIC students. To prevent participation in more than one treatment group, UPPF students were excluded from the study if they later enrolled in any of the other treatments that were part of the study.

Group 3: Academic Service-Learning (ASL)—BA in Urban Studies

For the CE Component BA in Urban Studies, an ASL program type, the treatment group included students enrolled in the UP program from fall 2015 to spring 2018, in either fall, spring, or summer semester, and who registered the UP491/US491 course as part of their UP credits. As with UPPF, we selected comparison groups from a pool of other UIC students who did not participate in this program. Since students could apply to and enroll at the UP program at any point during their enrollment at UIC, this initiative had potential for participant crossover. When this occurred, the student was eliminated from both the comparison and the treatment groups to avoid participation in more than one treatment group. Another potential for crossover was that students could register twice for UP491/US491 credits. All students were studied for at least one semester depending on an individual's stage of their academic program.

Group 4: Extended Community Engagement (ECE)—La Casa

For La Casa Student Housing and Resource Center, an ECE type of program, we collected background and outcome data on all UIC students who participated in the program between fall 2012 and spring 2018 semesters. All UIC students who had entered the La Casa program since its opening in fall 2012 were eligible for participation in the study. As with UPPF and UP, the comparison group was selected from a pool of other UIC students with similar background variables and similar college trajectories who never participated in the La Casa program. Students could join the La Casa program at any time during their college experience and remain in the program as long as they wanted until graduation. They could also leave the program and rejoin later in their college experience. To simplify the comparison condition, we counted students who joined La Casa for a second or third time only once. As with UP, when crossover occurred, the student was eliminated from both the treatment and the comparison groups to prevent participation in more than one treatment group.

For UPPF, UP, and La Casa, academic data (GPA, credits earned, enrollment, and graduation) were collected for each student, in both treatment and comparison groups, at one point in time, at the end of spring semester 2018. For all these programs, outcome measures on graduation varied depending on an individual's academic year and the entire length of the study in each case.

Sampling and Matching

CSL Program Type

In HC, the target sample represented all the students served by the CSL program, and both treatment and control groups were established at the level of individual students. The propensity score matching process created a matched comparison group for each cohort of the treatment. To create the matched groups, we produced a logistic regression model predicting service from a set of covariates (i.e., Pell eligibility, first generation, age, female, ACT scores, ethnic group, and citizenship status) identified in the literature as important to both service participation and academic achievement (Maruyama et al., 2018; Song et al., 2017; York, 2016). Following the estimation of propensity scores for individuals, treatment participants were paired one-to-one with comparison participants with similar propensity scores. This pairing used a nearest neighbor algorithm and a caliper of 0.2 (Cochran & Rubin, 1973). The caliper constrains pairing possible matches to potential participants who have a propensity score within 0.2 from one another. This matching resulted in a subset of comparable matched students for the outcome analyses. The final sample is summarized in Table 3.

Within this data set, 60% of students in the HC identified as female. The ethnic group most represented was Asian (31%), followed closely by Hispanic (27%) and White (23%). As of 2018, the average age of students in the data set was 21.

CBI, ASL, and ECE Program Types

For the other three program types (CBI, ASL, and ECE), the target sample also represented all the students served by each program, and we conducted propensity score matching to create a matched comparison group for each treatment group. For each program we attempted to find matches between each treatment target sample and a total of 47,538 other UIC students. Because of the large potential comparison pool, we decided to use a ratio of 2:1 comparison to treatment. According to Austin's (2011) analysis of many-to-one matches, 1:1 or 2:1 seemed to be the best practice. We used exact matching on ethnicity, citizenship status, first semester of enrollment, Pell eligibility during first college semester, sex, honors status, and transfer status. Then we examined the quality of matches using optimal full, optimal pair, nearest neighbor with replacement, and nearest neighbor without replacement propensity score matching techniques for previous GPA and age variables. For the previous GPA variable, we mean-centered all high school and transfer GPAs. Looking at the aggregate matches, nearest neighbor without replacement matching provided the lowest standard deviation differences between the treatment and control, compared to the other matching techniques. The final sample for each program is summarized in Table 4.

A total of 67 students participated in the CBI (UPPF) program during the three cohorts studied: 2015–2016 (22), 2016–2017 (26), and 2017–2018 (18); these figures represent elimination of one participant from the treatment pool since they did not have a good match with the control group. The remaining 66 participants were largely from underrepresented populations. In terms of race/ethnicity, 50% self-identified as Black or African American, 45.4% as Hispanic, and less than 2% each for Asian and multiracial.

Table 3. Sample Size of Matched Groups for the CSL Program Type (HC)

Cohort	Original sample		Matched groups		Underrepresented after matching	
	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
2013	185	170	142	142	111	110
2014	191	167	152	152	91	89
2015	168	181	142	142	82	77
2016	78	254	75	75	36	37
Total	**622**	**772**	**511**	**511**	**320**	**313**

Table 4. Treatment and Control Groups for Overall Students and Underrepresented Students Only in the CBI (UPPF), ASL (UP), and ECE (La Casa) Program Types

Program	Overall						Underrepresented					
	Treatment		Control		Total		Treatment		Control		Total	
CBI (UPPF)	66*	33.3%	132	66.7%	198	100%	64	33.3%	128	66.7%	192	100%
ASL (UP)	45**	33.3%	90	66.7%	135	100%	27	33.3%	54	66.7%	81	100%
ECE (La Casa)	48	33.3%	96	66.7%	144	100%	43	33.3%	86	66.7%	129	100%

Note. *A total of 67 students participated in the CBI program; however, one student was dropped from the treatment group since the propensity score matching did not generate a good match with the control group, leaving 66 students in the treatment group.
**A total of 55 students participated in the ASL program. Six cases were dropped from the analysis due to missing data, and four cases were removed since the propensity score matching did not produce good matches with the control group, leaving 45 students in the treatment group.

The students were mostly U.S. citizens (approximately 91%), 62.1% were Pell eligible during their first semester of enrollment, and 31.8% were first-generation college students. After matching, the mean-centered previous GPA decreased from .44 to .013 standard deviations while age decreased from .11 to .04. Because these standard deviation differences are all below 0.05, we do not need to include them as covariates in the outcome analysis. The standard deviation difference between propensity scores was approximately 0.05 and the graphs were fairly well matched.

For ASL (UP), the 55 students that registered in the UP491/US491 course as part of their academic service-learning credits during 2012–2018 were included in the treatment group. Six students were removed because of missing data, leaving 49 students for the analysis. These 49 participants were approximately 51% White, 30.6% Hispanic, 4% Asian, 6% Black/African American, and 8% unknown. We found 53% of the participants were Pell eligible during their first semester and 4% were first-generation college students. About 98% of the students were U.S. citizens. The students entered UIC between 2008–2014 or 2016–2017. After matching, four participants were dropped from the analysis due to poor matches. The mean-centered previous GPA decreased from .23 to .095 standard deviations while age decreased from .63 to .015. Because these standard deviation differences are all below 0.25, this balance is acceptable for using propensity score matching, but previous GPA needs to be included as a covariate in the outcome analysis, as the standardized difference was greater than .05 (What Works Clearinghouse, 2016). The standard deviation difference between propensity scores was approximately 0.01, and a visual assessment showed that the graphs overlapped well.

Qualitative Analysis of All Programs

To complement the quantitative findings, we collected new qualitative data on process variables through focus groups. The focus groups had a twofold purpose: (1) to explore how underrepresented undergraduate students defined educational success for themselves as college students, and what they believed contributed to or hindered that success and (2) to examine to what extent underrepresented students perceived that involvement in community engagement and service-learning contributed to their success.

For each program under study, we carried out one focus group that lasted about two hours and consisted of two activities: an individual mapping exercise and a debate about each participant map. We asked students to describe or draw their college

journey in terms of the barriers they have experienced, the aspects that supported them and facilitators that helped them in their college journey, and creative strategies they developed for getting through college. Participants in the focus groups were underrepresented undergraduate students, over 18 years old, and attending any of the four programs under study. Although each focus group was intended to have eight to 20 students, one of them ended up being a dialogue with only one student who responded to the recruitment.

Outcomes Assessed and Findings

The analysis of the impact of SL/CE activities on academic outcomes includes results on GPA, credits earned, enrollment, and graduation. These results differ for each SL/CE studied and for each program cohort based on the availability of data, on each individual's academic year, and on the entire length of the study in each program. Results are presented for all samples in each type of SL/CE studied as well as for a subset of underrepresented students (as defined by UIC), which allowed us to compare the impact of SL/CE for this specific group of students. Given the number of cohorts analyzed for the CSL program, results for this program are separated into the four cohorts studied. For the other three program types—CBI, ASL, and ECE—all cohorts are presented together, always displaying the comparison between the full sample and the subset of underrepresented students, but analysis across programs was not a part of this study.

Cocurricular Service-Learning: Honors College

At UIC, the Honors College presents itself as an option for undergraduate students who seek additional academic challenge and extracurricular opportunities. Student service, internships, and professional development are considered types of honors activities. However, they are not part of the honors core courses. Although they count as honors units, they may not count as credit hours. Typically, HC students register for these types of activities in their sophomore and junior years of college. The service component provides services to both the academic and outside community. It corresponds with the definition of a cocurricular service-learning program because these activities are not necessarily linked or integrated with the objectives of academic credit-bearing courses. However, HC encourages students to register for courses that both are credit-bearing and incorporate service activities such as tutoring, teaching, and mentoring.

The participants for all the cohorts in the overall student group totaled 511, with the matched comparison group totaling 511. The total number of underrepresented students in all the treatment cohorts was 320, with 313 total underrepresented students in the matched comparison cohorts (see Table 3).

GPA and Credits Completed (CSL)

Overall Students. The means for GPA scores and credits earned overall were higher in the treatment groups (service-learning) than in the matched comparison groups (no-service) for the overall students (see Table 5). Mean GPA scores were greater for the treatment groups in the 2013 cohort (.35 difference), the 2014 cohort (.37 difference), the 2015 cohort (.30 difference), and the 2016 cohort (.13 difference). The means for credits earned were higher in the 2013 cohort (5 credits), the 2014 cohort (9 credits), the 2015 cohort (7 credits), and the 2016 cohort (3.9 credits).

Underrepresented Students. Means for GPA scores were also greater for the treatment group when considering only underrepresented students (see Table 5). Mean GPA scores for underrepresented students were greater for the treatment group in the 2013 cohort (.36 difference), the 2014 cohort (.43 difference), the 2015 cohort (.42 difference), and the 2016 cohort (.18 difference). Mean credits earned by underrepresented students in the treatment group were greater than those of the matched comparison group in the 2013 cohort (6 credits), the 2014 cohort (14 credits), the 2015 cohort (6.8 credits), and the 2016 cohort (4.5 credits).

The regression analysis results with the matched groups found a positive and statistically significant relationship between service-learning participation and cumulative GPAs in three of the four cohorts, and credits earned in three of the four cohorts for the overall students in the CSL program (see Table 6). Service-learning had a positive and statistically significant relationship to GPAs in the 2013 cohort ($p < .001$, $b = .32$), the 2014 cohort ($p < .001$, $b = .36$), and the 2015 cohort ($p < .001$, $b = .29$). The 2016 cohort trended in the same direction, but without statistical significance ($p = .078$, $b = .12$). When considering only underrepre-

Table 5. Means and Standard Deviations for GPA and Credits Outcomes in the CSL Program Type (HC)

Cohort	Academic outcomes	Overall students						Underrepresented students					
		Service-learning			No-service			Service-learning			No-service		
		n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
2013	GPA	185	3.58	0.41	170	3.23	0.62	151	3.57	0.41	133	3.21	0.59
	Credits	185	116	22	170	111	25.7	151	118	21.3	133	112	25
2014	GPA	191	3.62	0.32	167	3.25	0.59	112	3.6	0.35	101	3.17	0.63
	Credits	191	115	14.2	167	106	12.6	112	118	12.6	101	104	27.6
2015	GPA	168	3.64	0.3	181	3.34	0.6	106	3.63	0.3	89	3.21	0.6
	Credits	168	93	11.2	181	86	19.8	106	93.1	10.3	89	86.3	17.8
2016	GPA	78	3.59	0.43	254	3.46	0.46	39	3.52	0.39	136	3.34	0.49
	Credits	78	65.1	8.18	254	61.2	7.55	39	63.9	6.28	136	59.4	7.03

Note. Students who dropped out during or before their fourth semester in college were excluded from analysis. For the 2016 cohort, this means that all students in the analysis were enrolled as of spring 2018.

sented students, the relationship between service-learning and cumulative GPAs is statistically significant for the 2013 cohort ($p < .001$, $b = .33$), the 2014 cohort ($p < .001$, $b = .42$), the 2015 cohort ($p < .001$, $b = .44$), and the 2016 cohort ($p = .045$, $b = .22$).

There is a positive relationship between service-learning and cumulative units earned for the overall students in the 2014 cohort ($p < .001$, $b = 8.48$), the 2015 cohort ($p < .001$, $b = 6.35$), and the 2016 cohort ($p < .001$, $b = 3.27$). The results for the 2013 cohort are in the same direction but not statistically significant ($p = .194$, $b = 3.69$). When considering only underrepresented students, the results were consistent with overall students, where the relationship between service-learning and cumulative units earned was statistically significant in the 2014 cohort ($p < .001$, $b = 12.01$), the 2015 cohort ($p = .002$, $b = 7.40$), and the 2016 cohort ($p = .001$, $b = 5.43$). Results for the 2013 cohort were not statistically significant, but trended in the same direction ($p = .157$, $b = 4.55$).

Retention and Graduation (CSL)

Analyses were conducted within each cohort of students, and outcomes were collected in spring 2018. The enrollment/graduated variable represents students either enrolled or graduated as of spring 2018 for each cohort (Table 7). The mean for either continued enrollment or graduation completion was greater in the treatment group than in the matched comparison group for the overall students in the 2013 cohort (6 percentage points), the 2014 cohort (6.7 percentage points), and the 2015 cohort (5.7 percentage points). For the 2016 cohort, there were no students who dropped out of the CSL program as of the 2018 data collection period. The research design only includes collection of graduation completion rates for the 2013 and 2014 cohorts. The mean graduation rate was greater for the treatment group than for than the matched comparison group for overall students in the 2013 cohort (8.5 percentage points) and the 2014 cohort (14.2 percentage points). When considering only underrepresented students, the mean for continued enrollment or graduation was greater for the treatment group than for than the matched comparison group in the 2013 cohort (5.7 percentage points), the 2014 cohort (12.2 percentage points), and the 2015 cohort (6.2 percentage points). For the 2016 cohort, there were no underrepresented students that dropped out of the Honors College program as of the 2018 data collection period. For the graduation completion rate of underrepresented students, the graduation rate was greater for the treatment group than for the matched comparison group in the 2013 cohort (4.5 percentage points) and the 2014 cohort (17.8 percentage points).

Table 6. Relationships Between SL Participation and Cumulative GPAs and Credits Earned in the CSL Program Type (HC) by End of Spring 2018

Year	Cumulative GPA								Cumulative units earned							
	Overall students				Underrepresented students				Overall students				Underrepresented students			
	b	*SE*	*p*	R^2	*b*	*SE*	*p*	R^2	*b*	*SE*	*p*	R^2	*b*	*SE*	*p*	R^2
2013	0.32	0.06	.000	0.08	0.33	0.06	.000	0.09	3.69	2.91	.194	0.00	4.55	3.20	.157	0.01
2014	0.36	0.05	.000	0.21	0.42	0.07	.000	0.21	8.48	2.15	.000	0.04	12.01	3.10	.000	0.06
2015	0.29	0.05	.000	0.09	0.44	0.07	.000	0.17	6.35	1.88	.000	0.03	7.40	2.40	.002	0.06
2016	0.12	0.07	.078	0.10	0.22	0.11	.045	0.04	3.27	1.23	.000	0.14	5.43	1.63	.001	0.13

Table 7. Means for Retention and Graduation Outcomes in the CSL Program Type (HC)

Cohort	Academic outcomes	Overall students				Underrepresented students			
		Service-learning		No-service		Service-learning		No-service	
		n	*M*	*n*	*M*	*n*	*M*	*n*	*M*
2013	Enrollment/ graduated	185	91.9%	170	85.9%	151	91.4%	133	85.7%
	Graduation	185	90.3%	170	81.8%	151	85.7%	133	81.2%
2014	Enrollment/ graduated	191	95.3%	167	88.6%	112	97.3%	101	85.1%
	Graduation	191	80.1%	167	65.9%	112	81.2%	101	63.4%
2015	Enrollment/ graduated	168	95.8%	181	90.1%	106	97.2%	89	91.0%
2016	Enrollment/ graduated	78	100.0%	254	100.0%	39	100.0%	136	100.0%

Note. Students who dropped out during or before their fourth semester in college were excluded from analysis. For the 2016 cohort, this means that all students in the analysis were enrolled as of spring 2018.

Odds ratios were used to test the strength or weakness of the relationship between service-learning and retention/graduation and graduation. The relationship between service-learning and graduation and retention was assessed only for the 2013, 2014, and 2015 cohorts. Table 8 shows the relationship between service-learning and graduation or retention was not statistically significant for the overall students in all the cohorts. For underrepresented students, the relationship between service-learning and graduation or retention was statistically significant for only the 2014 cohort (OR = 6.79, p = .01).

Graduation rates were measured only for the 2013 and 2014 cohorts. There is a positive relationship between service-learning and graduation for the overall students in the 2013 (OR = 1.98, p = .05) and 2014 (OR = 2.07, p = .006) cohorts. For underrepresented students, the relationship between service-learning and graduation rates is statistically significant for the 2014 cohort (OR = .027, p = .004).

Community-Based Internship: Urban Public Policy Fellowship Program (UPPF)

The Urban Public Policy Fellowship (UPPF) program is a nondegree, noncredit leadership development program intended to expose underrepresented students to policy issues. It is administered by Policy and Civic Engagement (IPCE) in partnership with the Latin American Recruitment and Educational Services program (LARES) and the African American Academic Network (AAAN), two support programs of UIC. The program pairs students with partner organizations who can provide them with insight into public policy making and practice. It requires a commitment of 11.5 hours per week: 8 hours in the internship site and 3.5 hours dedicated to academic components of the program. This program corresponds with the definition of community-based internship because students participate in community-based activities that blend workforce development, but these activities are not integrated with credit-bearing curricula. However, UPPF has an academic component that is central to its structure and goals. At UPPF, internships are paid, reflecting the program's aim of linking overall academic performance with job opportunities for underrepresented students.

For this program, we analyzed final GPA and final credits separately using t-tests. Both GPA ($t(195) = 5.66$, $p < .0001$, $g = .705$) and credits completed ($t(167.37) = 4.65$, $p < .0001$, $g = .635$) were significantly greater in the participants than in the comparison group. We conducted a chi-square test to confirm that the variables were associated

Table 8. Relationships Between Service-Learning and Retention and Graduation Rates in the CSL Program Type (HC)

Year	Retention/graduation								Graduation							
	Overall students				Underrepresented students				Overall students				Underrepresented students			
	b	*SE*	*p*	*OR*	*b*	*SE*	*p*	*OR*	*b*	*SE*	*p*	*OR*	*b*	*SE*	*p*	*OR*
2013	0.53	0.39	.17	1.70	0.51	0.43	.240	1.66	0.68	0.35	.050	1.98	0.74	0.40	.060	2.09
2014	0.84	0.47	.07	2.32	1.91	0.78	.010	6.79	0.72	0.26	.006	2.07	1.01	0.35	.004	0.27
2015*	0.82	0.50	.10	2.27	1.52	0.80	.058	4.60	—	—	—	—	—	—	—	—

Note. Covariates that presented a SD mean difference of above 0.05 were included as control variables in the different regression models (i.e., 2013—Pell and first generation; 2014—ACT, Black, age, and Pell; 2015—Black; 2016—ACT, Black, citizen, ethnic other, first generation, Pell, and female).
*Graduation rates were not measured for the 2015 cohort.

($X^2(1) = 24.5$, $p < .0001$). Then we conducted a logistic regression for the graduation rates and found a significantly higher graduation rate for participants over comparison students ($OR = 5.54$, $p < .001$). The means and standard deviations of the participants and comparison groups for GPA, credits, and graduation rates are noted in Table 9.

Table 9 also shows the results for the subset of underrepresented students. We used exact matching on most of the background variables and found that the covariate balances for this subset showed the same patterns as those for the whole set. A total of 64 participants were underrepresented with respect to race and ethnicity, first-generation status, and/or Pell eligibility. This subset showed the same statistically significant differences between GPA ($t(189) = 5.72$, $p < .001$, $g = .72$) and credits earned ($t(164) = 4.79$, $p < .001$, $g = .66$). Using a chi-square test, the researchers also found an association between graduation rates and service-learning participation ($X^2(1) = 24.5$, $p < .001$). The researchers then conducted a logistic regression, which showed that underrepresented students in the treatment group had statistically significant higher graduation rates ($OR = 6.04$, $t(191) = 5.5$, $p < .001$).

Academic (Credit-Bearing) Service-Learning: Community Engagement Component in the BA in Urban Studies (UP)

The Bachelor of Urban Studies is a pre-professional program where students gain knowledge and understanding of cities with an opportunity for specialization in particular issues affecting cities. This program offers two specific programmatic elements of community engagement experiences: the capstone project and the internships. These two components of the academic program are designed to connect students with research projects, community engagement, and public events. This program corresponds most closely with the definition of an academic (credit-bearing) service-learning/community engagement program because students' service to the community is linked to and integrated with academic learning objectives, and students earn academic credit while enrolled in this course. However, students participating in this course can engage in a wide variety of community engagement experiences that could also align with other types of programs.

For this program, we analyzed the final GPA and final credits separately, controlling for previous GPA on both (see Table 10). We found that the GPA mean ($b = .59$, $t(132) = 4.13$, $p < .001$) was greater for the treatment group than for the comparison group and statistically significant. Credits were not significantly greater for the treatment group ($b = 7.9$, $t(132) = 1.14$, $p > .25$) than for the comparison group. After conducting a logistic regression, controlling for age, we found a greater and statistically significant graduation rate for the treatment group than for the comparison students ($OR = 2.94$, $p = .03$).

We separated subsets of participants and the comparison group based on underrepresented status (see also Table 10) and found that a total of 31 students were underrepresented with respect to race/ethnicity, first-generation status, and/or Pell eligibility. Checking the balances of the covariates, we found that all covariates were less than .25 standardized differences apart, but that both previous GPA and age were greater than .05 standardized differences. We therefore in-

Table 9. Means and Standard Deviations for Academic Outcomes for Students in the CBI (UPPF) Program Type

Academic outcomes	Overall students						Underrepresented students					
	Treatment			Matched control			Treatment			Matched control		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
GPA	66	3.31	.54***	132	2.69	1	64	3.3	.54***	128	2.66	1
Credits	66	97.52	32.28***	132	72	43.3	64	98.9	31.8***	128	72.38	43.5
Graduated	66	78.8%	41%***	132	40%	49%	64	78.1%	42%***	128	39%	49%

Note. ***The relationship is statistically significant at the .001 level.

Table 10. Means and Standard Deviations for Academic Outcomes for Students in the ASL (UP) Program Type

Academic outcomes	Overall students						Underrepresented students					
	Treatment			Matched control			Treatment			Matched control		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
GPA	45	3.326	.61***	90	2.76	0.8	27	3.28	.76***	54	2.54	0.99
Credits	45	77.22	34	90	70.57	41.9	27	77.26	36.1	54	65.11	41.9
Graduated	45	84%	37%*	90	68%	47%	27	74%	45%	54	57.4%	50%

*The relationship is statistically significant at the .05 level.
***The relationship is statistically significant at the .001 level.

cluded those components in the regression analysis. Controlling for previous GPA and age, GPA was also greater for participating underrepresented students (b = .725, $t(77)$ = 3.38, p = .001), and credits for participating underrepresented students remained greater but not statistically significant (b = 11.4, $t(77)$ = 1.27, p > .2). Graduation was greater but not statistically significant for underrepresented participants (OR = 2.38, p = .12).

Extended Community Engagement: La Casa Student Housing and Resource Center (LC)

La Casa Student Housing was an initiative of The Resurrection Project (TRP), a community organization based in the Pilsen neighborhood of Chicago. This experimental program targeted low-income commuter students who did not have the same networking opportunities as students living on or near campus. This new model, envisioned as a community-based college dormitory where students receive support they need during their college journey, started operating in 2012 when TRP developed the project via state grant and private donations. However, after 7 years in operation, the housing portion of the program was closed due to lack of funding. As residents of La Casa, students were expected to take part in leadership roles and be active participants in the community and to participate in the different activities that make the program a living–learning community initiative. La Casa also offered a scholarship program that required students to complete at least 20 hours of volunteer service per term, or 40 hours throughout the year. This program is considered an Extended Community Engagement (ECE) program type because students in La Casa engaged in a wide variety of community engagement experiences not necessarily related to their academic experience. Although the overall objective of the program was to promote academic improvement and ensure college completion, the service and community engagement components were designed to promote dedication to social responsibility and citizenship and were more related to each student's own personal journey in college.

For the La Casa program we conducted an optimal pair matching technique to match the treatment group and comparison group and ran separate regression analyses on the final GPA (b = .06, $t(142)$ = .38, p > .7) and the final credits (b = 10.6, $t(142)$ = 1.5, p = .13). The researchers conducted a logistic regression for the graduation rates (OR = 1.43, p > .3). The treatment group had greater GPAs, credits earned, and graduation rates; however, none of the results were statistically significant (see Table 11).

When separating out the underrepresented students, we found that the covariate balances for this subset showed similar patterns (see Table 11). However, the previous GPA was .05 to .25 standardized differences apart, and the researchers controlled for this in the outcome analyses. The researchers found that the treatment group had greater GPAs (b = .21, $t(135)$ = 2.5, p = .8), credits earned (b = 11.17, $t(135)$ = 1.6, p = .118), and graduation rates (OR = 1.44, p = .32) than the comparison group, but none were statistically significant.

Comparative Qualitative Analysis

During the interaction with students across

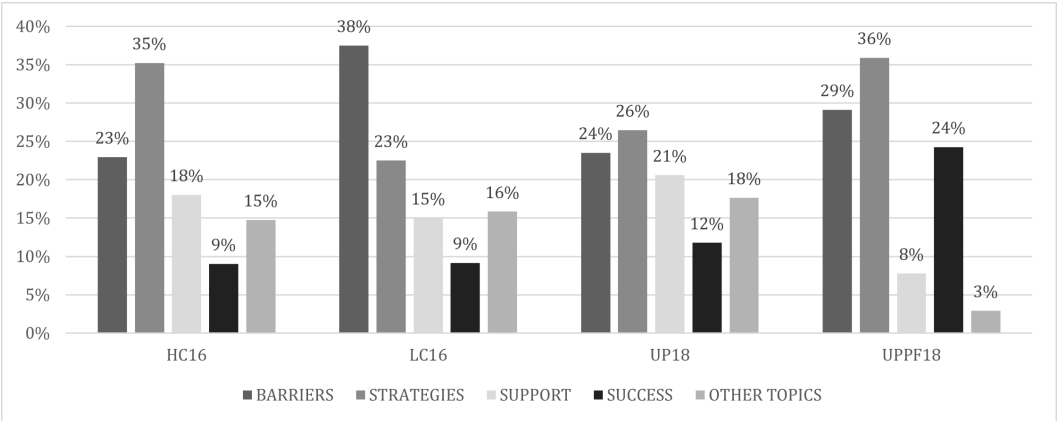
Table 11. Means and Standard Deviations for Academic Outcomes for Students in the ECE (La Casa) Program Type

Academic outcomes	Overall students						Underrepresented students					
	Treatment			Matched control			Treatment			Matched control		
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
GPA	48	2.725	0.84	96	2.66	0.96	43	2.72	0.86	86	2.7	0.93
Credits	48	66.23	38.19	96	55.63	39.75	43	66.9	38.6	86	55.9	39.5
Graduated	48	41.7%	49.8%	96	33%	47.4%	43	43%	50%	86	35%	48%

the focus group, several topics emerged as part of their college experience. We coded a total of 379 segments addressing the themes we discussed in each focus group: (1) student's understanding of success, (2) barriers to success, (3) strategies to overcome barriers, (4) support, and (5) other topics. Although barriers and strategies were the most discussed themes across the four program types, the magnitude of segments by theme in each program provided interesting insights (see Figure 1). For example, although the 2016 focus groups with CSL (Honors College) and ECE (La Casa) had a similar number of total coded segments, 122 and 120 respectively, ECE students discussed barriers more (38%) than CSL students (23%).

Across the four qualitative themes, we identified a total of 52 codes. The most recurrent codes were support networks and institutional resources, with 49 and 41 occurrences respectively. These two topics were discussed most often, as a lack of access to institutional resources and lack of support were largely identified as barriers. The third most recurrent topic across all focus groups was money (28 occurrences), which was also perceived as a barrier to success. However, money was not only associated with financial resources to pay for college education; rather, it was perceived as a determining factor of the entire college experience. For example, some students expressed the need to prioritize their jobs over their academic performance and even more over service-learning and community engagement opportunities. Other students could not afford to live on campus and ended up making long commutes that compromised their academic performance and even their health. This issue was particularly discussed during the ECE (La Casa) focus groups, where students stated that this affordable housing program made a huge difference in their college experience.

Figure 1. Focus Group Topic Frequency



Several of the 52 codes referred to aspects of student identity that affected participants' college journey. For example, self-confidence and self-doubt were the most discussed in this area, with the former being perceived as a strategy for success and the latter as a barrier. In other discussions, identity was perceived to link participation in community engagement to issues of representation, belonging, and cultural capital. As expressed by a student participating in the ECE program type, "I really understood the importance of community service and I began establishing my identity, figuring out who I was being a Mexican American in Chicago" (ECE focus group, spring 2016).

Besides self-authorship and identity construction, students across the four focus groups expressed that they felt that their participation in service-learning and community engagement initiatives allowed them to create meaningful connections with the world and to give back to their communities. This effect was emphasized by one CSL (Honors College) student, who stated, "While I was thinking about myself, I was thinking about the people who aren't in this room, the people who are not in the Honors College. Most of my undocumented friends, who are like struggling to pay for school" (CSL focus group, spring 2016). Students also said that these experiences boosted their critical engagement and activism, and cultivated a stronger commitment to social change and social justice.

Although the core of the evaluation was quantitative, looking at the findings via the topics that emerged from the qualitative data collection and analysis allowed us to explore how community engagement and service-learning also impact students' perceptions not only on their academic performance and college persistence, but also on the experience of their college journey. These findings provided important insights about students' college experiences from their individual perspectives, the way they perceive barriers, and the strategies they develop to connect personal and community values with academics and a foreign environment. Making such connections proved to be particularly important for underrepresented students facing a cultural clash when attending college. These students repeatedly referred to the relevance of connection with their communities for improving their academic performance and understanding of success during these focus groups.

Discussion and Conclusions

Table 12 summarizes the outcomes for all students in the treatment and comparison groups. Taken broadly, we find that the overall students' involvement in SL/CE activities has a positive impact on their persistence as measured by GPA and credits earned. This conclusion is consistent with findings from different studies that have shown the positive impact of SL on students' academic performance (Ash et al., 2005; Celio et al., 2011; Jay, 2008; Markus et al., 1993; Ngai et al., 2018; Schulzetenberg et al., 2020) as well as in civic and social justice engagement (Einfeld & Collins, 2008; Soria & Mitchell, 2018; Wang & Rodgers, 2006). Students' involvement in SL/CE activities also had a positive impact on graduation rates, with the ECE program type being the exception.

When considering only underrepresented students (Table 13), we found that their involvement in SL/CE activities also had a positive impact on their persistence as measured by GPA and credits earned with mixed results on graduation rates. The effects of SL/CE on persistence and graduation showed that for underrepresented students, trends were similar to those of the overall student population. These findings are important because they add evidence to a body of literature that addresses the critical role of SL/CE for underrepresented students (Kinzie et al., 2008; Maruyama et al., 2018; Song et al., 2017; York, 2016) and indicates that these experiences not only help them improve their academic performance, but also help them find larger meaning in their college education by connecting it with their social change aspirations.

Persistence Toward Graduation by Program Type

CSL Program

For all students, three of the four cohorts (2013, 2014, and 2015) participating in the CSL program had more persistence as measured by GPA than the comparison group (see Table 12). Similarly, three of four cohorts (2014, 2015, and 2016) showed more persistence as measured by credits earned than those who did not participate in this type of program. The results on graduation rates showed higher graduation rates for the treatment group for the 2013 and 2014 cohorts. In examining the findings for the CSL program, we cannot isolate for personal

Table 12. Overview of Statistical Findings (Entire Sample—Overall Students)

SL/CE program type and cohort	Assessed outcomes			
	GPA	**Credits**	**Enrolled or graduate**	**Graduation rate**
CSL HC (2013)	*p* < .001*** TG *M* = GPA 3.58 CG *M* = GPA 3.23 D = 0.35	*p* = .194 TG *M* = 116 credits CG *M* = 111 credits D = 5	*p* = .17 TG *M* = 91.9% CG *M* = 85.9% D = 6%	*p* = .05* TG *M* = 90.3% CG *M* = 81.8% D = 8.5%
CSL HC (2014)	*p* < .001*** TG *M* = GPA 3.62 CG *M* = GPA 3.25 D = 0.37	*p* < .001*** TG *M* = 115 credits CG *M* = 106 credits D = 9	*p* = .07 TG *M* = 95.3% CG *M* = 88.6% D = 6.7%	*p* < .01** TG *M* = 80.1% CG *M* = 65.9% D = 14.2%
CSL HC (2015)	*p* < .001*** TG *M* = GPA 3.64 CG *M* = GPA 3.34 D = 0.3	*p* < .001*** TG *M* = 93 credits CG *M* = 86 credits D = 7	*p* = .10 TG *M* = 95.8% CG *M* = 90.1% D = 5.7%	N/A
CSL HC (2016)	*p* = .078 TG *M* = GPA 3.59 CG *M* = GPA 3.46 D = 0.13	*p* < .001*** TG *M* = 65.1 credits CG *M* = 61.2 credits D = 3.9	N/A	N/A
CBI UPPF	*p* < .001*** TG *M* = GPA 3.31 CG *M* = GPA 2.69 D = 0.62	*p* < .001*** TG *M* = 97.52 credits CG *M* = 72 credits D = 25.52	N/A	*p* < .001*** TG *M* = 78.8% CG *M* = 40% D = 38.8%
ASL UP	*p* < .001*** TG *M* = GPA 3.33 CG *M* = GPA 2.76 D = 0.57	*p* = .25 TG *M* = 77.22 credits CG *M* = 70.57 credits D = 6.65	N/A	*p* < .05* TG *M* = 84% CG *M* = 68% D = 16%
ECE LC	*p* = .7 TG *M* = GPA 2.73 CG *M* = GPA 2.66 D = 0.07	*p* = .13 TG *M* = 66.2 credits CG *M* = 55.63 credits D = 10.57	N/A	*p* = .3 TG *M* = 41.7% CG *M* = 33% D = 8.7%

Note. TG *M* is the treatment group mean. CG *M* is the comparison group mean. D is the difference between treatment and comparison group means.
*The relationship is statistically significant at the .05 level.
**The relationship is statistically significant at the .01 level.
***The relationship is statistically significant at the .001 level.

Table 13. Overview of Statistical Findings (Underrepresented Students Only)

SL/CE program type and cohort	Assessed outcomes			
	GPA	**Credits**	**Enrolled or graduate**	**Graduation rate**
CSL HC (2013)	*p* < .001*** TG *M* = 3.57 CG *M* = 3.21 D = 0.36	*p* = .157 TG *M* = 118 credits CG *M* = 112 credits D = 6	*p* = .24 TG *M* = 91.4% CG *M* = 85.7% D = 5.7%	*p* = .06 TG *M* = 85.7% CG *M* = 81.2% D = 4.5%
CSL HC (2014)	*p* < .001*** TG *M* = 3.60 CG *M* = 3.17 D = 0.43	*p* < .001*** TG *M* = 118 credits CG *M* = 104 credits D = 14	*p* < .01** TG *M* = 97.3% CG *M* = 85.1% D = 12.2%	*p* < .01** TG *M* = 81.2% CG *M* = 63.4% D = 17.8%
CSL HC (2015)	*p* < .001*** TG *M* = 3.63 CG *M* = 3.21 D = 0.42	*p* < .01** TG *M* = 93.1 credits CG *M* = 86.3 credits D = 6.8	*p* < .058 TG *M* = 97.2% CG *M* = 91% D = 6.2%	N/A
CSL HC (2016)	*p* < .05* TG *M* = 3.52 CG *M* = 3.34 D = 0.18	*p* < .001*** TG *M* = 63.9 credits CG *M* = 59.4 credits D = 4.5	N/A	N/A
CBI UPPF	*p* < .001*** TG *M* = 3.30 CG *M* = 2.66 D = 0.64	*p* < .001*** TG *M* = 98.9 credits CG *M* = 72.38 credits D = 26.52	N/A	*p* < .001*** TG *M* = 78.1% CG *M* = 39% D =39.1%
ASL UP	*p* < .001*** TG *M* = 3.28 CG *M* = 2.54 D = 0.74	*p* < .2 TG *M* = 77.3 credits CG *M* = 65.11 credits D = 12.19	N/A	*p* < .12 TG *M* = 74% CG *M* = 57.4% D = 16.6%
ECE LC	*p* < .8 TG *M* = 2.72 CG *M* = 2.70 D = 0.02	*p* < .118 TG *M* = 66.9 credits CG *M* = 55.9 credits D = 11	N/A	*p* < .32 TG *M* = 43% CG *M* = 35% D = 8%

Note. TG *M* is the treatment group mean. CG *M* is the comparison group mean. D is the difference between treatment and comparison group means.
*The relationship is statistically significant at the .05 level.
**The relationship is statistically significant at the .01 level.
***The relationship is statistically significant at the .001 level.

motivation. It is possible that because the CSL service-learning type at UIC is part of an Honors College program, participants are high-achieving students and more motivated to participate in community engagement initiatives and in their academic performance goals overall.

When considering only underrepresented students in the CSL program, all four cohorts saw more persistence as measured by GPA for the treatment group. When examining only underrepresented students, three (2014, 2015, 2016) of four cohorts saw more persistence as measured by credits earned. The underrepresented students had mixed results for graduation, with the treatment group in the 2014 cohort, but not the 2013 cohort, showing a statistically significant higher graduation rate.

CBI Program

Students that participated in the CBI program demonstrated more persistence than the comparison group as measured by GPA and credits earned. The type of SL/CE also showed higher graduation rates for participants than for the comparison group. When considering only underrepresented students, findings were similar to those for the overall student population, where the treatment group had more persistence than the comparison group as measured by GPA, credit hours earned, and graduation rates.

ASL Program

All students involved in the ASL program type showed more persistence as measured by GPA, as well as graduation rate, than their counterparts in the comparison group. Unlike students in the CSL and CBI program types, differences in persistence as measured by credits earned were not statistically significant. When considering only underrepresented students for this ASL type of program, the treatment group had more persistence as measured by GPA. However, differences in graduation rates were not statistically significant. Differences in credit hours earned, as with all students, were also not statistically significant.

ESE Program

The findings for the ESE program type showed that those who participated in the program had slightly better GPAs, credits earned, and graduation rates than other UIC students included in the comparison group, but the results were not statistically significant. Outcomes on persistence and graduation rates for underrepresented students were also not statistically significant for this type of program. ESE was the only program type that did not show increased levels of persistence and graduation rates, which may point to the significance of some elements in other programs, such as mentorship, support systems, and the level of structure that were not explicit in this type of program. Those program elements may factor in students' sense of belonging, which influences their college journey.

Lessons Learned

This evidence suggests that the cocurricular service-learning, offered by HC, and the community-based internship, offered by UPPF, are the types of programs that play an important role in helping students improve their academic performance, and UIC should continue to provide these practices for its students. Furthermore, the cocurricular service-learning types of programs may benefit from making SL/CE a more integral part of their curriculum. Both the cocurricular service-learning and the community-based internship program types offered financial support in the form of scholarship and/or paid internship opportunities. Such experience may help students begin to understand workplace environments that utilize their academic learning while providing a way to support themselves. The increased mentorship and support systems of both the cocurricular service-learning and the community-based internship types of programs may also help students assess what contributes to or obstructs their academic success. These key program elements are a central aspect in designing new institutional models of student service.

From listening to students' perspectives, we learned that service-learning and community engagement initiatives connect students' academic performance with their sense of belonging and their engagement with their college journey. In this regard, authors such as Alicea-Planas (2017) and Pawley (2013) suggested that understanding the lived experience of students can help expand the focus from modifying students' behaviors to creating institutional structures and channels of communication that could more effectively support underrepresented students in their distinct college journey, and boost their sense of belonging

to their higher education institutions. This support is important because sense of belonging, or lack of it, influences students' motivation and their interest in developing linkages to both the institution and their communities. The importance of these linkages was evident in the recurrent discussion about institutional resources during focus groups; factors such as mentorship, support systems, and paid internships have a strong impact on students' college journey.

Underrepresented students, like all college students, arrive at college with a strong desire to learn the skills that could fulfill their dreams and aspirations of improving the world and their communities. However, the barriers to their journeys endanger their capability to achieve the high academic performance that is perceived as academic success. In most cases, service and community-based learning have provided these students with mechanisms to develop strategies that help them navigate barriers and find their own paths to success, as they understand it. The study of four community engagement and service-learning program types at UIC showed that students participating in all four types of programs experienced a positive effect on traditional academic outcomes such as GPA and graduation, and that the improvement of these outcomes is statistically significant in the CSL, CBI, and ASL programs. Credits earned were statistically significant for the CSL and CBI programs. Further exploring the key aspects of these programs that trigger such effects is central for designing new institutional models of student service-learning and community engagement. Additionally, our interactions with students during the focus group showed us that, beyond the type of program, universities also need to advance in understanding what students believe contributes to or obstructs their academic success to incorporate it in new SL/CE models.

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Appendix. Treatment Groups at Honors College UIC

Cohort	Group description	Outcomes	Time under study
2013	Students in 2013 cohort that register any SL/CE credits on any or both semesters 2014 Students in 2013 cohort that register any SL/CE credits on any or both semesters 2015	Persistence and graduation	4 *plus* years ending spring term 2018
2014	Students in 2014 cohort that register any SL/CE credits on any or both semesters 2015 Students in 2014 cohort that register any SL/CE credits on any or both semesters 2016	Persistence and graduation	4 years ending spring term 2018
2015	Students in 2015 cohort that register any SL/CE credits on any or both semesters 2016 Students in 2015 cohort that register any SL/CE credits on any or both semesters 2017	Persistence (3 years—2 SL/CE)	2 years through the end of spring term 2018
2016	Students in 2016 cohort that register any SL/CE credits on any or both semesters 2017	Persistence (2 years—1 SL/CE)	1 year through the end of spring term 2018