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Teaching to Fish: Impacts of a Social Capital Intervention for College Students

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Social capital plays a key role in college students' academic and career success. Using a random assignment design, the current study evaluated the impacts of a one-credit college course designed to increase student help-seeking and social capital within a racially diverse sample of college students. Compared to the control group, students in the treatment group reported improved attitudes towards help-seeking, increased help-seeking behavior, and higher levels of social capital and mentoring support. Academic benefits were mixed, however, with an increase in academic self-efficacy, no impact on college GPA, and a decrease in academic cognitive engagement. Additionally, differential impacts based on year in college, race, and first-generation college student status were observed. Implications for research and practice are discussed.

KEYWORDS: social capital, help-seeking, mentoring, first-generation college students

Social capital, or the information, support, and resources available to an individual through connections and networks of relationships, plays a key role in academic and career success (Bourdieu, 1986; Daly et al., 2020). Mentoring relationships represent a particularly valuable form of social capital during college (Crisp & Cruz, 2009). Yet data consistently demonstrate disparities in the distribution of social capital and mentoring relationships

based on student race and first-generation college student status, contributing to disparities in outcomes (e.g., Evans et al., 2020; Lin, 2000; Raposa et al., 2021; Stanton-Salazar, 2011; Tinto, 1993).

Although colleges and universities have focused primarily on academic development, with less attention to social and relational development, there is increasing recognition of the importance of helping students develop connections in college. Such efforts have relied primarily on assigning students to advisors or mentors (Crisp & Cruz, 2009). Unfortunately, the effects of such programs are fairly limited, and those who could benefit most from mentoring

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are often the least likely to take advantage of this type of program or support (Alexitch, 2002; Allard & Parashar, 2013; Sandvik et al., 2021). The current study evaluates the efficacy of a new approach to increasing mentoring relationships and social capital through participation in a one-credit college course designed to shift students' attitudes and behavior towards help-seeking and to develop their capacity to identify, initiate, develop, and maintain relationships with mentors and other sources of social capital.

Social Capital

Sociologist Pierre Bourdieu (1986) has defined social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (p. 248). This definition focuses on the functional benefits to the individual resulting from social connections, particularly in redressing social class inequities. Building on this idea, Coleman (1988) noted that social capital consists of both social structures and the transactions within those structures. Lin (1999) further conceptualizes social capital as "resources embedded in a social structure which are accessed and/or mobilized in purposive actions" (p. 35). Central to these conceptualizations is the premise that social connections facilitate access to resources, that this access can be activated in pursuit of goals, and that the quantity and quality of connections determine the resources to which one has access. Specifically, connections can vary in terms of strength and the types of support they afford, with strong ties providing bonding social capital (e.g., emotional support) and weak ties providing bridging social capital (e.g., informational support; Gittell & Vidal, 1998; Granovetter, 1973; Putnam, 2000). Social capital theory and research suggest that variations in the quantity and quality of networks contribute to inequality in social capital and opportunities (Lin, 2000; Rajkumar et al., 2022). Social capital thus provides a theoretical framework for understanding students' experiences, challenges, and persistence in college.

Social capital has emerged as a key predictor of a range of positive outcomes among college students, including increased retention, grade point average (GPA), ability to navigate the collegiate environment, and feelings of belonging and satisfaction (e.g., Crisp & Cruz, 2009; Kniess et al., 2020; Stanton-Salazar, 2011). Historical definitions of social capital have focused primarily on the benefits of connections with those in positions of power and privilege and the lack of such connections in low-income communities and communities of color (e.g., Bourdieu, 1986; Lin, 2000). More recent theory, however, recognizes the value of cultural wealth within marginalized and oppressed communities, including cultural knowledge, skills, abilities, and connections; and the critical roles such forms of capital play in well-being and student success (Yosso, 2005). Tinto's (1993) student departure model emphasized the importance of building on-campus social connections and

separating from home systems support (e.g., those in one's home and community outside of the college campus) as a means of facilitating college persistence. In contrast, Guiffrida's (2006) cultural adaptation of Tinto's model highlighted the importance of maintaining connections with those within home systems of support while also building connections within college institutional systems of support.

During the transition to college, students' social capital changes substantially, as previously strong connections from high school and community networks weaken, particularly for students from underrepresented backgrounds (Hagler et al., 2021; Rios-Aguilar & Deil-Amen, 2012; Sánchez et al., 2011). Expanding one's network takes on greater significance as students must work to maintain relationships from their communities outside of college, as well as establish new types of social capital pertinent to college and professional development.

Mentoring relationships have been shown to be a particularly powerful form of social capital. Defined as connections between a younger person and an older, more experienced nonparental figure who provides guidance, support, and encouragement to the mentee (DuBois & Karcher, 2014), mentoring includes both formal mentoring relationships in which a program matches mentors with mentees, as well as natural mentoring relationships in which connections develop organically. Studies suggest that both formal and informal mentoring relationships can improve students' academic, social, and psychological adjustment and increase college retention, especially among first-generation college students and students of color (e.g., Baier et al., 2016; Crisp & Cruz, 2009; Hurd et al., 2016; Raposa & Hurd, 2021). Stanton-Salazar (2011) highlighted the importance of relationships with institutional agents, defined as high-status individuals who can transmit resources, opportunities, and services (e.g., university faculty), in academic and career success. The benefits of mentoring can persist beyond college to shape students' postgraduate experiences across multiple indicators of thriving and overall life satisfaction (Gallup Inc. & Purdue University, 2015).

Social Capital Among First-Generation College Students and BIPOC Students

Despite the importance of social capital and mentoring relationships in student success, research indicates disparities in their distribution across students based upon the student's race and socioeconomic status (Lin, 2000). Students enter college with different sizes and types of networks of support. For example, first-generation college students' networks tend to be less diverse in the types of connections they offer, particularly in relationships relevant to their college and professional development (Jenkins et al., 2013; Nichols & Islas, 2016; Rios-Aguilar & Deil-Amen, 2012). Studies show that BIPOC (Black, Indigenous, People of Color), low-income, and first-generation college students are more likely to report close natural mentoring

relationships with family members and family friends, which may be crucial to well-being; but are less likely to report close relationships with teachers or institutional agents who can provide career advice and career-related experiences and connections (Anderson et al., 2019, Raposa & Hurd, 2021; Raposa et al., 2018).

In addition to entering college with different types of networks, disparities also persist in the relationships that form on campus (e.g., Evans et al., 2020; Raposa et al., 2021). Important structural barriers contribute to challenges in developing on-campus connections among low-income, BIPOC, and first-generation college students, including systemic racism and classism within universities, as well as work responsibilities or living off-campus. At the same time, research suggests that student attitudes and behaviors related to accessing support may also play a role. For example, one study suggested that first-generation college students may hold different implicit expectations about the use of support resources (e.g., faculty office hours) in the college setting, relative to their continuing generation peers (Collier & Morgan, 2008), and a qualitative study of Black and Latinx first-generation college students from low-income backgrounds highlighted many students' reluctance and discomfort in engaging with professors and others deemed as figures of authority, particularly regarding nonacademic interactions (Jack, 2016). Cultural values can also inadvertently create a barrier, with studies suggesting discrepancies between interdependent norms (e.g., community and family orientation) and expectations of independence (e.g., self-advocacy) that underpin implicit norms typical on most college campuses in the United States (Chang et al., 2020; Stephens et al., 2012a, 2012b). Researchers have described the need not only to possess or have access to social capital, but also to be able to activate or mobilize one's social capital by reaching out, asking for help, or seeking support or resources (Bourdieu, 1986; Lareau & Horvat, 1999; Rios-Aguilar et al., 2011).

Social Capital Interventions

Despite the growing recognition of the importance of social capital for college success, academic advising remains the primary strategy used to connect students with faculty and foster supportive relationships. Most colleges and universities assign a formal advisor to all students, and academic advising has been identified by staff at 4-year institutions as one of the most effective strategies to address student retention (Habley & McClanahan, 2004). However, a study of student satisfaction with advising showed low satisfaction with formal advisers overall, and 12% of participants reported never having met with their advisor throughout their college experience (Allard & Parashar, 2013). Higher levels of satisfaction were reported for relationships with informal faculty advisors, yet less than half of students reported having informal faculty advisors (Alexitch, 2002). Results of a Gallup-Purdue poll

further demonstrated that the current strategies to develop student-faculty connections are insufficient, as only 22% of students nationwide reported having a mentor in college (Gallup Inc. & Purdue University, 2014). While these data are older, more recent data on mentoring in the United States broadly suggests the number of young adults reporting mentors has only decreased in the past decade, in part exacerbated by the COVID-19 pandemic (Garringer & Benning, 2023). While mentoring programs can increase the number of mentoring relationships, they typically are limited in the number of students they reach, and not all assigned mentoring relationships develop into supportive or meaningful relationships (Rhodes, 2020). Recent research also suggests the benefits of having a broader network or "web" of support, rather than relying on a single mentoring relationship, and the importance of being able to cultivate a variety of different types of mentoring relationships that can provide different types of support based on developing needs and goals (Hynes, 2015; Sánchez et al., 2011; Varga & Zaff, 2018; Wallace et al., 2000).

An alternative approach to assigning mentors or advisors to each student is offering workshops or classes, including credit-bearing courses, to help students develop skills and mindsets that promote their successful adjustment to college. The most common of these types of courses are 1st-year experience or "student success" courses that typically focus on learning strategies and study skills (e.g., Andrade, 2009; Gibson et al., 2021; Sharp, 2021). Although some of these courses also include topics such as an orientation to the campus and community building, few have focused specifically on the skills needed to strengthen students' social capital.

Connected Scholars

The current intervention, Connected Scholars (CS), was designed to teach students to actively and intentionally cultivate social capital during college. CS is rooted in what has been called "Youth-Initiated Mentoring," which encourages youth to identify and recruit a mentor from within their existing social network rather than assigning them to a volunteer mentor from outside of their network (Schwartz et al., 2013). However, unlike Youth-Initiated Mentoring, which largely emphasizes identifying and building a single, formalized mentoring relationship, the CS intervention focuses on developing the knowledge, attitudes, and behaviors necessary to empower college students to recruit mentors and cultivate a network of relationships with faculty, staff, and other professionals who can help them to advance their academic and career goals. Drawing on social capital theory, the current intervention was designed to encourage students to engage in help-seeking behaviors to mobilize their social capital and actualize potential resources within their networks (Bourdieu, 1986; Lareau & Horvat, 1999).

In particular, with research indicating disparities based on race and college student generation status in accessing different types of social capital

and mentoring support, especially on-campus support and relationships with institutional agents (Anderson et al., 2019, Jack, 2016; Lin, 2000; Raposa & Hurd, 2021; Raposa et al., 2018; Stanton-Salazar, 2011), the current intervention was designed to address the following primary goals: (a) understanding the role of mentoring relationships and social capital in advancing academic and career goals; (b) identifying current and potential sources of support, including college and home based systems of support; and (c) help-seeking and cultivating relationships with potential mentors and other sources of social capital. In the course, attention was paid to both college- and home-based supports and to acknowledging the value of different types of social capital and cultural wealth (Guiffrida, 2006; Hagler et al., 2021; Yosso, 2005). Additionally, a range of campus resources were introduced with a specific focus on exploring and addressing individual and structural barriers to networking and building mentoring relationships (Collier & Morgan, 2008; Jack, 2016; Lareau & Horvat, 1999; Stephens, 2012a). Students were provided with scaffolded practice and real-world assignments to cultivate a broad and diverse network of connections and support (Hynes, 2015) along with closer mentorships (Rhodes, 2020). The curriculum also included setting personal and academic goals and identifying strengths and areas for growth, along with connecting their efforts to recruit support with their strengths and goals (Schippers et al., 2015; Stephens et al., 2012a). The pedagogical approaches used throughout the curriculum included peer-led activities, reflective writing assignments, group discussions, role-playing exercises, and opportunities to practice new skills in real-world settings (e.g., "eco-maps" or graphical representations of students' connections, discussion of barriers to building social capital including structural and individual barriers, role-playing and attending office hours, gratitude letters to people in home systems of support; see Figure S1 in the supplementary material, in the online version of the journal, for a full scope and sequence).

Qualitative data from a pilot study of an early shorter version of the program offered in a precollegiate program serving BIPOC, first-generation, and/or low-income college-bound students indicated that the intervention increased the value students placed on supportive relationships; promoted help-seeking, self-advocacy, and networking skills; and increased students' confidence in their ability to reach out to academic and career mentors (Schwartz et al., 2016). Further research from a quasi-experimental study of a brief version of the intervention delivered during a remedial summer bridge-to-college program showed that students who participated in the intervention demonstrated improved attitudes and behaviors around seeking support in college, closer relationships with instructors, and higher GPAs at the end of their 1st year in college (Schwartz et al., 2018). Finally, additional analyses indicated that improved attitudes and behaviors related to help-seeking partially accounted for changes in instructor relationships and GPA and that stronger effects were observed for first-generation college students and for

BIPOC students, particularly Black students (Parnes et al., 2020). In response to these encouraging initial results, the university in which the intervention was offered expressed interest in expanding the brief summer transition intervention into a one-credit course open to all students to allow for broader dissemination. The curriculum used in the current evaluation drew on the original version of the course as well as feedback from participants in pilot studies; extensive review by a team of undergraduate students, graduate students, and postdoctoral scholars from diverse racial and ethnic backgrounds; and development by a prevention scientist with an applied research company with expertise in creating evidence-based curricula.

Current Study

Using a random assignment experimental design, the current study aimed to evaluate the impacts of the one-credit CS course on students' (a) attitudes and behaviors related to help-seeking and networking, (b) social capital and mentoring relationships, and (c) academic outcomes. Additionally, differential impacts of the intervention were examined based upon first-generation college student status, race, and year in college. Specific hypotheses are as follows:

1. Based on qualitative and quasi-experimental studies of previous shorter versions of the intervention (Schwartz et al., 2016, 2018), it was hypothesized that, compared to students in the control group, students in the treatment group will report improved (a) help-seeking, including increased academic and career help-seeking intentions and behaviors, self-efficacy for enlisting support, and self-advocacy, as well as decreased help-seeking avoidance; (b) social capital, including bridging, bonding, and maintained social capital, and mentoring support; and (c) academic outcomes, including GPA, academic engagement, and academic self-efficacy. These effects were expected to be observed immediately following the intervention and maintained at a follow-up assessment at the end of the semester following the completion of the intervention (Schwartz et al., 2018).
2. Based on previous research on earlier versions of the intervention indicating that first-generation college students and BIPOC students, especially Black students, may benefit more from the intervention (Parnes et al., 2020), it was hypothesized that moderation effects would be observed based on first-generation college student status and race, with greater impacts expected for first-generation college students and for BIPOC students, when compared with continuing-generation and White students, and the strongest effects expected for Black students.

Finally, exploratory analyses were conducted to examine the effect of participants' year in college on the intervention's impacts, given that previous research on the intervention was conducted only among incoming college students, and similar interventions such as student success courses have typically been offered only to 1st-year students.

Methods

Participants

The current study collected longitudinal data from undergraduate college students attending an urban Northeast public university designated as a minority serving institution (MSI). Of the 550 participants who enrolled in the study, 489 filled out baseline measures. Table 1 presents an overview of student demographic characteristics. Participants had a mean age of 22.35 (*SD* = 6.72). Two hundred forty-nine (59.1%) participants identified as women, 124 (29.5%) identified as men, and 5 (1.2%) identified as gender minoritized individuals (e.g., transgender, nonbinary, genderfluid, or genderqueer). Participants came from diverse ethnic and racial backgrounds, with 49 (11.6%) students reporting more than one race. Slightly over one quarter (29.2%) of participants identified as Black (*n* = 121), 27.1% as White (*n* = 114), 21.2% as Asian (*n* = 88), 23.1% as Latinx (*n* = 96), 2.4% as Middle Eastern/North African (*n* = 10), 1.4% as Native American/American Indian/Alaska Native/Indigenous (*n* = 6), 4.5% as multiracial (*n*=19), and 2.9% as other races (*n* =12). Roughly half of the sample (*n* = 191; 45.4%) self-identified as a first-generation college student, and 48.7% (*n* = 205) self-identified as a continuing-generation college student. At baseline, 35.6% (*n* = 150) of participants were 1st-year students, 13.8% (*n* = 58) were sophomores, 21.9% (*n* = 92) were juniors, and 22.3% (*n* = 94) were seniors.

Procedures

This study was conducted at an urban, public, MSI in the Northeast that is primarily a commuter campus. The study design was developed in collaboration with staff and administrators at the university. Recruitment took place over the course of two semesters, with six sections of the course (with course caps of 20 students) offered each semester and taught by trained university staff members.

Participants were recruited into the first semester of the study (Fall semester) during summer orientation sessions for incoming students. Flyers were distributed, announcements were made, and research assistants were available to answer questions about the study. Although originally the intervention was planned to be offered only to incoming 1st-year students, due to low enrollment numbers at the end of the summer orientation sessions, the decision was made to open the course up to any interested student without restrictions based on year in college. Thus, the study was open to all students enrolled at the university who were at least 18 years old. To recruit participants more broadly, academic advisors who met with students over the summer discussed the study and the course in individual meetings, and an email about the study and the course was sent to students who were not yet enrolled in courses for the upcoming semester. For the second semester of the study

Table 1
Participant Demographic Characteristics

	n	%
Cohort		
Fall	218	51.80%
Spring	203	48.20%
Demographic information and identity		
Mean age	*M* = 22.35	*SD* = 6.72
Gender		
Man	124	29.50%
Woman	249	59.10%
Transgender man	2	0.50%
Nonbinary, genderfluid, genderqueer	3	0.70%
Missing	43	10.20%
Race		
Native American/American Indian/Alaska Native/Indigenous	6	1.40%
Asian	88	21.20%
Black	121	29.20%
Latinx	96	23.10%
Middle Eastern/North African	10	2.40%
White	114	27.10%
Multiracial	19	4.50%
Not listed	12	2.90%
Missing	6	1.40%
Sexual orientation		
Asexual	35	8.30%
Bisexual	32	7.60%
Gay or lesbian	8	1.90%
Heterosexual	275	65.30%
Queer	2	0.50%
Pansexual	8	1.90%
Missing	61	14.50%
First-generation college student		
Yes	191	45.40%
No	205	48.70%
Missing	25	5.90%
College year (at baseline)		
Freshman	150	35.60%
Sophomore	58	13.80%
Junior	92	21.90%
Senior	94	22.30%
Missing	27	6.40%

(the Spring semester), current students again received flyers and information during advising sessions, and new incoming students also received information about the study.

Students interested in participating in the study were directed to a website to complete consent documents and sign up for one of six available sections of the CS course. Once registered for the study, participants were randomly assigned to either the treatment group or the waitlist control group using block randomization by section. If they were assigned to the treatment group, they were enrolled in the section they had chosen. If they were assigned to the control group, they were informed they would not be able to take the course in the upcoming semester but could enroll in the course 1 year after the study was complete. All participants in both the treatment and control group were asked to complete three online surveys: a baseline survey prior to the start of the semester the intervention was conducted (T1), a postsurvey at the end of the semester the intervention was conducted (T2), and a follow-up survey at the end of the following semester (at the end of the Spring semester for those who were recruited into the study for the Fall semester intervention and at the end of the Fall semester for those who were recruited into the study for the Spring semester; T3). On average, students completed the baseline survey 39 days after it was deployed (SD = 37.02), with 340 students completing the survey before the course began. Participants were sent the postsurvey approximately 4 months after the intervention began, and the follow-up survey was deployed approximately 9 months after the intervention began for the Fall cohort and 11 months after the intervention began for the Spring cohort. Participants received a $40 gift card for completing the first survey, a $50 gift card for the second survey, and a $60 gift card for the final survey.

While students could only enroll in the course after they had signed a consent form agreeing to participate in the study, all participants had the option of dropping out of the study at any time without any impact on their participation in the course. Students in the treatment group were also dropped from the study if they requested to drop the course before the start of the semester. Figure 1 shows the screening and assignment process, as well as dropout rates within the intervention and control groups.

Intervention

The CS intervention was a one-credit college course, with classes meeting weekly over the course of the semester (see Figure S1 in the online version of the journal for course scope and sequence). The intervention was delivered by trained university staff members. Instructors were drawn from salaried university staff working in various student support contexts such as the Student Success Center (which houses student support services such as tutoring and advising); Career Services; and the Office of Diversity, Equity, and Inclusion. Instructors attended a 2-day training workshop and completed

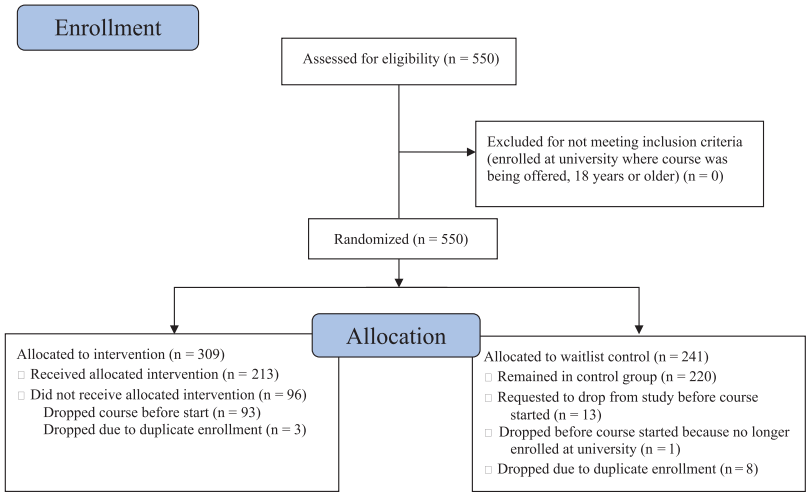

Figure 1. **Flow diagram for Connected Scholars (CS) enrollment.**

and passed a web-based certification test prior to teaching the course. Instructors completed fidelity surveys at the end of each class, which included checklists of which topics had been covered and open-ended descriptions of any modifications made.

Measures

Demographics

An adapted version of a comprehensive demographic questionnaire (Suyemoto et al., 2016), developed for use in diverse populations, was used to collect demographic information from participants. This measure allowed participants to report on demographic information using both multiple choice questions and open-ended response options.

Race. Participants were given the following options to self-report their race: Native American/American Indian/Alaska Native/Indigenous, Asian, Black, Latinx/Hispanic, Middle Eastern/North African, Pacific Islander/Native Hawaiian, White, multiracial, and not listed. The responses were then coded to create categorical variables used for analyses. Specifically, a binary version of race (BIPOC/White) was used in impact analyses, and moderation analyses used dummy variables to compare differences between the four categories of race most represented in the sample, namely, Asian, Black, Latinx, and White.

First-generation college student. College student generation status was assessed by a self-report dichotomous yes-no question asking participants if they identified as a first-generation college student (i.e., first in their family to go to college). While the definition of "first-generation" is defined a number of ways (e.g., first in family to attend college, biological parents did not complete a 2-year or a 4-year degree), identification as a first-generation college student is most often self-reported in the matriculation process (Whitley et al., 2018).

Year in college. College year was determined by the number of credits participants had earned at baseline provided by university records. A binary version of college year (1st-year versus sophomores, juniors, and seniors, labeled "upper-level students") was used in analyses.

Help-Seeking Attitudes and Behaviors

Seven measures were administered to assess help-seeking attitudes and behaviors, with higher mean scores indicating greater help-seeking.

Academic and career help-seeking intentions were measured at all three time points using an 11-item scale developed within a racially diverse college student sample where the scale demonstrated good reliability and construct validity (Schwartz et al., 2018). The scale assessed students' report of how likely they were to connect with professors and staff on campus (sample item: "How likely is it that you will introduce yourself to professors and support staff?" rated on a 5-point Likert scale from 1 [*very unlikely*] to 5 [*very likely*]). Reliability was high across all time points (αs = .95, .96, .96, respectively).

Academic and career help-seeking behavior was assessed at TPs 2 and 3, using an adapted version of the *academic and career help-seeking intentions* scale, with language adapted to assess whether participants actually sought out academic and career support in the previous semester (sample item: "I introduced myself to professors and support staff," rated on a 5-point Likert scale from 1 [*not at all true*] to 5 [*completely true*]). This scale was not included at T1 since the items would not be relevant to students who had not yet begun college. Reliability was the same for both timepoints (α = .92).

Academic help-seeking avoidance was assessed using a three-item subscale from a help-seeking scale developed for undergraduate students to measure willingness to seek help from instructors that has shown good validity and reliability among a number of undergraduate student samples (Karabenick, 2004; Karabenick & Knapp, 1988; Parnes et al., 2020). Participants indicated the extent to which they avoided asking for academic help with response choices that ranged from 1 (*not at all true*) to 5 (*completely true*). Items were reverse coded and averaged together for a total score indicating openness to academic help-seeking for ease of interpretation (sample item: "Even if the work was too hard to do on my own, I would not ask for help with a class"). Reliability was high across all time points (αs = .81, .88, .84, respectively).

Self-efficacy for enlisting support was measured drawing on two modified subscales from the Multidimensional Scales of Perceived Self-Efficacy, which has shown good reliability and validity among children as well as undergraduate students (Bandura, 1990; Choi et al., 2001). This measure had nine items with response choices that ranged from 1 (*not well at all*) to 4 (*very well*). Sample items included, "How well can you/have you been able to get professors/teachers to help you on schoolwork?" and "… get another student to help you on schoolwork?" Reliability was high across all time points (αs = .83, .88, .91, respectively).

Self-advocacy was evaluated using a shortened modified version of the Self-Advocacy Scale, a scale originally developed for youth with disabilities that has shown adequate reliability and validity in samples of ethnic minority high school students (e.g., Balcazar et al., 2012). Participants rated 12 items assessing knowledge of their strengths and challenges and how to set and plan for goals on a 5-point Likert scale ranging from 1 (*really does not describe me*) to 5 (*really describes me*). Sample items included, "I know how to talk about my strengths and weaknesses" and "I can set goals whenever I need to." Reliability was high (αs = .89, .91, .93, respectively).

Network orientation was measured using an eight-item version of the Network Orientation Scale (NOS; Vaux et al., 1986) adapted to focus on attitudes and beliefs about the usefulness of seeking support from adults and mentors. The NOS has shown adequate reliability and validity in diverse youth, college student, and community samples (e.g., Stanton-Salazar et al., 2001; Vaux et al., 1986). Participants indicated the extent to which they agreed with the items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item was, "I often get useful information from more experienced adults." Reliability was acceptable (αs = .77, .77, .84, respectively).

Labor pathway was an eight-item scale measured at T1 that assessed labor pathway knowledge developed within a sample of diverse community college students and showed adequate reliability and validity (Nollan et al., 2000). Participants were asked to indicate how much they agreed with each statement on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Sample items included, "I have explored work-related internships" and "I discuss education plans with teachers, employers, or counselors." Internal consistency was good (α = .76). Due to survey error, this measure was not presented to participants at T2 or T3. Although this error meant that the measure could not be included as an outcome, it was retained as a covariate since baseline differences were observed between treatment and control groups (see Preliminary Analyses section, below).

Social Capital

Three scales were administered to assess social capital. Higher mean scores for each scale were indicative of greater social capital.

The College Student Mentoring Scale (CSMS; Crisp, 2009) was a 25-item scale measured at all three timepoints that assessed perceptions of mentoring support received during college, including psychological and emotional support, degree and career support, academic subject knowledge support, and the existence of a role model. Mentoring support could include both formal and informal mentoring. This measure has been widely used and validated in diverse samples of college students (Crisp, 2009). A sample item is, "Overall, I have a person or people in my life who…helps me perform to the best of my abilities in my classes," rated on a scale from 1 (*strongly disagree*) *to* 5 (*strongly agree*). Reliability was high and the same across all three time points (αs = .98).

A modified version of the Bridging, Bonding, and Maintained Social Capital Scale (Ellison et al., 2007) was used to measure various forms of social capital in college. All three subscales (Bridging, Bonding, and Maintained) have shown acceptable reliability and validity in undergraduate college student samples (Ellison et al., 2007). Since this measure was focused on connections in college, the measure was only included at T2 and T3 after all participants had begun college. Response choices ranged from 1 (*not at all true*) *to* 5 (*completely true*). Mean scores were created for each subscale with higher scores indicating the presence of more social capital. *Bridging social capital* (or weak ties) was measured using an eight-item scale and showed excellent reliability (αs = .94, .95, respectively). Sample items included, "At [the university], I come into contact with new people all the time" and "I feel I am a part of the [university] community." *Bonding social capital* (or strong ties) was assessed using a five-item scale (e.g., "There are several people at [the university] I am able to trust to solve my problems") and showed good reliability (αs = .75, .79, respectively). *Maintained social capital* was measured using a six-item scale that assessed the strength of one's maintained social capital (sample item: "It is easy to maintain relationships with people I may not get to see very often"). Reliability was high (αs = .90, .91, respectively).

College instructor relationships were measured using a nine-item scale assessing participants' perceptions of having instructors that were caring, respectful, and supportive. This measure was an adapted version of an earlier relational engagement measure validated in a sample of first-generation immigrant students (Suárez-Orozco et al., 2009) and has shown adequate reliability and validity in a community college student sample (Parnes et al., 2020). A sample item is, "[My instructors] care about how well I do in school," rated on a scale from 1 (*strongly disagree*) *to* 5 (*strongly agree*). Since incoming students could not complete this measure at baseline because they had not yet met their instructors, the measure was only included at T2 and T3. Reliability was high (αs = .93, .95, respectively).

Academic Outcomes

Two self-report scales were administered to assess academic engagement and academic self-efficacy, and GPA was obtained from university records.

GPAs for the semester were obtained from university records at T2 and T3. High school GPA was also obtained and used as covariate in academic outcome analyses.

Academic engagement was measured at all three timepoints using two subscales assessing behavioral and cognitive components of academic engagement. These scales were developed for a sample of community college students and have shown adequate reliability and validity (Parnes et al., 2020; Suárez-Orozco et al., 2009). Participants were asked to indicate the extent to which they agreed with statements with response choices ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). *Behavioral engagement* was measured using an 11-item scale that assessed participants' behavior in their courses (e.g., "I paid attention in my classes"). Reliability was the same across timepoints (αs = .79). *Cognitive engagement* was measured using an 11-item scale that assessed cognitive academic engagement. Sample items for this scale included, "I read books not assigned in class" and "When I'm working on something I care about, nothing can distract me." Reliability for cognitive engagement was acceptable (αs = .81, .85, .84, respectively).

Academic self-efficacy was assessed at all three timepoints using an eight-item self-efficacy subscale from the College Self-Efficacy Inventory. This scale focuses on academic and coursework and has shown good reliability and validity among diverse college student samples (Gore et al., 2005; Solberg et al., 1993). Participants were asked to "rate your confidence in your ability to complete the following tasks while in college" on a scale from 0 (*not at all confident*) to 9 (*extremely confident*). Sample items included, "Research a term paper" and "Participate in class." Reliability was strong for all time points (αs = .87, .88, .89, respectively).

Data Analysis

Analyses were conducted using IBM SPSS statistics version 25 (IBM Corp., 2017) and Mplus version 8 (Muthén & Muthén, 2017). All variables were first assessed for normality in SPSS using several methods including skew, kurtosis, Shapiro-Wilk, and Kolmogorov-Smirnov tests. Baseline equivalence of the treatment and control groups was evaluated using *t*-tests and chi-square tests. The intraclass correlation coefficient (ICC) was calculated for each variable to determine the proportion of the total variance accounted for by between-group differences based on class to determine the need to account for nested data in subsequent analyses (see Table 2).

To test impacts of the intervention on student outcomes, regression analyses were conducted including baseline levels of the outcomes as covariates (following Senn, 2006). This approach allowed for the estimation of outcomes

Table 2

Descriptive Statistics and Correlations Across Timepoints for Study Variables

	T1	T2	T3	T1–T2	T1–T3	T2–T3
Measure		*M* (*SD*)			*r*	
Labor pathway	3.74 (0.63)	—	—	—	—	—
Help-seeking avoidance	3.61 (0.06)	3.73 (0.98)	3.71 (0.91)	.52	.38	.62
Network orientation	4.05 (0.55)	4.01 (0.56)	3.89 (0.63)	.60	.50	.61
Academic/career help-seeking intention	3.61 (0.96)	3.73 (0.98)	3.71 (0.91)	.53	.47	.54
Academic/career help-seeking behavior	—	3.18 (0.97)	3.16 (0.94)	—	—	.53
Self-advocacy	3.89 (0.64)	3.97 (0.66)	3.76 (0.76)	.60	.49	.55
Self-efficacy for enlisting support	2.81 (0.59)	2.86 (0.62)	2.98 (0.69)	.53	.36	.50
Bridging social capital	—	3.81 (0.87)	3.87 (0.92)	—	—	.61
Bonding social capital	—	3.09 (0.96)	3.25 (1.04)	—	—	.60
Maintained social capital	—	3.82 (0.86)	3.88 (0.87)	—	—	.56
College instructor relationships	—	3.76 (0.79)	3.69 (0.84)	—	—	.46
College student mentoring	3.90 (0.84)	3.87 (0.85)	3.82 (0.88)	.64	.54	.59
Academic engagement – behavioral	3.73 (0.62)	3.62 (0.61)	3.68 (0.63)	.55	.45	.58
Academic engagement – cognitive	3.82 (0.55)	3.81 (0.60)	3.84 (0.60)	.58	.59	.65
Academic self-efficacy	6.56 (1.74)	6.59 (1.80)	6.71 (1.84)	.58	.54	.63
GPA – semester	—	3.05 (0.95)	2.93 (1.07)	—	—	.46

Note. Correlations are all significant at $p < .001$.

as adjusted change scores to assess differences from T1 to T2 and from T1 to T3. Additional covariates included participant age, race, gender, first-generation college student status, year in college, high school GPA for academic outcomes, as well as baseline scale scores for measures that significantly differed between treatment and control group at baseline and were significantly related to outcomes.

$$\textit{Regression equation}: Y = b_{0j} + b_{1j}x_{i1} + b_{2j}x_{i2} \ldots b_{pj}x_{ip} + \varepsilon_i.$$

Example: Cognitive engagement T2 = intercept + treatment condition + age + gender + minority status + first-generation status + year in college + labor pathway + behavioral engagement T1 + cognitive engagement T1 + high school GPA + error.

Moderation was then tested by creating interaction terms using the DEFINE command in Mplus as predictors in these regression analyses. Covariates used in the initial regression analyses were maintained for the moderation analyses. Race, first-generation college student status, and year in college were examined as moderators of all outcome variables. For analyses examining race as a moderator, each racial category was dummy-coded, and analyses were run alternating Black, Latinx, White, and Asian as reference conditions to compare effects across racial categories. Moderation figures were created following procedures by Dawson (2014) to plot two-way interaction effects. The x-axis represents the exogenous construct (treatment condition), and the y-axis represents the endogenous construct (outcome marginal mean).

$$\textit{Regression equation}: Y = b_{0j} + b_{1j}x_{i1} + b_{2j}x_{i2} + b_{3j}(x_{i1} * x_{i2}) \ldots b_{pj}x_{ip} + \varepsilon_i.$$

Example: Academic/career help-seeking intention T2 = intercept + treatment condition + race + treatment condition*race + age + gender + first-generation status + year in college + labor pathway + behavioral engagement T1 + cognitive engagement T1 + academic/career help-seeking intention T1 + error.

Cohen's f^2 is reported as a measure of effect size with $f^2 \geq .02$, $f^2 \geq .15$, and $f^2 \geq .35$ representing small, medium, and large effects (Cohen,1988). Soper's (2022) effect size calculator for multiple regression was used to calculate Cohen's f^2. Effect sizes for moderation analyses are reflected in standardized beta estimates, given the limitations of calculating effects of categorical moderator variables in multiple regression (Aguinis et al., 2005). Heuristics for interpreting standardized beta as a measure of effect size are similar to correlations, with $\beta \geq .2$, $\beta \geq .5$, and $\beta \geq .8$ representing small, medium, and large effects (Acock, 2008). Bootstrap resampling procedures were used to estimate 95% bootstrap confidence intervals based on 1,000 random samples. The use

of bootstrap methods to derive confidence intervals for regression analyses is advantageous over conventional methods because the resampling distribution allows for confidence intervals to be set on parameters without relying on assumptions about the data to calculate confidence intervals (DiCiccio & Efron, 1996; Wood, 2005). Moreover, confidence interval estimates are preferred to hypothesis testing and the derivation of *p*-values for statistical inference given that significance tests can produce significant results (e.g., $p < .05$) even when the size of the effect is small. Confidence intervals provide confidence in the parameter estimate while also offering information about the size of the effect, allowing for more meaningful interpretation of findings (Wood, 2005).

Missing Data

Full information maximum likelihood (FIML) estimation was used to account for missing data, which is a preferred method over ad hoc missing data techniques for normally distributed data. For models with academic self-efficacy as the outcome, weighted least squares means and variance adjusted (WLSMV) estimation was used instead of FIML to address the nonnormality of this variable (following Suh, 2015). For exogenous variables with missing data, variances were specified in the MODEL command to allow FIML to handle the missing data (Neilands & Hudes, 2013). This approach has been supported in simulation studies with categorical independent variables (Muthén, 2015).

Attrition

In both semesters, students dropped from the study before the semester began, including 41 students from the Fall semester and 66 students from the Spring semester (see Figure 1). This attrition was in part reflective of the fact that, across the university, there tend to be substantial shifts in students' schedules between the time of course registration and the start of the semester. A total of 26 participants from the treatment group dropped out of the course after the 1st week of semester. These students were retained in the intent-to-treat analyses.

Results

Preliminary Analyses

Across both cohorts, of the 489 participants who filled out the baseline survey, completion rates were as follows: 95.3% of participants ($n = 466$) completed the baseline survey, 88.3% of participants ($n = 377$) completed the post-survey, and 70.6% of participants ($n = 351$) completed the follow-up survey. Before running analyses, the data were cleaned. Duplicate respondents ($n =$

11) and students in the treatment group who dropped the course before attending the first class (n = 34) were removed. Additionally, inattentive responders were deleted from the dataset (n = 23).

Missing Data

Participant missing data ranged from 2.9% to 3.6% at baseline, 13.3% to 30.9% at T2, and 19.5% to 48.7% at T3. The final analytic sample for intent-to-treat and moderation analyses included 421 participants, except for analyses examining race as a moderator. Participants who identified with a racial category that represented less than 5% of the sample (Native American/American Indian/Alaska Native/Indigenous, Middle Eastern/North African, multiracial, and not listed) were excluded given the significant difference in sample size compared to other racial categories (Asian, Black, Latinx, and White). The final analytic sample for moderation analyses based on race was 356. Missing values analysis indicated that Little's (1988) test of missing completely at random (MCAR) was significant, χ^2 = 6,818.82, df = 6,459, p = .001. Since there is no literature to suggest data are missing not at random based on variables included in the model, data were assumed to be missing at random (MAR) and supporting the use of maximum likelihood estimation. Differences in missing data on outcome variables were assessed using chi-square analyses based on treatment and demographic characteristics including race, gender, and first-generation student status, and logistic regression analyses were used to assess differences based on age.

Differences in missing data at T2 were observed based on first-generation student status for academic and career help-seeking intentions, χ^2 (1, 296) = 4.93, p = .026. First-generation students had a higher percentage of missing data (n = 66 of 190, 34.6%) compared to continuing generation students (n = 50 of 155, 32.3%). Missing data differences were also observed based on age, such that older participants had more missing data for academic and career help-seeking intentions than younger participants (b = –.06, odds ratio [OR] = .94, SE = .02, $p < .001$).

Differences in missing data at T3 were observed based on age. Older participants had more missing data on the following variables compared to younger students: self-efficacy for enlisting support (b = –.05, OR = .95, SE = .02, $p <$ .001), academic and career help-seeking behaviors (b = –.04, OR = .96, SE = .02, p = .012), academic and career help-seeking intentions (b = –.07, OR = .93, SE = .02, $p < .001$), college student mentoring (b = –.04, OR = .96, SE = .02, p = .015), college instructor relationships (b = –.04, OR = .96, SE = .02, p = .009), bridging social capital (b = –.04, OR = .96, SE = .02, p = .017), bonding social capital (b = –.04, OR = .96, SE = .02, p = .017), maintained social capital (b = –.04, OR = .96, SE = .02, p = .018), behavioral engagement (b = –.03, OR = .97, SE = .02, p = .025), cognitive engagement (b = –.03, OR = .97, SE = .02, p = .040),

academic self-efficacy (b = –.04, OR = .96, SE = .02, p = .017), and T3 GPA (b = –.04, OR = .96, SE = .02, p = .017).

Differences in missing data at T3 were also seen based on gender. Regarding academic and career help-seeking behaviors, χ^2 (1, 478) = 4.00, p = .046, male identifying participants reporting a lower percentage of missing data (n = 52 of 124, 41.9%) compared to female, transgender, and nonbinary identifying participants (n = 80 of 254, 31.5%). Similarly, regarding academic and career help-seeking intentions, χ^2 (1, 378) = 4.17, p = .041, male identifying participants had a lower percentage of missing data (n = 70 of 124, 56.5%) compared to female, transgender, and nonbinary identifying participants (n = 115 of 254, 45.2%). Finally, differences in missing data based on gender for bonding social capital were noted, χ^2 (1, 378) = 4.85, p = .028, with male identifying participants having a lower percentage of missing data (n = 57 of 124, 46%) compared to female, transgender, and nonbinary identifying participants (n = 87 of 167, 52.1%). No differences were seen based on racial category for outcome variables at T2 or T3.

Normality

Results of analyses assessing normality confirmed that all variables fell within normal distribution limits with the exception of academic self-efficacy. Initial equivalence analyses indicated no significant differences across demographic characteristics between treatment and control groups with the exception of year in college, which revealed more seniors in the treatment group and more juniors in the control group (p = .030). However, participants in the control group scored significantly higher at baseline on several measures, however, including labor pathway knowledge, cognitive engagement, behavioral engagement, and high school GPA. To account for these differences, these variables were controlled for in subsequent regression analyses for outcomes significantly related to these scales (labor pathway knowledge and cognitive and behavioral academic engagement were included for help-seeking and social capital outcomes, while cognitive and behavioral academic engagement and high school GPA were included for academic outcomes). Finally, ICCs suggested that minimal variance in the data is accounted for by between-group differences (see Table. 2). Thus, associations between study variables were assessed using multiple regression analyses with block-entry method.

Intent-to-Treat Analyses

A series of regression analyses were run to determine if participation in the CS program predicted change in several outcomes across help-seeking, social capital, and academic domains at the end of the semester, approximately 4 months after the CS intervention began at T2. Table 3 summarizes statistics describing treatment as a predictor of outcomes, while statistics

Table 3

Regression Coefficients, *p*-Values, CIs, and ICC for Impact Analyses at T2 and T3

	T2			T3			
Outcome	*b*	*p*	CI	*b*	*p*	CI	ICC
Help-seeking attitudes & behaviors							
Help-seeking avoidance	−.06	.575	[−0.21, 0.13]	.11	.304	[−0.07, 0.28]	.009
Network orientation	.03	.584	[−0.05, 0.11]	.01	.841	[0.35, 0.60]	.000
Academic/career help-seeking intention	.22	.033	[0.05, 0.38]	.07	.521	[−0.12, 0.25]	−.020
Academic/career help-seeking behavior	.42	<.001	[0.27, 0.58]	.27	.016	[0.09, 0.46]	.007
Self-advocacy	.11	.059	[0.01, 0.20]	−.03	.686	[−0.15, 0.09]	−.053
Self-efficacy for enlisting support	.12	.032	[0.02, 0.20]	.18	.032	[0.05, 0.31]	.016
Social capital							
Bridging social capital	.12	.191	[−0.03, 0.27]	.06	.599	[−0.15, 0.22]	.000
Bonding social capital	.19	.050	[0.03, 0.35]	.08	.528	[−0.13, 0.28]	−.015
Maintained social capital	.11	.210	[−0.04, 0.25]	.1	.301	[−0.07, 0.26]	−.019
College instructor relationships	.05	.549	[−0.09, 0.16]	.13	.172	[−0.03, 0.29]	.013
College student mentoring	.19	.027	[0.04, 0.32]	.13	.145	[−0.03, 0.27]	.002
Academic							
Academic engagement – behavioral	−.06	.330	[−0.16, 0.03]	−.04	.577	[−0.13, 0.07]	−.009
Academic engagement – cognitive	−.11	.039	[−0.20, −0.02]	−.15	.022	[−0.25, −0.04]	−.006
Academic self-efficacy	.35	.039	[0.06, 0.61]	.29	.160	[−0.06, 0.62]	.000
GPA – semester	.05	.555	[−0.10, 0.20]	.02	.868	[−0.17, 0.22]	.009

Note. Estimates are the unstandardized coefficients for the effect of the treatment variable on each outcome listed at T2 and T3. ICC values were calculated across all three time points for all study variables except GPA. For GPA, ICC values were calculated across T2 and T3 as a large portion of the sample were freshman and did not have a GPA at T1. CI = 95% confidence interval; ICC = intraclass correlation.

describing covariate predictors are listed in Table S1 in the online version of the journal. Participation in the CS program significantly predicted increases in several help-seeking attitudes and behaviors, including academic and career help-seeking intentions (b = .22, SE = .10, β = .11, p = .030, 95% confidence interval [CI] [0.05, 0.38]) with a small effect (f^2 = .02), academic and career help-seeking behavior (b = .42, SE = .10, β = .21, $p < .001$, 95% CI [0.27, 0.57]) with a small effect (f^2 = .06), self-efficacy for enlisting support (b = .12, SE = .06, β = .09, p = .032, 95% CI [0.02, 0.20]) with a small effect (f^2 = .02), and self-advocacy (b = .11, SE = .06, β = .08, p = .059, 95% CI [0.01, 0.20]) with a small effect (f^2 = .02). Regarding social capital, participation in the CS program significantly predicted increases in bonding social capital (b = .19, SE = .10, β = .10, p =.050, 95% CI [0.03, 0.35) with a very small effect (f^2= .01) and college student mentoring (b = .16, SE = .07, β = .09, p = .024, 95% CI [0.04, 0.32]) with a small effect (f^2 = .02). Finally, regarding academic outcomes, participation in the CS program predicted increases in academic self-efficacy (b = 0.35, SE = .17, β = .10, p = .039, 95% CI [0.06, 0.61]) with a small effect (f^2 = .02), but decreases over time in cognitive academic engagement (b = –.11, SE = .05, β = –.09, p = .038, 95% CI [–0.20, –0.02]) with a small effect (f^2 = .02).

We then assessed if changes were maintained at 9 to 11 months following the start of the CS intervention using the outcome data collected at T3. Results revealed that participation in CS remained a significant predictor of increased academic and career help-seeking behaviors (b = .25, SE = .11, β = .13, p = .026, 95% CI [0.09, 0.47]) with a small effect (f^2 = .03) and self-efficacy for enlisting support (b = .18, SE = 0.08, β = .13, p = .032, 95% CI [0.03, 0.22]) with a small effect (f^2 = .03), but not of academic and career help-seeking intentions (p = .521) or self-advocacy (p = .686). Regarding social capital, participation in the CS program no longer predicted bonding social capital (p =.528) or college student mentoring (p = .145). Finally, regarding academic outcomes, participation in the CS program remained a significant predictor of decreases in cognitive academic engagement (b = –.15, SE = 0.06, β = –.12, p = .022, 95% CI [–0.25, –0.04) with a small effect (f^2 = .02), but was no longer a significant predictor of academic self-efficacy (p = .160).

Moderation Analyses

Year in College

Year in college emerged as a significant moderator of several outcomes at T2. Results indicated that treatment had a weaker association with academic and career help-seeking behavior in 1st-year students compared to upper-level students (b = –.45, SE = .19, β = –.18, p = .020, 95% CI [–0.78, –0.15]) with a small effect, such that treatment had a larger, positive association on upper-level students' academic and career help-seeking behavior and almost no impact on 1st-year students' behavior (see Figure 2A). However, this

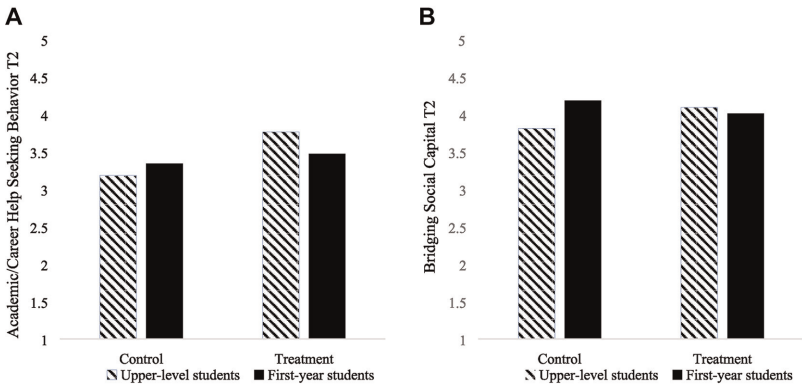

Figure 2. **Significant moderations T2: Year in college.**

Note. Figure 2A charts the impact of treatment on academic/career help-seeking behavior at T2 by year in college, comparing 1st-year vs. upper-level students.

Equation: Academic/Career Help-Seeking Behavior T2 (y-axis) = intercept + treatment condition (x-axis) + year in college (moderator) + treatment condition*year in college (graphed) + age + gender + minority status + first-generation status + labor pathway + behavioral engagement T1 + cognitive engagement T1 + error.

Figure 2B charts the impact of treatment on bridging social capital at T2 by year in college, comparing 1st-year vs. upper-level students.

Equation: Bridging Social Capital T2 (y-axis) = intercept + treatment condition (x-axis) + year in college (moderator) treatment condition*year in college + age + gender + minority status + first-generation status + labor pathway + behavioral engagement T1 + cognitive engagement T1 + error.

moderation effect did not remain at T3 (p = .799). Year in college also moderated the relationship between treatment and bridging social capital at T2, with treatment having a weaker association with 1st-year students' reported bridging social capital compared to upper-level students (b = –.45, SE = .18, β = .16, p = .013, 95% CI [0.08, 0.47]) with a small effect, such that treatment was positively associated with bridging social capital among upper-level students and negatively associated with bridging social capital among 1st-year students (see Figure 2B). Again, this interaction did not persist at T3 (p = .330).

Race

Results suggest that participant race moderated the association between treatment and several outcomes at both T2 and T3. Analyses compared outcomes between Asian, Black, Latinx, and White students. At T2 (Figure 3A and 3B), results revealed that White students reported significantly greater

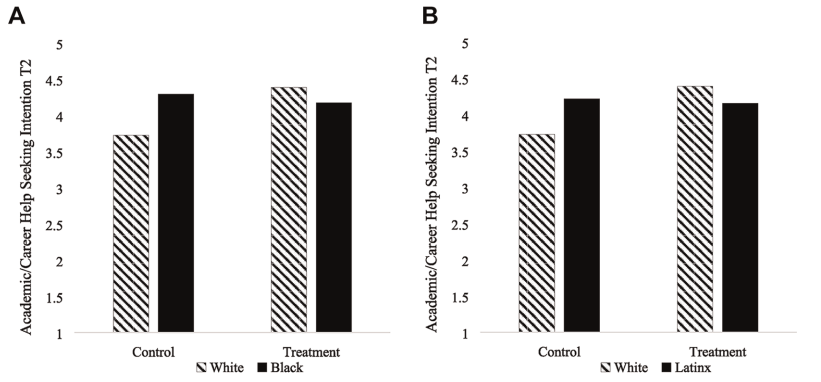

Figure 3. **Significant moderation T2: Race.**

Note. Figure 3A charts the impact of treatment on change over time, from T1 to T2, in academic/career help-seeking intentions by race, comparing Black vs. White students. Figure 3B charts the impact of treatment on change over time, from T1 to T2, in academic/career help-seeking intentions by race, comparing Latinx vs. White students.

Equation: Academic/Career Help-Seeking Intention T2 (y-axis) = intercept + treatment condition (x-axis) + race (moderator) + treatment condition*race (graphed) + age + gender + first-generation status + labor pathway + behavioral engagement T1 + cognitive engagement T1 + academic/career help-Seeking intention T1 + error.

positive change in academic and career support seeking intention than their Black (b = –.78, SE = .30, β = –.27, p = .009, 95% CI [–1.29, –0.28]) and Latinx peers (b = –.72, SE = .32, β = –.22, p = .026, 95% CI [–1.31, –0.26]) with a small effect. Similarly, at T3 (Figure 4A), treatment had a more positive impact on the academic and career support seeking behavior of White students than on that of Black students (b = –.73, SE = .32, β = –.27, p = .020, 95% CI [–1.29, –0.26]), with a small effect.

Results revealed that race also played a moderating role between treatment and bridging social capital at T3 (see Figures 4B, 4C, and 4D). Specifically, White students endorsed higher levels of bridging social capital than Black students (b = –.72, SE = .30, β = –.27, p = .015, 95% CI [–1.22, –0.24]), Latinx students (b = –.96, SE = .37, β = –.33, p = .009, 95% CI [–1.63, –0.41]), and Asian students (b = –.85, SE = .29, β = –.28, p = .003, 95% CI [–1.35, –0.39]) with small effects.

First-Generation College Student Status

Findings revealed that first-generation college student status moderated the association between treatment and bonding social capital at T3 (b = .52,

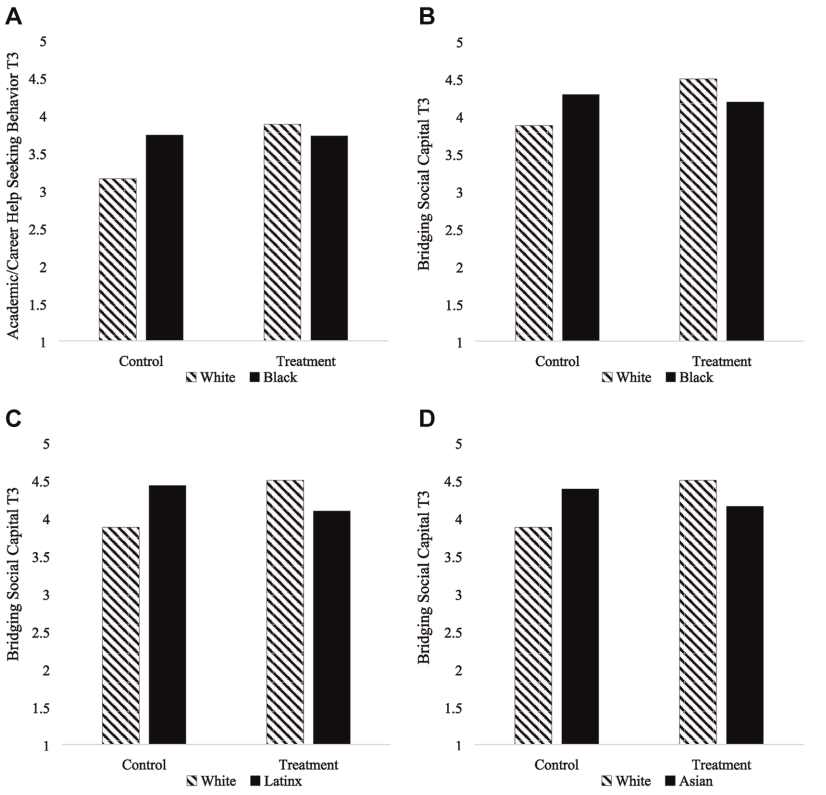

Figure 4. **Significant moderations T3: Race.**

Note. Figure 4A charts the impact of treatment on academic/career help-seeking behavior at T3 by race, comparing Black vs. White students.

Equation: Academic/Career Help-Seeking Behavior T3 (y-axis) = intercept + treatment condition (x-axis) + race (moderator) + treatment condition*race (graphed) + age + gender + first-generation status + labor pathway + behavioral engagement T1 + cognitive engagement T1 + error.

Figure 4B charts the impact of treatment on bridging social capital at T3 by race, comparing Black vs. White students.

Equation: Bridging Social Capital T3 (y-axis) = intercept + treatment condition (x-axis) + race (moderator) + treatment condition*race (graphed) + age + gender + first-generation status + labor pathway + behavioral engagement T1 + cognitive engagement T1 + error.

Figure 4C charts the impact of treatment on bridging social capital at T3, comparing Latinx vs. White students.

Figure 4D charts the impact of treatment on bridging social capital at T3, comparing Asian vs. White students.

Equation: Bridging Social Capital T3 (y-axis) = intercept + treatment condition (x-axis) + race (moderator) + treatment condition*race (graphed) + age + gender + first-generation status + labor pathway + behavioral engagement T1 + cognitive engagement T1 + error.

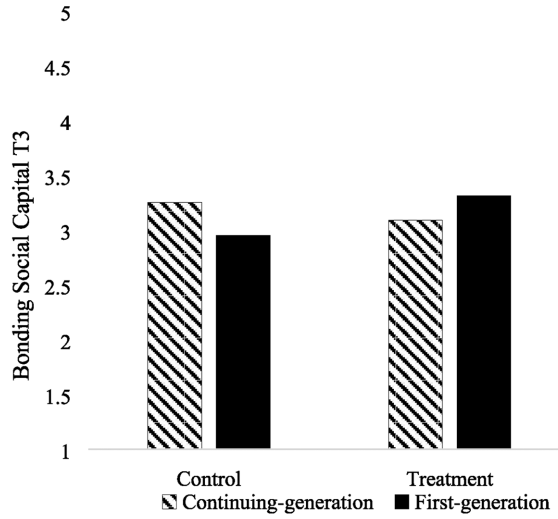

Figure 5. **Bonding social capital T3: First-generation college student status.**

Note. Figure 5 charts the impact of treatment on bonding social capital at T3 by first-generation student status, comparing first-generation vs. continuing-generation students.

Equation: Bridging Social Capital T3 (y-axis) = intercept + treatment condition (x-axis) + + first-generation status (moderator) + treatment condition* + first-generation status (graphed) + age + gender + minority status + labor pathway + behavioral engagement T1 + cognitive engagement T1 + error.

SE = .25, β = .21, p = .037, 95% CI [0.03, 0.36]) with a small effect, such that bonding social capital was higher in the treatment group for first-generation college students, but lower in the treatment group for continuing-generation students (see Figure 5).

Discussion

The results of this study demonstrate strengths and limitations of a novel help-seeking intervention. The goal of the CS course was to shift students' attitudes and behaviors related to help-seeking and accessing academic and career support, increase students' social capital, and, ultimately, improve academic and career outcomes. Results indicated that the intervention increased students' intentions and self-efficacy related to help-seeking as well as increasing their actual help-seeking behavior and self-advocacy. At a follow-up almost a year after the end of the course, students in the treatment group were still engaging in more help-seeking behavior and reporting

improved self-efficacy for enlisting support when compared to students in the control group. The intervention also increased students' social capital, with students in the treatment group reporting greater college mentoring support and bonding social capital at the end of the course; however, these effects were no longer significant at the follow-up. Finally, academic outcomes were mixed, with academic self-efficacy being the only academic outcome that showed significant improvement in the treatment group. There were no significant effects on GPA, and there was a significant decrease in academic cognitive engagement in the treatment group. Moreover, the decline in academic cognitive engagement remained significant at follow-up. Moderation analyses also indicated variation in impacts based on student demographic characteristics for some outcome variables.

This study is among the first to investigate whether it is possible to directly teach students to increase help-seeking behaviors and thereby increase their social capital and mentoring relationships. While the importance of social capital and mentoring relationships has been broadly demonstrated (e.g., Crisp & Cruz, 2009; Kniess et al., 2020; Stanton-Salazar, 2011), the primary approach to increasing these types of relationships in higher education settings has been to provide students with assigned advisors and mentors. It is encouraging to see that participation in a credit-bearing course can achieve similar goals by shifting students' attitudes and behaviors related to enlisting support and thereby increasing social capital and mentoring support. This new approach is consistent with an increasing trend among colleges and universities of offering college success courses or courses related to the "hidden curriculum" (Chatelain, 2018).

These findings also suggest the promise of approaches to mentoring relationships that teach students to recruit support broadly rather than simply assigning them to someone tasked with providing support. To draw on a metaphor, rather than giving a person a fish, this approach aims to teach that person to fish. The fact that significant increases in both help-seeking behavior and self-efficacy for recruiting support were maintained even at a follow-up the next year indicates that the intervention was successful in changing students' attitudes and behaviors towards help-seeking over time. Although effect sizes were small across all outcomes, results suggest the potential of this type of approach to contribute to efforts to increase student support.

At the same time, results also point to limitations of the current intervention. Although pilot data from a summer remedial program indicated impacts of the intervention on college GPA (Parnes et al., 2020; Schwartz et al., 2018), in the current study, the intervention failed to significantly improve GPA and, in fact, there was a negative impact on students' self-reported cognitive academic engagement. While more research is needed for this iatrogenic effect, one potential explanation for the negative impact on cognitive academic engagement may be related to the course's focus on setting personal and professional goals, including postgraduation goals. This may have shifted

motivation away from learning for its own sake, which was the focus of items in the cognitive academic engagement scale (e.g., enjoying challenges, reading books not assigned in class) in favor of a more transactional, goal-oriented academic engagement (e.g., towards the purpose of obtaining a job or financially supporting oneself or one's family). Research has shown that these types of intrinsic and extracurricular motivations for education may resonate more with middle- and upper-class college students than working-class college students (Moschetti & Hudley, 2014; Soria & Stebleton, 2013). Additionally, it is possible that engaging in a course focused explicitly on the academic and career benefits of social capital may lead to prioritizing "who you know" rather than "what you know," which could inadvertently discourage cognitive academic engagement. It will be important for future research to explore these possible explanations, including how future iterations of the intervention could prevent these unintended effects.

The limited positive impacts on academic outcomes also may have been influenced by the fact that some instructors reported modifying content to focus more on the transition to careers rather than on the transition to college. This was done to better address the needs of seniors in the class and may also have reflected some of the instructors' experiences working in Career Services at the university. It is surprising that 1st-year students tended to benefit less from the intervention than their more senior peers, particularly since the intervention was originally developed for students transitioning to college. It is possible that the inclusion of both 1st-year students and seniors in the same class diluted the content and diverted the focus and content of classroom discussions to meet the needs of more senior students. The exposure to content about career networking in the 1rst year of college may have felt irrelevant or challenging for 1st-year students to implement. This finding suggests that future iterations of the intervention may benefit from including separate class sections for 1st-year students and more advanced students. At the same time, while nonacademic content courses are typically focused only on 1st-year students, the current results indicate the benefits of such courses for more advanced students as well.

Additionally, differences in effects on help-seeking attitudes and behaviors and social capital were observed based on race and first-generation college student status. First-generation college students showed greater benefits than continuing-generation students for bonding social capital. This increase in strong ties on campus among first-generation college students is particularly important in the context of research indicating that first-generation college students typically report a lower sense of belonging than their continuing-generation peers (e.g., Harackiewicz et al., 2014). However, there were several outcomes for which White students benefited more than Black, Latinx, and/or Asian students. Surprisingly, these results contrast with the pilot study findings, in which effects were stronger for BIPOC students generally and for Black students in particular (Parnes et al., 2020). While the current results, as well as those of the pilot study, should be interpreted in the context

of a public, primarily commuter campus and MSI in which the majority of students hold one or more identities historically underrepresented in university settings (e.g., low-income, immigrant, first-generation, disability status etc.), it is important to explore what may have contributed to the current study's differential impacts based on race.

Notably, differential benefits based on race emerged only among outcomes related to networking and bridging social capital or weak ties (in contrast to deeper connections such as bonding social capital or mentoring support), pointing to barriers specific to these areas faced by BIPOC students that were not addressed in the intervention. This is likely in part due to the fact that an intervention that focuses on developing individual student knowledge, attitudes, and skills cannot address systemic barriers faced by BIPOC students in higher education institutions and in society generally and highlights the need for broad systems and cultural transformation. For example, hiring more diverse faculty and staff may be more effective in facilitating networking among BIPOC students than any amount of individual student skill development. Social capital theory points to the key role of homophily, or the general tendency for individuals to associate with those of similar group characteristics (Lin, 2000), and research on mentoring suggests the benefits of mentors with shared racial and ethnic identities (Albright et al., 2017). Furthermore, if students encounter microaggressions and other forms of racism in their efforts to network, they may understandably decide that the costs outweigh the benefits, especially in the context of research suggesting that the return on social capital investments may be smaller for BIPOC and low-income individuals (Lin, 2000; Parks-Yancy, 2006). Ideally, trainings for students about how to build relationships on campus would be accompanied by trainings for university professors and staff about the importance of connecting with students and how to address barriers faced by BIPOC students, including examining how their own biases can contribute to disparities in social capital among college students (e.g., Milkman et al., 2015). Additionally, since the experience of seeking support differs fundamentally based on race, future research could explore whether the intervention's content may be more effectively delivered in the context of race-based affinity groups (Myers et al., 2019; Sánchez-Connally, 2018).

Limitations

While the current study has notable strengths, including a longitudinal randomized controlled trial design and a racially diverse sample of college students, limitations must also be considered. First, the self-selected nature of students who signed up for the study limits the external validity of the study. Further, there were challenges with study enrollment related to using random assignment design in a credited college course. In particular, a number of students dropped the course prior to the start of the semester, and these

students were dropped from the study. This attrition likely contributed to some of the baseline differences observed between the treatment and control group, with baseline measures of outcome variables favoring the control group across a number of variables. Despite controlling for these observed baseline differences, it is possible that other differences between treatment and control groups existed beyond those measured. Moreover, while a strength of the study was our capacity to offer compensation for ongoing study participation, this may have resulted in students signing up for the course simply to receive the financial incentives and subsequently dropping out. Additionally, although the university provided both high school and college GPA, the reliance primarily on self-report data is another limitation, especially in the context of a relatively long web-based survey. In addition to the potential of social desirability bias, there are challenges with accurate self-assessment. Future studies would benefit from including multiple informants, particularly with respect to the quantity and quality of students' relationships. Moreover, some attrition occurred over the course of the study, particularly in the follow-up survey, thereby decreasing sample size and reducing power for longitudinal analyses. Finally, the evaluation was conducted during the 1st year the CS intervention was expanded from a shorter workshop model to a full one-credit course, with a number of lessons learned that were implemented following the evaluation.

Conclusions

Despite these limitations, this study provides valuable information about the strengths and limitations of a novel approach to building social capital. Results demonstrate that it is indeed possible to increase levels of social capital and mentoring support without directly assigning mentors or advisors, but instead by providing skill development in the context of a credit-bearing college course. Findings also demonstrate the benefit of such courses for more advanced students, rather than focusing these types of support only on incoming 1st-year students. At the same time, results indicate some limitations to the intervention as it is currently being implemented, suggesting a need to continue to develop and refine the approach to better serve the goal of reducing disparities in social capital on college campuses.

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Notes

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