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The Benefits of Academically Oriented Peer Mentoring for At-Risk Student Populations

ABSTRACT

This article examines an academically oriented peer-mentoring program at St. John's University. The program targeted at-risk first-year students who were having difficulty making the transition to college and matched them with trained student mentors within their major discipline. In addition to meeting with one another bi-weekly, all of the students came together for a series of organized events over the course of the academic year. The goals of the program were that mentees would (1) feel an increased sense of belonging at the university, (2) raise their GPAs, and (3) show improved retention to the second year. After examining how successful the program was relative to these goals, the authors recommend some best practices for peer-mentoring programs. These recommendations are based on both features of the program in the study that contributed to its success and areas where the program could have been improved based on the results.

KEYWORDS

at-risk students, belonging, retention, peer mentoring, student engagement

INTRODUCTION

St. John's University is a large, urban, Catholic, Vincentian university in Queens, New York. During academic year 2017-2018, St. John's College of Liberal Arts and Sciences ran a peer-mentoring program that matched at-risk, first-semester, first-year students in large majors with seniors in those majors who had received specialized training. The college was concerned with second-year retention rates, which tended to be lower in these large majors than they were in the smaller majors. On the institution's exit survey, next to unmet financial need, the second most common reason that first-year students gave for dropping out was a difficulty making the transition to college. Students attributed this difficulty to a number of factors, including feeling homesick, not being ready for college, and discomfort with the location or environment. Unfortunately, there was little that those in the college could do to help students meet the significant financial obligations that a private university education places upon them. Even so, the college saw peer mentoring as a way of fostering more student-to-student engagement and using mentors to help mentees make the transition to college, especially in the majors with large enrollments. It is also a program where students are serving other students. Service, especially to those in greatest need, is a key component—perhaps the central component—of the university's Vincentian mission. Reflecting this deep commitment to service, St. John's University also holds the

Carnegie Community Engagement Classification.¹ The peer-mentoring program was mission aligned insofar as it helped those students—the mentees—in greatest academic need. The program also required the mentors to complete an essay where they reflected on how their work as mentors related to the university's mission. For the mentors, this reflection essay turned their experience into a form of service-learning.

The literature notes that one of the main reasons first-year undergraduate students drop out of college is that they feel like they do not belong in college (Tinto 1993, 45–62). It is during this first year that students are most likely to drop out, and the first ten weeks of the first year are particularly crucial (Tinto 1998, 169).

One influential view on student dropout holds that a student's decision to drop out of college is a function of both their goal commitment (to attain a degree) and their institutional commitment (to the school at which they are studying). Whereas academic integration has a positive impact on goal commitment, social integration has a positive impact on institutional commitment. Academic integration can be measured by grades and intellectual development, while social integration occurs through peer groups, extracurricular activities, and interaction with faculty and administrators (Tinto 1975, 104–7). Other studies have likewise connected academic and social integration to retention (Collings, Swanson, and Watkins 2014, 934–37; Lotkowski, Robbins, and Noeth 2004, 7–8). Although a lack of academic and social integration is the distal cause of a student's decision to drop out, studies suggest that the proximate cause of dropout is the stress resulting from this lack of integration (Shields 2001, 75).

A related way of viewing academic and social integration is in terms of a student's sense of belonging. This can be defined in terms of a student's subjective sense of affiliation and identification with the university community (Hoffman et al. 2002, 228; Tinto 1975, 106–11). Here, fit and valued involvement are important attributes. The former concept refers to the perception a student has that their values are congruent with the values of others. The latter concept refers to the perception a student has that they are valued, needed, or important to others (Hagerty et al. 1992, 173). Increasing extracurricular student-to-student engagement (DeAngelo 2014, 60–65) and deepening disciplinary affiliation (Thomas 2012, 43) have been shown to improve retention by strengthening students' sense of belonging.

The research on peer mentoring suggests that the practice is an effective retention tool (Crisp and Cruz 2009; Lane 2018). Studies suggest that peer mentoring, when appropriately structured, is effective in creating the right kinds of academic and social support systems to help students make the transition to college which improves retention (Colvin 2015, 224; Cornelius, Wood, and Lai 2016, 202). Appropriate structure includes training. Mentors need extensive training (Chester et al. 2013, 36). They should be prepared to help mentees adapt to a new educational environment, offer strategies for overcoming academic problems, and be a resource for first-year student issues and concerns (Husband and Jacobs 2009, 229). By increasing academic and social integration, other studies note, peer mentoring reduces the stress that is the proximate cause of dropout (Collins, Swanson, and Watkins 2014, 937–40; Snowden and Hardy 2012, 87–88). In addition to improving retention by reducing stress, peer mentoring has other positive impacts on the psychological health of mentees and their overall academic achievement (Chester et al. 2013, 31; Terrion and Leonard 2007, 149–50). In an effort to improve retention, much work has been done to develop peer-mentoring programs that match students together based on various demographic characteristics (such as gender, ethnicity, or first-

generation status), and St. John's University has some of these programs. However, less research has been done on programs like this one at St. John's, which matches mentors to mentees based on academic characteristics. (Among the studies in this area, see Morales, Ambrose-Roman, and Perez-Maldonado 2016; Zaniewski and Reinholz 2016; Zevallos and Washburn 2014). One such study (Fullick et al. 2012, 68) notes that the reduction of stress (the proximate cause of dropout) is connected to mentors and mentees' sharing common personality traits and academic goals. The cumulative research suggests that matching mentors and mentees based on disciplinary affiliation and academic goals (an alignment of academic values) would be particularly effective in improving the mentees' sense of belonging, reducing their stress, and increasing academic attainment—in particular as measured by retention.

The overall purpose of our study was to discover the impact that academically oriented peer mentoring has on student engagement, academic performance, and second-year retention. By *academically oriented*, we mean that the study focused on a peer-mentoring program that recruits (and subsequently matches) mentors and mentees on the basis of academic major. The program aimed to strengthen both social and academic integration within the major through peer mentoring and co-curricular activities related to the academic major. Although the peer mentors were not academic tutors, they worked with mentees to develop study and life skills that would contribute to their academic success. The study has three hypotheses: (1) Peer mentees will feel an increased sense of belonging at the university, (2) mentees will raise their GPAs, and (3) mentees will show improved retention to the second year.

In the hope that other institutions replicate our work, in what follows, we describe the program, the study, and our findings. We close with recommendations intended to help others planning peer-mentoring projects at their own institutions. Much of the literature on peer mentoring discusses the positive *outcomes* of these programs. We offer this article as a supplement to the literature, as we explain in detail how the *program* itself needs to be constituted in order to achieve these outcomes.

DESIGN AND METHODS

The peer-mentoring program was one of several student-success initiatives run by the college, but it was the only initiative that involved students other than those in the target group. Although the program was open to students from math, sciences, and psychology, the majority of mentees (54 percent) came from biology. This is the college's largest major, and it is easy for first-year students to get lost in the shuffle and consequently feel as if they do not belong in their major—or more broadly—the institution itself.

The design and methodology of the program was informed by the literature summarized above. By orienting the program to the academic major, we hoped to accelerate the mentees' academic integration and so strengthen their goal commitment to completing their degree. By connecting students with one another in meaningful ways (mentee to mentee, mentee to mentor) and, through co-curricular activities, with other members of the campus community, we hoped to accelerate the mentees' social integration and so strengthen institutional commitment. The research notes that these forms of academic and social integration also have a positive impact on the mentees' sense of belonging. By increasing goal commitment, institutional commitment, and belonging, the research suggests, this form of peer mentoring should have a positive impact on the second-year retention of mentees.

Participants

St. John's University faces problems retaining students in both the lower and higher tiers of academic performance. Those in the lower tier struggle making the transition to college (both academically and socially) while those in the higher tier often use the university as a springboard to what they perceive as an academically stronger institution. Academically oriented peer mentoring can be used to improve the retention and persistence of both populations. Although the focus of our discussion here is the retention results for the mentees, we note that all of the mentors who participated were either retained or persisted to graduation after completing the program.

After a pilot version of the program in 2016-2017, the program was implemented in 2017-2018. A total of 20 successful fourth-year students from math, sciences, and psychology were recruited, trained, and served as mentors for the program. Of the 107 struggling first-year students who qualified for the program and were invited to participate, 50 students (47 percent) agreed to become mentees. We underscore the fact that the mentees *self-selected* to be a part of this program. This must be kept in mind when considering the results of the study. Table 1 offers demographic data comparing mentors and mentees to the populations in the represented degree programs and to the college as a whole.

Table 1. Comparative demographic data (fall 2017)

	Mentors	Mentees	College enrollment
Total	20	50	3,144
Male	7	9	1,031
Female	13	41	2,113
First year	–	50	912
Fourth year	20	–	499
Biology	4	31	894
Chemistry	5	4	113
Environmental studies	–	1	43
Mathematics	6	–	50
Physics	–	–	54
Psychology	5	14	548

It is interesting to note that although 67 percent of the undergraduate population in the college is female and roughly the same percent of mentors were female, 82 percent of the mentees were female. This holds true for the overall pool of students who *qualified* to be mentees based on their response to the self-assessment described below (regardless of whether or not they chose to participate): 82 percent of these students were female.

Although the breakdown of mentees by degree program roughly represents the overall populations in the college, this is not the case for the mentors. The plurality of mentors came from mathematics, for which we had no mentees. Although we were able to ensure that each mentee from psychology had a mentor from that same discipline, there were simply too many mentees in biology and too few mentors from that discipline for us to assign all of the biology mentees to a biology mentor. All of the biology mentors, however, did have only biology mentees, and we were able to ensure that all of the biology mentees had a mentor from a math or science degree program.

Selection process

The mentors were nominated by the chairs of the constitutive departments based on their high level of academic performance and the degree to which they themselves shared features (such as struggling as in the first year) with their mentees. Mentors were expected to be knowledgeable in their discipline, mature, and academically engaged on campus, and to have good interpersonal skills.

After the second week of the fall semester, all first-year students within the targeted majors were asked to complete a self-assessment of their progress up to that point. In most cases, instructors provided a small academic reward (such as a quiz grade) as an incentive to complete the self-assessment. We administered the survey as early as possible so that we would be in a position to intervene with struggling students *before* there was a negative impact on their academic records. Because the peer-mentoring program was intended as an early intervention that could be used to prevent later academic struggles, we could not rely on grades that the students had already received to target them for recruitment. Poor grades are connected to lower goal commitment and with it lower retention (Tinto 1975, 95). By the time a student's grades are available (for example, midterm grades), they may have already made the crucial decision to leave college. In addition, recruiting students based on low grades can breed resentment insofar as students feel targeted for some failing on their part.

The self-assessment was an affective survey that included 19 statements dealing with academic and social integration on a Likert scale. Modeled on affective surveys from related studies (Chester et al. 2013, 32–33; Hoffman et al. 2002, 240–51), the statements covered a number of different areas in which a student might be struggling. A certain subset of the affective survey statements was used to identify students who would be good candidates for the program. These statements focused on areas of struggle where we believed peer mentoring was most likely to have a positive impact. To qualify for the program, students needed to choose “somewhat disagree” or “disagree” for at least three of the following 12 statements:

- I complete the assigned readings for all my courses before class.
- I do NOT procrastinate when it comes to schoolwork.
- I know how to study for courses in my major.
- I attend all my classes regularly.
- I can easily focus on what I need to do academically.
- I have dedicated study space without distractions.
- I have an appropriate balance between my academics and my social and extracurricular activities.
- I can easily meet people and make friends on my own.
- I have friends in my major.
- I feel connected to the campus community.
- I have a group of people I can depend upon on campus.
- I belong at St. John's University.

Although the affective survey is intended to avoid the concern that students are being targeted for a failing on their part, there are related worries we will return to in the final section. Students whose responses to the survey indicated that they would be good candidates for peer mentoring were sent an invitation to participate in the program by the undergraduate academic dean, who was also the principal

investigator. As required by the university's institutional review board, the mentees completed a consent form that was kept on file by the principal investigator.²

Students struggle making the transition to college for a number of reasons, but peer mentoring will help with only a subset of these reasons. On the initial survey, beyond the 19 statements dealing with academic and social integration, we included additional statements that touched on other areas of challenge. Students whose responses indicated that they needed some other kind of intervention (such as counseling or financial aid) were sent information on the appropriate student support office. The students who agreed to be mentees were asked to complete the same survey (without these additional statements) at the end of the academic year to determine whether the program had a positive impact on academic and social integration.

Mentor training

The mentors were paid as work-study students (minimum wage) and participated in six mandatory 90-minute training sessions over the first three weeks of the fall semester. Each training session was held during a time that all of the mentors could attend (the university has a common hour). The training sessions covered the following topics:

- Introduction to peer mentoring (icebreakers, program goals, expectations)
- Campus tour (student support services) and blindfold exercises (trust building)
- Teaching time management
- Communicating with faculty, making the transition to college, and study techniques
- Setting SMART (*specific, measurable, achievable, relevant and time-bound*) goals
- Mentor/mentee role playing and Q&A with previous mentors

Feedback from the pilot informed the above training modules and provided some experienced mentors who could help train the next cohort. These former mentors ran the final training session, coming up with role-playing scenarios based on their experience in the program that the new mentors (paired up into mentor and mentee) had to work through with one another. At the end, the outgoing mentors fielded questions from the new mentors. The other training sessions were facilitated either by the full-time faculty supervising the program or by other offices on campus (such as the University Learning Commons). At the end of the training, the mentors were required to complete a contract that detailed all of their responsibilities for the upcoming year and stated the program goals mentioned at the outset of this study. As required by the university's institutional review board, they also completed a consent form. The peer-mentoring program's administrator (a graduate assistant within the college office) retained the contracts and the principal investigator retained the forms.

Program structure

Mentors were assigned up to three mentees for the academic year. The mentors met with their mentees biweekly and participated in five group events over the course of the academic year. Although the mentees were encouraged to take advantage of traditional academic tutoring to help their grades in individual courses, the peer-mentoring program concentrated on creating an academic and social support network while cultivating basic college and life skills. The co-curricular events focused on connecting the mentors and the mentees with one another (for example, an orientation lunch, where mentors sat with their mentees), students of both groups with alumni (such as an alumni dinner co-

sponsored with Career Services, where alumni and students sat together by discipline), and students with faculty from their disciplines (such as a barbeque during finals week, where students and faculty could mingle with one another in a less formal—and stressful—setting). In addition to attending these events, the mentors were instrumental in helping to ensure that their mentees attended these events. Whereas a mentee might ignore an email from the program administrator, they would typically pay attention to a text message sent by their mentor with whom they had developed a personal relationship.

At their first meeting with one another, mentors and mentees were required to complete a plan for their work together. Making the plan, which included their preferred contact information, allowed them to mutually describe their mentoring relationship, set goals for the academic year, and create a (provisional) plan for achieving these goals. Put in terms of the retention literature, the plan is a way for mentees to clearly articulate their academic goal commitment. Both the mentor and the mentee signed the plan, delivering the original version to the program administrator and each keeping copies for themselves. The creation of the plan itself also provided an opportunity for the mentor to start working with the mentee on foundational skills (such as setting SMART goals). These plans served as the initial basis for their biweekly meetings, though they were often revised as the academic year progressed. During their meetings, mentors also familiarized the mentees with student support services and worked on other skills essential for the mentees' success. Every two weeks, the mentor was required to submit a log, detailing the (1) date of the meeting, (2) the modality of the meeting (such as face-to-face, talking over the phone, texting.), (3) a brief summary of what was discussed, and (4) any additional follow-up concerns that might require action by one of the faculty advisors or another office on campus.

Desired outcomes

As mentioned above, the purpose of the program was to see whether academically oriented peer mentoring targeting at-risk students in particular majors would have a positive impact on student engagement, academic performance, and second-year retention. For each of these three areas, we developed hypotheses about the effectiveness of this form of peer mentoring and tested these hypotheses through the program. To gather evidence in each of these areas, we (1) created an affective survey that was used as a pre-test and post-test to measure changes in student engagement, (2) studied the mentors' reflection essays, and (3) tracked both second-year retention and GPA for *all* students who qualified for the program based on their answers to the self-assessment. Below are the three hypotheses and the various tests we developed to confirm or disconfirm each of them:

1. Mentees will feel an increased sense of belonging at the university.
Test: Between pre-test and post-test, the mean scores will increase for a majority of the 12 statements used to identify candidates for the program.
2. Mentees will improve their GPAs.
Test: Mentees will have higher GPAs at the end of the academic year than do qualified students who did not participate in the program.
3. Mentees will show improved retention to the second year.
Test: Mentees will be retained at a higher rate than will qualified students who did not participate in the program.

RESULTS

In order to test the first hypothesis above, we asked the mentees to re-assess themselves at the end of the academic year using the same affective survey they completed after the second week of courses. We assigned a point value to each Likert response type: agree = 5, somewhat agree = 4, not sure = 3, somewhat disagree = 2, and disagree = 1. After that, we calculated the mean results for each statement on the survey. Table 2 provides the mean results both after the two-week mark (pre-test) and at the end of the academic year (post-test). (Note, all 19 statements are listed in the order they appeared on the survey; the 12 statements used to identify students for the program are in bold).

Table 2. Pre-test/post-test affective survey

#	Survey statement	Pre-test	Post-test
1	I understand the lecture material in the courses for my major.	3.73	3.85
2	I take excellent notes.	3.92	4.00
3	I complete the assigned readings for all my courses before class.	4.00	3.75
4	I do NOT procrastinate when it comes to schoolwork.	2.96	2.90
5	I am confident in my ability to write papers/lab reports.	4.04	4.15
6	I know how to study for courses in my major.	3.16	3.65
7	I attend all my classes regularly.	4.69	4.65
8	I can easily focus on what I need to do academically.	3.89	4.05
9	I am definitely in the right major.	3.73	3.78
10	I do not need extra help in the courses for my major.	1.88	2.50
11	When I am struggling in a class, I visit my professor during office hours.	2.31	3.25
12	When I am struggling in a class, I visit the Learning Commons and/or the Writing Center for tutoring.	2.80	3.50
13	I have a dedicated study space without distractions.	4.12	3.90
14	I have an appropriate balance between my academics and my social and extracurricular activities.	3.84	3.95
15	I easily meet people and make friends on my own.	3.20	4.15
16	I have friends in my major.	3.72	4.70
17	I feel connected to the campus community.	3.64	4.20
18	I have a group of people I can depend upon on campus.	3.96	4.35
19	I belong at St. John's University.	4.16	4.29

Of the 12 statements used to identify students for the program, the mean score increased for eight (two-thirds). Some of the strongest gains were in the statements that measure student engagement (statements 15–19). Although the students who participated in the program already reported being engaged prior to starting in the program, the mean scores for the relevant statements increased after they had completed the program. There was a 15 percent gain in feeling connected to the campus community after they had completed the program (statement 17). There was an even larger gain (29 percent) in

students' perception of their own ability to make friends (statement 15), which suggests that the program not only *externally* affected the way students related to one another by bringing them together in meaningful ways, but also *internally* affected the mentees' perception of their own agency in creating these relationships.

At the same time, however, there were statements used to identify students for the program for which there was actually a decrease in the mean score (statements 3, 4, 7, and 13). These statements have to do with time management, focus, and study environment. One explanation for the decrease could be that mentees actually had weaker time-management skills, less focus, and a worse study environment at the end of the program than they did at the beginning. This would be disappointing. A likelier explanation, however, is that students were more cognizant of their shortcomings in these areas at the end of the year because of the attention mentors paid to working with their mentees in these areas. Even if the mentees' skills were improved by virtue of their work with the mentors (and other student support services), some may not have perceived it this way. The data on this point, however, is equivocal. For example, there was a slight increase (3 percent) on the mean score for maintaining an appropriate balance between academic and non-academic pursuits (statement 14), which suggests some students perceived themselves as having *stronger* time-management skills in this area. Although these statements were used to identify students for the program, the students' responses to these statements can neither confirm nor disconfirm the first hypothesis for this study.

Even so, we can confirm that the mentees felt an increased sense of belonging at the university. Between pre-test and post-test, the mean scores increased for two-thirds of the statements used to identify candidates for the program. The statements dealing with engagement also measure a student's sense of belonging. As noted above, we saw some of the greatest gains between pre-test and post-test in these areas. For example, there were strong gains in the mentees' perception of their ability to make friends and the degree to which they felt connected to the campus community. Friendship and community connection involve fit or the congruence of values that is one key aspect of belonging. There was also a strong gain in the mean score on the statement dealing with having a group of people they can depend upon on campus. Having others one can depend on connects directly to valued involvement (being valued, needed, or important to others) which research suggests is the other important component of belonging. Academically oriented peer mentoring both increases extracurricular student-to-student engagement and deepens the disciplinary affiliation that the literature ties to an increased sense of belonging. In addition to confirming existing research, the survey results also help to clarify the specific aspects of belonging that peer mentoring positively affects.

Besides confirming the first hypothesis, the survey offers other insights about students' perceptions of their own learning. Beyond the 12 statements used to identify students for the program, the mean score increased, between pre-test and post-test, for the other seven statements. The slightest increase (1 percent) was for students feeling they are definitely in the right major (statement 9). This result is desirable, however, if it leads students to change out of majors for which they are ill-suited (for example, majoring in biology simply because their family want them to be doctors). This did, in fact, happen in several cases. Turning to the other statements, of particular note are those having to do with the degree to which students perceive themselves in need of extra help in their courses and how they go about getting this help. There was a 33 percent increase in the mean score for students *not* needing extra help in the courses for their major (statement 10). This result would be troubling if students gained a kind of false confidence through the program. In other words, the results would be concerning if those who *did*

need extra help came to perceive themselves as *not* needing extra help even though they still require it. Thankfully, students' responses to some of the other statements paint a different picture. There was a 41 percent increase in the mean score for students visiting their professors in office hours when struggling in courses (statement 11). Likewise, there was a 25 percent increase in the mean score for students visiting the University Learning Commons or the Writing Center when struggling in their classes (statement 12). One plausible reason students felt they did not need *extra* help in their courses was that they were taking advantage of the help the university had to offer them after the program in a way they were not prior to the program. In any case, such a dramatic increase in students' willingness to take advantage of academic support services helps to underscore how peer mentoring develops not only a *social* support network for students but also an *academic* support network. While much of the existing literature focuses on the connection between peer mentoring and social integration, our results suggest that the connection between peer mentoring and academic integration deserves equal interest.

Although we know the identities of the students who completed the pre-test (information used to recruit the students as mentees), we decided to make the post-test anonymous to encourage as many mentees as possible to participate. We were concerned that mentees critical of the program might not participate or at least not be as forthcoming in their responses if the post-test results were identifiable to those running the program. Disappointingly, however, only half of the mentees completed the post-test.

We also did not try to get students who completed the pre-test but did not participate in peer mentoring to complete the post-test. Whereas we could use a quiz grade in select courses to incentivize participation in the pre-test, we could offer no such incentive to complete the post-test. Although students were enrolled in a handful of gateway courses in their first semester, they were distributed across a wide variety of courses in the second semester. We thought it was unlikely that a student who neither participated in the program nor had a grade incentive would complete the post-test. Without post-test data on the population that did not participate in the program, we could not measure statistically significant differences between those who participated in the program and those who qualified for the program but chose not to participate.

Given the anonymity of the post-test, we could not run a two-paired t-test to measure statistically significant changes within the population that was studied. We were, however, able to run a one sample t-test that considered standard deviation, sample size, and difference between pre-test and post-test means. There were three statements for which the difference between pre-test and post-test means were significant at $p < .05$. There was a statistically significant increase in the mean score for visiting professors during office hours when struggling in class (statement 11), easily meeting people and making friends on one's own (statement 15), and having friends in the major (statement 16). This further substantiates the point, made above, that the peer-mentoring program strengthened mentee support both academically and socially.

Our qualitative findings suggest that peer mentoring has a salutatory effect on both the mentees' and mentors' sense of belonging at the university. In their reflection essays, mentors commonly cited university service and increased identification with the university mission as two features of the program that they liked the most. The comment from a mentor's reflection essay is representative of what mentors generally said about the program: "I believe that the peer-mentoring program helped me better appreciate the Vincentian part of the school's mission. Being a Vincentian university not only means helping the poor and marginalized through the tons of volunteer opportunities [the university] offers. Being Vincentian also means helping one another in [the university] community. The peer-mentoring

program does just that by selecting a talented group of upperclassmen to help college freshmen become better students both inside and outside the classroom. This program allows students to thrive and become better versions of themselves each and every day.”

To test the second hypothesis, that mentees would improve their GPAs, at the end of the academic year we compared the mentees’ GPAs with those of the students who qualified for the program but chose not to participate. Whereas the average GPA for the program participants was 3.0 ($n = 50$), the average GPA for the qualifying nonparticipants was 2.9 ($n = 57$). Although there is a slight salutatory effect on GPA associated with program participation, the difference between the two populations is not statistically significant. Since mentees were recruited based on both academic and social considerations, these results are not entirely surprising.

As mentioned above, mentee reports of their own gains in time management and focusing skills were mixed. Even so, there were increases in mentees’ perceptions of their basic skills, in several areas, over the course of the academic year (statements 1, 2, 5, and 6). Improving these skills was part of the central focus of the program, and, as noted above, mentors received training on working with mentees to develop their skills in time management, hone study habits, and set SMART goals. It was hoped that improving these basic academic and life skills would have a positive impact on mentee GPA. Although the impact on GPA was not statistically significant, mentors still reported that this aspect of their training was very effective. The following comment from a mentor’s reflection essay is representative: “When we met she said she only crammed for exams and did her assignments at the last minute. I was able to convince her of the rewards of doing things more systematically. Towards the end of the first semester, she had completely changed her study habits.”

Notwithstanding these successes, in their biweekly logs and reflection essays, mentors complained that the mentees often treated them as *tutors* rather than as *peer mentors*. There are major differences, however, between what a tutor does and what a peer mentor does. A tutor will typically work with a student on the academic problems they are having in a particular course, helping them to master disciplinary content and the skills necessary for success within that course. In contrast, a peer mentor serves as an academic and life coach, working with the mentee on the foundational skills that they will need to be successful not only in school but in their lives after graduation. Other important features of peer mentoring that are not shared with tutoring (as such) are that peer mentors aim to increase their mentees sense of belonging on campus and gain agency by developing their own academic (and sometimes nonacademic) goals. The main reason we matched mentors to mentees based on academic discipline was so that the mentors could help students to develop academic and social support networks centered on this disciplinary identity. We wanted mentees to meet other majors, get to know their faculty, and to attend events (such as undergraduate research presentations) associated with their discipline. Given the disciplinary orientation of the program, however, mentees initially confused the relationship that they were supposed to have with their mentor with a relationship they would have had with a tutor.

The final hypothesis was that mentees would show improved retention to the second year. We expected that mentees would be retained at a higher rate than would qualified nonparticipants. Whereas 82 percent of students (41/50) who participated in peer mentoring were retained to the second year, only 63 percent of qualifying nonparticipants (36/57) were retained to the second year. This difference was statistically significant. A chi-square test found a significant difference between the retention of the mentees and the qualified nonparticipants: $X^2(1) = 4.687, p < .05$. This data supports the existing

literature by showing that peer mentoring has a statistically significant impact on retention to the second year. The study also supplements the literature, however, by examining the impact that *academically* oriented peer mentoring, in particular, has on increasing the students' sense of belonging, which is positively correlated with improved retention.

RECOMMENDATIONS

Our findings clearly confirmed the first and third hypotheses above. Mentees felt an increased sense of belonging at the university over the course of the program, and they were retained at a higher rate than were students who qualified for the program but chose not to participate. Even though the second hypothesis was confirmed, the effect on GPA gain was insignificant.

Based on these results, we developed a set of recommendations for the design and implementation of the peer-mentoring program.

Selection and training

Among the features of our program we would encourage others to emulate, careful selection and training of mentors is paramount. In our view, compensating the mentors is part of ensuring that the program has a broad pool of possible mentors from which one can select. When an institution does not commit funding for mentors, it reduces the pool to those students who can *afford* to be mentors. But these students may not necessarily be the *best* mentors. For example, the majority of our mentees reported that financial pressures interfered with their studies over the course of the academic year. If the mentors do not understand such pressures, it may be difficult for them to relate to their mentees on this important issue.

Indeed, as a general rule, the more that mentors and mentees have in common, the easier it will be for them to forge a productive relationship. Ideally, a program should recruit mentors who have persevered through some of the struggles that the mentees are facing (such as struggling academically, financially, or socially in the first year).

Mentor training is essential to success of the program. Students with prior tutoring experience, in particular, need to understand how their role as a mentor differs from that of a tutor.

Mentee participation is voluntary

Another feature of our program that we believe was instrumental in its success was that participation of both mentees and mentors was *voluntary*. In the pilot, participation was required of students in danger of falling into academic probation (a registration hold was placed on their accounts if they did not meet certain benchmarks of participation). The surveys at the end of the semester indicated that the students felt targeted and resented being forced to participate. At the end of the year, these students were retained at a lower rate and had lower average GPAs than did other students who had a similar academic profile but did not participate in the program. Although the mechanism of selection was different (second-semester academic probation versus early first-semester self-assessment), the results suggest that self-selection is likely better than compulsory participation when it comes to promoting certain outcomes (such as retention and GPA).

Intentional design and documentation

It is essential that both mentors and mentees understand their responsibilities as leading to student success and that they therefore document that they are fulfilling these responsibilities appropriately. The mentor training, mentee orientation, mentor/mentee contracts, biweekly logs, required attendance at group events, and completion of the survey and reflection paper are all important ways of ensuring that both mentors and mentees are following the plan of the program, which is designed for student success. By carefully tracking mentor-mentee contact, the program administrator can ensure that they are engaging in the kinds of activities that will ease the transition to college (such as honing of foundational skills), promote academic and social integration, and foster a sense of belonging. The program organizers must also ensure that the co-curricular events complement and enhance what the mentors and mentees are already doing in their individual meetings. The program's events focused on fostering social integration and a sense of belonging—events we designed to connect students with one another and the broader campus community (faculty, student support offices, and alumni).

Mentors not tutors

There are features that we would add to a future iteration of the program to make it more successful. As mentioned above, one of the struggles that mentors faced was getting their mentees to understand that they were not tutors. The mentor and mentee contracts and the group orientation event tried to disabuse mentees of this misconception, but they did not dispel it completely. We suggest that one of the first mentor-mentee meetings be held in the institution's learning or tutoring center and include a tutor in the mentee's discipline to discuss differences in the two roles. This might help the mentee better understand the role of the mentor and make it more likely that the mentee would take advantage of tutoring, as the mentee would now be familiar with the space and will have personally met a tutor in their discipline. It would be important for mentors and tutors to emphasize the distinct types of support they provide and how these types of support relate to the areas that mentees have self-identified as areas of struggle. For example, in the meeting they could review the list of statements from the pre-test to underscore the division of labor between mentors and tutors. It is also important that mentors and tutors remain vigilant in maintaining this division of labor when interacting with mentees. For example, if a mentee asks a mentor for help in solving a math problem, the mentor should work with the mentee to schedule a tutor meeting, discuss a proposed agenda for the tutoring meeting, or even simply walk the mentee to the tutoring center to lower the barrier to participation. Even if the mentor can answer the math question, doing so would muddy the water and deprive mentees of the unique training and skill sets that mentors and tutors respectively possess.

Improved outcome assessment

It is important to be able to measure differences between the differenced, that is, to track how those who participate in peer mentoring change as compared to those who qualified for peer mentoring but chose not to participate. Although we were able to track retention differences, we were not able to track differences in affective survey responses. Here, it would be helpful to have a way of broadly incentivizing participation in both the pre-test and the post-test. When academic incentives (such as a quiz grade) are not practical, a nonacademic incentive (completing the survey enters a student into a prize raffle) might be more effective. The survey could also be built into other student support services.

For example, completing the survey (pre- and post-) survey could be made part of the academic advising process.

There are also changes that could be made to the post-test to better explain *why* students feel an increased sense of belonging at the end of the program. We hypothesize that the increase is due to three factors: (1) the relationships that mentees developed with their mentors through their biweekly meetings, (2) the relationships that mentees developed with other mentees, faculty, and alumni through the group events, and (3) the efforts of mentors to personally introduce mentees to all of the student support services available on campus. To provide evidence that these factors had an impact on the students' sense of belonging, the post-test should include affective statements.

Earlier mentee and mentor recruitment

We recommend recruiting potential mentees after they have been admitted to the institution but before they start their classes. Students took the survey after the second week of the first semester. By the time results were collated, invitations issued, responses received, and mentees assigned, we were approaching first-semester midterms. As the literature notes, by this point, some students have already made the crucial decision not to return. To begin the recruitment process earlier, one solution would be to look at the academic and nonacademic characteristics of current mentees generally possessed when they applied to the institution. This profile would help identify future candidates for the program. Such a predictive model would allow an institution to intervene earlier, so that students would not feel as if they are being targeted for some failing on their part (for example, that their responses to the affective survey are interpreted as a cry for help, or a poor grade had signaled trouble). Even though mentees were volunteering to participate in the program, there was still the impression that they were being targeted for some shortcoming on their part (an impression we tried to battle in orientation). A predictive model would avoid both of these problems and allow an institution to more effectively build a *culture* of mentoring by making it an expectation for incoming students. Of course, if an institution has sufficient resources, it could make peer mentoring available to *all* incoming students. This is perhaps the best way of building a culture of mentoring, one that does not require targeting particular populations of students, but it would be costly to implement. Although our *targeted* program generated revenue eight times greater than its cost through increased retention, it is unclear whether a program available to *all* students would have a similar contribution margin.

Just as we recommend recruiting mentees earlier in the academic year or even before the academic year starts, we also suggest recruiting mentors from among rising sophomores in the spring of their first year to start work as mentors in the fall of their sophomore year. As mentioned above, peer mentoring can have a positive impact on the retention both of students in the bottom tier of academic performance and those in the top tier. Put in terms of the literature, whereas recruiting mentees before they start to struggle in academic programs will increase goal commitment, recruiting mentors before they make the decision to transfer will increase institutional commitment. St. John's program recruited rising seniors, and although *all* of these students were retained or persisted to graduation, by the time they had agreed to be part of the program, it was unlikely that they were going to transfer to another institution. Attracting high-performing rising sophomores and perhaps even offering training during the spring or sometime over the summer would connect them to the institution in a way that would help to promote retention. In addition, if the mentors were only a year ahead of their mentees, they would be much closer to the experiences of these students and perhaps better relate to the struggles that they face.

Indeed, the best way of creating such a pool of mentors would be to recruit the most academically successful mentees from the previous year. This would not only ensure that the mentors have the desired experience and skills but would give them the opportunity to serve the students they once were.

NOTES

¹ <https://www.brown.edu/swearer/carnegie>

² At the time of this study, Bryan Hall was the associate dean of undergraduate studies for St. John's College and the principal investigator. Danielle Lundgren was the program administrator. Joseph Serafin continues to oversee the peer-mentoring program at St. John's University.

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