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Building Capacity: Enhancing Undergraduate STEM Education by Improving Transfer Success

Pamela Ann Brown

Melanie Villatoro (Associate professor)

Melanie Villatoro is an Associate Professor and Chairperson of the Department of Construction Management and Civil Engineering Technology at City Tech. Prof. Villatoro holds a Bachelors of Engineering degree from The Cooper Union for the Advancement of Science and Art, and a Masters of Science degree in Geotechnical Engineering from Columbia University. She is a licensed Professional Engineer in the state of New York. Prof. Villatoro is passionate about student retention and performance, as well as STEM Outreach in K-12.

Elizabeth Milonas

Elizabeth Milonas is an Assistant Professor with the Department of Computer Systems Technology at New York City College of Technology - City University of New York (CUNY). She teaches various topics related to data science and relational and non-relation database technologies. Her research focuses on organization techniques used in big data, ethics in data science curriculum, and evaluation of data science programs/curricula. She has a Ph.D. in Information Systems from Long Island University, an MS in Information Systems from NYU, and a BS in Computer Science from Fordham University.

Hon Jie Teo (Assistant Professor) (New York City College of Technology)

Diana Samaroo

Diana Samaroo is a Professor in the Chemistry Department at NYC College of Technology in Brooklyn, New York. She has experience in curricular and program development, as well as administration as the Chairperson of the Chemistry Department for numerous years. She has mentored undergraduates under the support of Emerging and Honors Scholars program, CUNY Service Corps, Louis-Stokes for Alliance Minority Participation (LS-AMP) and the Black Male Initiative programs. She serves as co-PI on several federal grants, which include NSF S-STEM and NSF HSI-IUSE grants. With a doctoral degree in Biochemistry, Dr. Samaroo's research interests include drug discovery, therapeutics and nanomaterials.

Building Capacity: Enhancing Undergraduate STEM Education by Improving Transfer Success

Abstract

Several evidence-based practices were combined to reduce barriers to transfer from associate to baccalaureate programs, and baccalaureate degree completion. The first strategy was creation of the STEM Transfer Collaborative (STC), an adaption of the CUNY Pathways general education articulation initiative (1). The STC focuses on collaboration by both the sending and receiving college faculty to begin transfer preparation and support before transfer occurs, through articulation agreements, shared professional development to align pedagogy and curriculum, and outreach to potential transfer students. There was also regular feedback to community college faculty on the success of their transfer students. A second strategy employed was Momentum to the Baccalaureate (MB), an adaption of the CUNY Accelerated Study in Associate Programs, ASAP (2). MB provides support for junior and senior-level transfer students who are either community colleges associate degree graduates (external transfer) or associate degree graduates who transferred to bachelor's programs at the same comprehensive college they earned their associate degree at (New York City College of Technology of the City University of New York), which has a 2+2 degree structure (internal transfer). Components of MB include personalized mentoring, advisement, and monthly stipends to students who maintain full-time enrollment and good academic standing. Students' majors are in high needs STEM areas and include computer engineering technology, computer systems technology, construction management and civil engineering technology, electrical engineering technology, and applied chemistry. Propensity matching was used to evaluate the effectiveness of these strategies.

Participating campuses are part of the City University of New York (CUNY), and include six community colleges (Borough of Manhattan Community College, Bronx Community College, Guttman Community College, Hostos Community College, Kingsborough Community College, and LaGuardia Community College), five of which are Hispanic Serving Institutions (HSIs), and, as mentioned previously New York City College of Technology (City Tech), also an HSI, which offers associate and bachelor's degrees (2+2 structure).

Building Capacity: Enhancing Undergraduate STEM Education by Improving Transfer Success has made progress and demonstrated success at achieving goals, despite the ongoing challenges of the COVID-19 pandemic. Overall, preliminary results suggest that targeted pre-transfer and post-transfer supports improve transfer student outcomes. Students who transferred from a City Tech associate degree program to a City Tech STEM baccalaureate program and who received MB support had higher GPAs and better retention rates than a matched cohort of students who transferred from a City Tech associate degree program to a City Tech STEM baccalaureate program but who did not receive MB support. Students who transferred from a STEM Transfer Collaborative (STC) community college to City Tech's STEM baccalaureate programs who received Momentum to the Baccalaureate (MB) support had significantly higher GPAs compared with a matched cohort of students who transferred from a STEM Transfer Collaborative (STC) community college to City Tech's STEM baccalaureate programs but who did not receive MB support.

Introduction

One of the biggest challenges for Latinos has been navigating a polarized postsecondary system with two unequal pathways (3). One pathway to a bachelor's degree is direct entry into a 4-year college; the other is to start at a community college. Hispanic students are the largest minority population underrepresented in STEM and disproportionately matriculate at 2-year institutions with the intention of transferring and pursuing a bachelor's degrees. In 2012, 45% of Latino STEM students pursuing higher education attended a public, 2-year college. At the point of college entry, they are likely to have experienced multiple educational disadvantages: graduation from an under-resourced secondary school with limited STEM offerings, particularly in disciplines such as physics and computer science, and inadequate pre-college guidance. These disadvantages are often compounded when students are the first in their families to negotiate the higher education system and when they lack role models who exemplify high academic achievement and professional success in STEM fields. Though many Hispanic students who enter community colleges express a desire to earn a bachelor's degree, their patterns of course-taking and the limited availability of targeted academic advising often work against the realization of this goal; while 80% of new community college students want to earn a bachelor's degree, only 14% of students starting at a community college transfer to four-year-schools and earn a bachelor's degree within six year of initially enrolling at the community college (4).

STEM Transfer Collaborative (STC): Leveraging CUNY Pathways: Many challenges to successful transfer occur prior to transfer. Common barriers for transfer students in STEM include: (a) inaccurate or passive transfer advisement, (b) weak transfer/articulation policies, (c) lack of course transferability, (d) the sudden shift from a supportive environment to one with more competitive classroom pedagogies, (e) unfamiliarity with academic rigor and expectations at 4-year institutions, (f) feelings of isolation, and (g) poor experiences with financial aid (5).

Previous studies have shown that students who successfully transfer to a 4-year institution are less likely to graduate than students who initially enrolled at the institution (6), highlighting the need for support at this critical transition. The STC component of this project leverages the CUNY Pathways model to include seamless transfer of courses in the major, by aligning curriculum and institutionalizing articulation agreements with associate degree programs offered at the six CUNY community colleges and our own four-year STEM programs. This will help to maximize contributory transfer credits. Many students transferring from community colleges lose credits because they are not approved by the 4-year institution, with 14% of transfer students having less than 10% of their credits accepted by the 4-year institution, and only 58% of transfer students having greater than 90% of their credits accepted by the 4-year institution. This loss of credit results in increased time and expense for bachelor's degree attainment, and thus is a barrier to graduation. As the percentage of community college credits transferred increases, the likelihood of attaining a bachelor's degree also increases (7). The 4-year institution's transfer policies are thus critical for the success of transfer students. A recent study showed that if the 4-year institution accepted all of a community college student's transfer credits, 87% earned a bachelor's degree; when even some credits were not accepted for transfer, that percentage dropped to 42% (8). Articulation agreements assuring that all credits transfer toward the bachelor's degree will address this barrier to student success. The support students receive through the STC help assure they qualify for articulation agreements.

Many academically qualified students who intend to transfer from a community college and earn a bachelor's degree, never follow through (7). While these authors do not speculate on a reason, a contributing factor may be inaccurate and or passive transfer advising, as mentioned previously. Through dedicated STEM faculty serving as resources even before transfer occurs, there are additional opportunities for students at the community colleges to visit City Tech before transferring so they get to know the campus and faculty and learn about degree requirements and career options. Due to the COVID-19 pandemic, these in-person visits became virtual visits, effective March 2020. To smooth the transition for transfer students and enhance their opportunities for success, advisement is coordinated between the two campuses and facilitated by the articulation agreements that were developed (9). These strategies were chosen to reduce "transfer shock," the temporary dip in grade point average the first semester or two after community college students transfer to a 4-year institution (10). Each semester, a Transfer Forum is held, where participants from every campus meet, as part of formative evaluation activities designed to pinpoint operational barriers to transfer and develop practical solutions, and effective pedagogies are shared. Faculty, staff, and students from all campuses contribute. Interacting synergistically, these complementary initiatives promote progress toward the baccalaureate degree. Professional development workshops have two intended outcomes: create community among STEM Transfer Collective (STC) members and support pedagogical and curricular development in STEM education.

Momentum to the Baccalaureate (MB): **CUNY ASAP-Model Supports** We adopted features, of the highly successful ASAP model (2), developed to support associate degree students. We are however, supporting a different cohort, students transitioning from their associate degree to the last two years of baccalaureate STEM programs**.** The ASAP model consists of a suite of supports which includes: requiring full-time enrollment, immediately addressing remedial needs, consolidated scheduling, opportunities for year-round enrollment, cohort course taking, comprehensive advisement, career and employment information and tutoring, as well as financial support. Financial support includes: (a) tuition waivers for any gap need beyond need-based financial aid awards, (b) free use of textbooks, and (c) New York City transit cards (MetroCards).

The ASAP model was evaluated using a random assignment experimental design and tested and proven to be successful when offered as the complete suite of supports just described, with associate degree students (i.e., partial implementation and implementation with different cohorts was not evaluated). Students in ASAP had an impressive three-year graduation rate of 40.1% compared to 21.8% for matched non-participants (11). Previous internal research showed that Hispanic male students in ASAP had a 3-year graduation rate of 46.7% compared to 18.2% for a matched group.

As students in this study have already successful navigated the first two years of the higher education system, the ASAP model components to be implemented were those most relevant to overcoming the impediments to successful transfer and transition to upper-level studies. The ASAP model supports included in this study initially included personalized advisement and free monthly MetroCards as an incentive for meeting monthly with the program manager or faculty advisor; full-time enrollment, ideally an average of 15 credits per semester and good academic

standing. However, due to the pandemic and online learning, MetroCards were replaced with monthly stipends. Full-time enrollment is a key predictor of degree completion (11, 12). Students are also encouraged to take advantage of existing campus resources such as the Professional Development Center for career services, undergraduate research opportunities to strengthen relationships and advance their scholarship; faculty office hours to support academic success and to form closer relationships with faculty; and the Counseling Center if experiencing stress or other personal problems. Each semester there is a welcome meeting with guest speakers reviewing these resources.

More details can be found on the program website: https://www.citytech.cuny.edu/nsf-hsi-iuse-program/

Research Question

The research question to be addressed is, how does implementation of the STC and MB help students more successfully make the transition from 2- to 4- year degrees? How do the metrics of student success (retention, credit accumulation, semester GPA, graduation rate, time to graduation) of students receiving support through MB compared to matched students without the supports?

Methodology

This paper examines the outcomes of four cohorts, created in each of the five years of funding and studied longitudinally. Students in all the cohorts will have applied for the ASAP model supports (MB). Students will either have externally (E) transferred from a community college or internally transferred from one of City Tech's associate programs (I). Some students will receive MB supports and some will not. These cohorts are:

Annual cohorts receiving MB supports:

(1) Associate degree students transferring from a STEM Transfer Collaborative (STC) community college to City Tech STEM baccalaureate programs [E/STC+MB]

(2) Associate degree students transferring from City Tech associate degrees to City Tech STEM baccalaureate programs [I + MB]

Cohorts not receiving MB supports:

(3) Associate degree students transferring from STEM Transfer Collaborative (STC) community college to City Tech STEM baccalaureate programs [E/STC]

(4) Associate degree students transferring from City Tech associate degrees to City Tech STEM baccalaureate programs [I].

By serving a matched cohort of forty third-year students, half transfers from CUNY community colleges with STC and half 2+2 students we should be able to see how effectively the provided supports impact retention, GPA, average credit accumulation per semester, and time to graduation from the associate to the bachelor's degree, for external transfer students compared to internal stransfer students ((1)+(2)). By examining time to bachelor's graduation from initial enrollment in bachelor's programs for both cohorts, we will be better able to understand the

relative advantages of starting the associate degree at a community college or a 2+2 college offering both associate and bachelor's degrees.

By comparing transfer students from the STEM Transfer Collaborative (STC) programs, with and without subsequent MB supports, we should be able to see the impact of the MB supports ((1)+(3)). By comparing native City Tech students receiving MB with native City Tech students with no MB support, we should again be able to see the impact of the MB ((2)+(4)). A summary of how cohorts will be compared and what can be learned to answer the research questions (RQ) from these comparisons can be seen in Table 1:

Table 1: Summary of Comparison Groups and Interventions

Comparison groups	Internal Transfer	External Transfer with STB	External Transfer no STB	MB	No MB	What can be learned?
Cohort 1		X		X		Impact of STC, RQ 1, 3
Cohort 2	X			X		
Cohort 1		X		X		Impact of MB, RQ2
Cohort 3		X			X	
Cohort 2	X			X		Impact of MB, RQ 2
Cohort 4	X				X	

The research methodologies and approaches in this study are informed by current and tested qualitative, quantitative, and mixed methods used in engineering education research (12, 13)

Methodology

Cohorts 1 and Cohorts 2 are program participants, and Cohorts 3 and Cohorts 4 are found by mining institutional data and using a propensity score. The potential pool of students for Cohort 3 is much smaller than Cohort 4. To create Cohort 3, major, cumulative GPA, and credits at the beginning of the initial intervention term are covariates. For Cohort 4 added covariates are gender, age, and ethnicity for matching. It was impossible to get the exact match for all the cohorts, but the statistical algorithm used helped get as close a match as possible.

At the conclusion of each semester, we checked the outcome variable to measure the impact of the intervention. The outcome variables are the semester retention rate, semester GPA, and semester credits. The difference of this outcome variable between the control group and treatment group is the impact of the intervention. We used the t-test and obtained the p-value to evaluate statistical significance. A p-value less than 0.05 or 5% means that there is a significant difference between the two groups statistically. A p-value larger than 0.05 or 5% means that there is no significant difference between the two groups statistically.

Finally, we wanted to see the effect of the intervention. To get the quantitative measure of the intervention we used another statistical concept called Effect size. Effect size is a way to find out how well the interventions worked. There are several ways to measure Effect size. For our research work, we used the coefficient of determination (also referred to as R2 or "r-squared") method. The r squared value of 0.01 means small effect, 0.09 means medium effect, and 0.25 means large effect.
A confounding factor in GPA analysis is that students had the option of CR/NC (credit/no credit) in spring and fall 2020 due to the pandemic, but no other semesters.

Results and Discussion
Fall 2019 and Fall 2020 and overall college demographics are shown in Table 2. It can be seen that the percentage of Hispanic participants mirrors the college average, with Blacks underrepresented, Asians over-represented and males overrepresented.

Table 2 Comparison of 2019 group, 2020 group and college demographics.

Fall 2019 Cohorts 1 and 2	Fall 2020 Cohorts 1 and 2	College Demographics Fall 2020)
35% Hispanic (14)	38% Hispanic (17)	34% Hispanic
18% Black, non-Hispanic (7)	20% Black, non-Hispanic (9)	28% Black
32% Asian (13)	36% Asian (16)	21% Asian
15% White (6)	7% White (3)	11% White
62% Male (25)	73% Male (33)	54% Male
38% Female (15)	27% Female (12)	46% Female

Tables 3 -5, which follow, summarize the outcomes for groups starting in fall 2019. Results can be evaluated both in terms of trends that are both statistically significant and not statistically significant.

Fall 2019 Group Findings
During the first intervention year, it was seen that students who transfer from a City Tech associates degree program to a City Tech STEM baccalaureate program and who receive MB support overall have higher GPAs, earn more credits each semester and have better retention rates than a matched cohort of students who do not receive MB support. This trend continued and improved retention become statistically significant after the first semester. There was a drop-off in GPA and credits completed in the 4th semester of students receiving supports. This may be due to the best students graduating in just three semesters. Recall that Fall 2019 was the only semester in this study not impacted by the Covid-19 pandemic.

Table 3 Comparison of Internal Transfers, With and Without MB Supports (Fall 2019 Group)

Term	**Cohort 2 (Treatment) Size**	**Cohort 4 (Control) Size**	**Cohort 4 Size (after matching)**	
Fall 2019	30	713	60	

Measure	Result for Cohort 2 (Internal transfer with MB)	Result for Cohort 4 (Internal transfer no MB)	Impact of MB	t-test result
Semester GPA (Fall 2019)	2.981	2.761	0.22	t(73.57) = 1.28, p = 0.204
Semester GPA (Spring 2020)	3.326	3.052	0.27	t(72.95) = 1.38, p = 0.169
Semester GPA (Fall 2020)	3.298	3.293	0.00	t(43.39) = 0.02, p =0.983
Semester GPA (Spring 2021)	2.573	2.978	-0.405	t(37.59) =-1.05, p = 0.296
Semester Credits Completed (Fall 2019)	13.9	14.083	-0.18	t(47.82) = -0.39, p = 0.701
Semester Credits Completed (Spring 2020)	14.379	12.981	1.40	t(69.25) = 1.58, p = 0.118
Semester Credits Completed (Fall 2020)	13.192	11.465	1.73	t(53.72) =1.72, p = 0.089
Semester Credits Completed (Spring 2021)	9.24	11.392	-2.152	t(47.62) =-1.32, p = 0.190
Semester retention (Fall 2019 to Spring 2020)	97% (29)	90% (54)	7%	t(84.76) = 1.30, p = 0.198
Semester retention (Spring 2020 to Fall 2020)	96% (28)	77% (42)	19%	t(78.85) = 2.81, p =0.006

Semester retention (Fall 2020 to Spring 2021)	96% (25)	65% (28)	31%	t(60.51) = 3.73, p =0.0004

During the first intervention year, students who transferred from a STEM Transfer Collaborative (STC) community college to City Tech STEM baccalaureate programs who are granted Momentum to the Baccalaureate (MB) support had significantly higher GPAs compared with a matched cohort who did not receive MB support, particularly during the first semester when "transfer shock," a dip in GPA typically occurs and the first full-semester of the pandemic and online learning, fall 2020 The latter may be due to greater feelings of isolation without MB supports or being less informed and not taking advantage of a credit/no-credit option made available to CUNY students that semester. The dip in the fourth semester of MB students may be due to the best students graduating in three semesters. Credits earned each semester were essentially equal the first semester but increased in subsequent semester for students with MB supports. This may be due to students without MB supports becoming part-time, initially registering for fewer classes, more failures and withdrawals. Semester-to-semester retention for the two groups remained comparable.

Table 4: Comparison of External Transfers, With and Without MB Supports (Fall 2019 Group)

Measure	Result for Cohort 1 (External transfer with MB)	Result for Cohort 3 (External transfer no MB)	Impact of MB	T-test result
Semester GPA (Fall 2019)	**2.545**	**1.7375**	**0.81**	**t(25.83) = 2.05, p = 0.050**
Semester GPA (Spring 2020)	3.399	3.156	0.24	t(10.39) = 0.41, p = 0.694
Semester GPA (Fall 2020)	**3.422**	**1.920**	**1.50**	**t(11.19) = 3.59, p =0.004**
Semester GPA (Spring 2021)	2.888	2.941	-0.053	t(4.317) = -0.03, p =0.978
Semester Credits Completed (Fall 2019)	12.438	12.500	-0.06	t(12.06) = -0.02, p = 0.983
Semester Credits Completed	13.154	11.700	1.45	t(13.16) = 0.62, p = 0.547

(Spring 2020)				
Semester Credits Completed (Fall 2020)	13.333	11.916	1.42	t(8.18) =0.42, p = 0.678
Semester Credits Completed (Spring 2021)	11.4	9.9	1.5	t(4.70) =0.27, p = 0.793
Semester retention (Fall 2019 to Spring 2020)	81% (13)	83% (10)	-2%	t(24.29) = -0.14, p = 0.891
Semester retention (Spring 2020 to Fall 2020)	92% (12)	90% (9)	2%	t(12.00) = -1.00, p =0.337
Semester retention (Fall 2020 to Spring 2021)	91% (11)	88% (8)	3%	t(15.87) =0.20, p = 0.844

As shown in Table 5, students who transfer from a City Tech associates degree program to a City Tech STEM baccalaureate program and who receive MB support have higher retention rates, GPAs, and credit completion rates compared with students who transfer to City Tech from STEM Transfer Collaborative (STC) community colleges who also receive MB support, during their first semester (fall 2019). As is often seen with "transfer shock", these trends do not continue as students' progress through subsequent semesters, in fact the external transfer students even begin to outperform the internal transfer students in GPA and semester credits earned. Retention, however, remains higher among internal transfers

Table 5: Comparison of External and Internal Transfers, With MB Supports (Fall 2019 Group)

Term	**Cohort 2 (Treatment) Size**	**Cohort 1 (Control) Size, 2019 Cohort**	**Cohort 2 Size (after matching)**	
Fall 2019	30	16	12	
Measure	**Result for Cohort 2 (Internal transfer with MB)**	**Result for Cohort 1 (External transfer with MB)**	**Impact of STC**	**T-test result**

Semester GPA (Fall 2019)	3.029	2.545	0.48	t(13.99) = 0.58, p = 0.571
Semester GPA (Spring 2020)	3.284	3.399	-0.12	t(11.82) = -0.14, p = 0.894
Semester GPA (Fall 2020)	3.054	3.422	-0.37	t(11.75) = -0.39, p = 0.703
Semester GPA (Spring 2021)	3.796	2.888	0.908	t(9.20) =1.17, p = 0.270
Semester Credits Completed (Fall 2019)	13.844	12.438	1.41	t(11.71) = 0.40, p = 0.699
Semester Credits Completed (Spring 2020)	15.031	13.154	1.88	t(12.44) = 0.45, p = 0.658
Semester Credits Completed (Fall 2020)	11.812	13.333	-1.52	t(11.18) =-0.39, p = 0.703
Semester Credits Completed (Spring 2021)	12.95	11.4	1.55	t(11.72) =0.59, p = 0.563
Semester retention (Fall 2019 to Spring 2020)	100% (12)	81% (13)	19%	t(15.00) = 1.86, p = 0.083
Semester retention (Spring 2020 to Fall 2020)	100% (12)	92% (12)	8%	t(12.00) = 1.00, p =0.337
Semester retention (Fall 2020 to Spring 2021)	100% (12)	91% (11)	9%	t(11.00) =1, p = 0.338

2020 Group Findings

Tables 6-8 which follow, summarize the outcomes for groups starting in fall 2020. It can be seen that, as we saw with the fall 2019 group, the internal transfer students who started at City Tech had improved semester GPAs, and statistically significant increased semester earned credits than a matched cohort that did not receive MB supports. Retention, though 91%, was lower.

Table 6: Comparison of Internal Transfers, With and Without MB Supports (Fall 2020 Group)

Term	Cohort 2 (Treatment) Size	Cohort 4 (Control) Size	Cohort 4 Size (after matching)	
Fall 2020	16	30	12	
Measure	**Result for Cohort 2 (Internal transfer with MB)**	**Result for Cohort 4 (Internal transfer no MB)**	**Impact of MB**	**T-test result**
Semester GPA (Fall 2020)	3.341	3.186	0.16	t(48.40) =0.89, p = 0.374
Semester GPA (Spring 2021)	3.257	2.893	0.364	t(64.86) =1.82, p = 0.07
Semester Credits Completed (Fall 2020)	14.344	11.942	2.40	t(79.33) = 3.81, p = 0.0002
Semester Credits Completed (Spring 2021)	14.62	12.144	2.476	t(72.65) = 2.88, p = 0.005
Semester retention (Fall 2020 to Spring 2021)	91% (11)	100% (12)	-9%	t(11.00) =-1, p = 0.338

With the fall 2019 external transfer group, MB supports resulted in improved GPA and semester credits earned. This was found again with the fall 2020 group, with the increase in semester credits statistically significant, as shown in Table 7.

Table 7: Comparison of External Transfers, With and Without MB Supports (Fall 2020 Group)

Term	Cohort 2 (Treatment) Size, 2020 Cohort	Cohort 4 (Control) Size	Cohort 4 Size (after matching)	

Fall 2020	29	521	87	
Measure	**Result for Cohort 2 (External transfer with MB)**	**Result for Cohort 4 (External transfer no MB)**	**Impact of STC**	**T-test result**
Semester GPA (Fall 2020)	3.341	3.186	0.16	t(48.40) =0.89, p = 0.374
Semester Credits Completed (Fall 2020)	**14.344**	**11.942**	**2.40**	**t(79.33) = 3.81, p = 0.0002**

As shown in Table 8, student first participating in fall 2020 break from the trend seen in students first participating in 2019. Here, students who transfer to City Tech from STEM Transfer Collaborative (STC) community colleges who receive MB support have slightly higher GPAs compared to City Tech students who transfer to City Tech four-year programs and who also receive MB support. However, they earned fewer credits. These were both pandemic semesters, with students facing many challenges, so it is difficult to explain the causes. Additionally, in fall 2020, students had the option of CR/NC. It is hoped that the STC may be starting to mitigate "transfer shock."

Table 8: Comparison of External and Internal Transfers, With MB Supports (Fall 2020 Group)

Term	**Cohort 2 (Treatment) Size**	**Cohort 1 (Control) Size, 2020 Cohort**	**Cohort 2 Size (after matching)**	
Fall 2020	29	14	10	
Measure	**Result for Cohort 2 (Internal transfer with MB)**	**Result for Cohort 1 (External transfer with MB)**	**Impact of STC**	**T-test result**
Semester GPA (Fall 2020)	2.791	2.874	-0.08	t(10.32) = -0.06, p = 0.946
Semester Credits Completed (Fall 2020)	14.625	12.642	1.98	t(10.00) =0.39, p = 0.702

Developing an HSI Identity

During team meetings a frequent topic of discussion was, how do we promote our HSI identity? A recent review paper has identified this as a common conversation, in part due to the fact that

the federal government identifies an HSI by the percentage of Hispanic students, over 25%, rather than a specific mission (14). Four approaches for advancing Hispanic students at HSIs were identified: (a) improving outcomes, (b)improving experiences, (c) improving internal organizational dimensions, and (d) improving external influences. While our grant activities focused on improving outcomes, two members of the team, Melanie Villatoro and Benito Mendoza, were instrumental in creating an HSI Committee.

The newly-formed HSI Committee collaborates with various academic and student support programs on campus to engage in activities that support our Hispanic students. The work of the committee focuses on (a) recruitment, enrollment, and persistence of Hispanic/Latinx students; (b) development of curriculum and academic initiatives relevant to Hispanic/Latinx students; (c) implementation of student support services to address the needs of Hispanic/Latinx students, and (d) fostering a sense of belonging for Hispanic/Latinx faculty, students, and staff.

The college has hosted an annual college-wide HSI forum since 2018. The forum aims to raise awareness and identify potential collaborations. There are currently various ongoing projects which support our HSI identity, including developing culturally responsive curriculum, providing training for faculty and staff, and reinforcing bilingualism. The Humanities department has developed two new minors, Spanish language and Hispanic Studies. The Spanish language minor will be taught exclusively in Spanish and will diversify our students' portfolios. The Hispanic Studies minor will provide students with the opportunity to explore not only their own heritage but enrich themselves. This Spring, faculty and staff participated in a series of workshops discussing our role in serving Hispanic students and developing plans for programs and activities on campus that embody our HSI identity. Spanish is the second most widely spoken language in New York City; therefore, in order to remove language as a potential barrier for recruitment and promote our identity as an HSI, the IUSE program information was translated to Spanish and is available on the website and as print marketing materials.

Conclusion

Overall, these preliminary results suggest that targeted pre-transfer and post-transfer supports improve transfer student outcomes. The pandemic has made deeper analysis difficult because students are facing so many extenuating and unanticipated challenges. Personnel on the grant have made significant strides in stimulation conversations on what it means to being a HSI institutions with good strides in increasing the college culture.

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