REPORT | MAY 2026

Reframing Support:
A Social Network Perspective on Whom First-Generation Students Turn to for Help

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The Community College Research Center (CCRC), Teachers College, Columbia University, has been a leader in the field of community college research and reform for 30 years. Our work provides a foundation for innovations in policy and practice that help give every community college student the best chance of success.

Acknowledgments

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education through Grants R305A210494 and R305B200017 to Teachers College, Columbia University. The opinions expressed are those of the authors and do not represent the views of the Institute or the U.S. Department of Education. The authors thank Kenneth Frank (Michigan State University [MSU]), Karen Clark (MSU), Elisabeth Barnett (CCRC), Hollie Daniels (CCRC), Andrea Lopez Salazar (CCRC), Xuesen Cheng (MSU), Jihoon Choi (MSU), Nicole Mora (CCRC), Noemi Garibay (CCRC), and Cameron Diwa (CCRC) for their contributions to the research design, data collection, and data analysis used in this report. The authors also thank Thomas Brock, Hana Lahr, Doug Slater, Elizabeth Ganga, and Shayleah Jenkins, all at CCRC, for their support reviewing and editing the report.

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Positionality Statement

The research team that engaged in this study includes individuals with experience in higher education research and practice, including work focused on underrepresented students. The team's collective personal and professional experience contributed to our data collection, and it may have enhanced our ability to build rapport with students at the start of interviews. Report coauthor Melissa Herman, a senior research assistant at CCRC, is a woman who is currently a doctoral student in education policy. She is a native New Yorker and previously worked as the director of a college access and completion initiative in New York City that supports many first-generation students. Coauthor Hoori Santikian Kalamkarian, a senior research associate at CCRC, is a woman of Armenian descent who holds a doctorate in education policy and has expertise in qualitative research methods and social network survey research. She identifies as a first-generation college graduate of immigrant origin.

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Inside This Report

Over half of undergraduate students in the U.S. enter college with neither parent having completed a college degree (RTI International, 2019). These students—often referred to as "first-generation" students—are less likely to persist in college, earn good grades, and complete a degree than students who have at least one parent who went to college. In this study, we explore how first-generation students build relationships and use their networks of family, friends, and other connections to manage and respond to academic and nonacademic challenges they experience during their first year of college. To do so, we administered a survey to more than 2,000 first-generation students attending public universities or community colleges in California; the data from the surveys was supplemented by qualitative interviews we conducted with a subset of 58 students. We identified these key findings:

- First-generation students may have more ties to college than is commonly believed. More than 70% of students in our survey sample indicated that they had siblings, cousins, or other family members who attended college. Sixteen percent did not self-identify as first-generation even though they met the federal definition.
- Most students (69%) indicated they had at least one source of support for academic issues such as choosing classes and succeeding in coursework. An even larger number (76%) said they had support for nonacademic issues such as emotional wellness and transportation logistics.
- When asked to name people they go to for academic support, students pointed to friends from high school/childhood (39%), friends from college (30%), college academic advisers (29%), or parents (28%). About 10% of surveyed students identified a faculty member.
- When asked to name people they go to for nonacademic support, students most often named parents and friends from high school or childhood (49% and 48%, respectively). Siblings were the group named third most often (38%).

- Like parents, siblings and cousins provided emotional support and encouragement. In addition, brothers, sisters, and cousins helped first-generation students in our sample with practical advice and help, including brokering connections to college-based resources. Friends were also identified as important sources of emotional support, such as for handling stress.
- Institutional actors (e.g., faculty, advisers, and staff) were not as prominently featured in students' "helper networks" as family members. Students who made connections with faculty or advisors said that these institutional actors helped them overcome academic challenges and clarify career goals and interests; they sometimes also served as role models (especially if there was an identity or career interest they shared with particular students).
- The data suggest that some first-generation students—perhaps as high as about 40%—feel isolated or are not using available support. Over a quarter of surveyed students reported challenges in understanding how to find resources and services on campus. Some students did not want to burden family members with their problems or felt anxious or uncertain about accessing college resources.

There are numerous concrete ways that colleges can use these findings to inform practice. Colleges may consider collecting more information about students' networks during the first semester of college so that they can identify family and friends who are most influential and include them in college communications and activities. Colleges can also use this information to conduct outreach and offer enriched advising and other services to students who are most isolated. Finally, colleges can encourage and incentivize faculty to serve as brokers who connect students to campus services and help students broaden and deepen their campus-based networks through group projects and extracurricular activities and clubs.

Introduction

First-generation college students comprise a large and growing proportion of college students nationwide. Fifty-six percent of undergraduate students enter college with neither parent having completed a college degree (Redford & Hoyer, 2017)), and more than a quarter of undergraduates' parents have not attended college at all (Postsecondary National Policy Institute, 2023). Compared to their continuing-generation peers, first-generation college students earn lower grades and are less likely to persist in college and complete a degree (Weisen et al., 2024). Colleges may be better positioned to serve first-generation students if equipped with a deeper and more nuanced understanding of their help-seeking behaviors and preferences, including how first-generation students utilize their personal networks of family, friends, and other connections in navigating college (Deil-Amen & Rosenbaum, 2003).

In this report, we use social network survey results and interviews with students at four colleges in California to explore how first-generation college students build relationships and use support networks on- and off-campus to address the challenges they face in the first year of college despite lacking resources associated with having college-educated parents (Cataldi et al., 2018; Pike & Kuh, 2005). We describe the role of family, friends, and institutional actors in supporting first-generation students through the first year of their college journey and consider implications of these relationships for the design and delivery of college programs that serve first-generation students. We find that first-generation students may have more ties to college than is commonly believed—including parents, siblings, cousins, friends, and other family or peer connections—who provide emotional support, broker connections to campus resources, and help in other meaningful ways.

First-generation students may have more social ties to college than is commonly believed. Parents, siblings, cousins, and friends may not only provide encouragement but also give practical advice and even broker connections to important college-based services.

Background on First-Generation Students

First-generation college students comprise a significant proportion of college students nationwide. First-generation students are more likely than their continuing generation peers to be ethnic minorities and to be adult learners, and both of these populations are projected to comprise a growing proportion of undergraduate students in the coming years (Bárány et al., 2024; Marcus, 2025; Radunzel, 2018; Redford & Hoyer, 2017).

Compared to their peers, first-generation college students are less likely to complete a college degree. According to RTI International (2024), six years after enrolling in college, 24% of first-generation students who entered college in 2010-2011 earned a bachelor's degree, compared to 59% of continuing-generation students who entered at the same time. Similarly, using somewhat earlier federal data from multiple nationally representative surveys, Cataldi et al. (2018) find an almost 20-percentage-point difference in completion rates between first-generation and continuing generation students.[1] The difference in completion rates may be related to first-generation students' enrollment pathways; first-generation college students are more like to enter college by enrolling in two-year institutions, which, compared to four-year institutions, have lower overall graduation rates (Nolan et al., 2025; Redford & Hoyer, 2017). First-generation students are more than 50% less likely compared to their continuing-generation peers to enter college having taken an academically focused curriculum in high school, which includes advanced credits earned in English, math, science, and a foreign language (Cataldi et al., 2018).

Once in college, first-generation students are more likely to struggle financially, academically, and emotionally (Atherton, 2014; Barry et al., 2009; Collier & Morgan, 2008; Engle & Tinto, 2008; Stephens et al., 2014). Redford and Hoyer's (2017) analysis of data from the National Center for Education Statistics (NCES) Education Longitudinal Study of 2002, shows that financial pressures can be acute: 27% of first-generation students come from families with a household income of $20,000 or less, in contrast to only 6% of continuing-generation students. First-generation students are also less likely to receive financial support from family members (Fletcher et al., 2023) and are more likely to work while in college, which limits the time they can devote to studying and engaging in college-based activities (Engle, 2007; Radunzel, 2018). First-generation students also experience higher rates of food, transportation, and housing insecurity (Crutchfield & Maguire, 2018).

First-generation students often report feeling overwhelmed by the choices available to them and, in particular, uncertain about what selecting a major means for their academic and career trajectories (Glaessgen et al., 2018; Torres et al., 2006). These challenges may be especially concerning in the first year of college enrollment; typically, students have yet to learn college procedures or to choose a major, and since many community college students do not return for their second year, they may never have a chance to acclimate (Nolan et al., 2025). Additionally, first-generation students are more likely to face psychological and emotional distress as they transition into college. They tend to experience greater feelings of anxiety, frustration, isolation, and depression than continuing-generation students (Barry et al., 2009; Glaessgen et al., 2018; Jenkins et al., 2013; Penrose, 2002; Terenzini et al., 1996).

Situating the Present Study in the Literature

Given these challenges, a variety of support, both on-campus and off-campus, is critical to the success and well-being of first-generation college students (Garriott et al., 2015). While we know that first-generation students' engagement with college support structures can be limited (Atherton, 2014; Soria & Stebleton, 2012), we do not know entirely why that is the case. Not knowing what supports are available is part of the problem (Davis, 2010; Karp, 2013; Moschetti & Hudley, 2015; Glaessgen et al., 2018); there are likely other factors that shape students' decisions on where to go for help that require exploration, such as how comfortable students feel with service providers.

Part of knowing how first-generation students seek help is better understanding their connections on campus. Studies find positive academic effects of relationships that organically form between college students and adults on a college campus (Fruiht & Chan, 2018; Hurd et al., 2016). Notably, students report that connections with faculty—who may or may not have a formal advising role—can help them feel supported (Chickering & Gamson, 1987; Jaggars & Fletcher, 2014). Similarly, first-generation students who report non-course-related interactions with peers exhibit better outcomes than their counterparts who do not (Pascarella et al., 2004). Broadly, prior studies suggest the value of further inquiry into academic and social relationships of students beyond those associated with formal programs or services.

Lastly, we know very little about the relationship between noninstitutional sources of support and students' engagement with college-based support structures. While many studies consider the importance of support from family members (Bryan & Simmons, 2009; Chang et al., 2020; Gofen, 2009; Hicks, 2002; Pascarella et al., 2004; Rios-Aguilar & Diel-Amen, 2012), they often focus on a presumed lack of information related to college that is accessible from parents (Gloria & Castellanos, 2012; Kouyoumdjian et al., 2017; Salis Reyes & Nora, 2012; Samuelson & Litzler, 2016; Saunders & Serna, 2004; Vasquez-Salgado et al., 2015). Deil-Amen and Rosenbaum (2003) recommend that colleges acknowledge the networks that students may already have, such as those involving family, friends, and coworkers, and identify ways to leverage these assets.

An emerging literature explores how students benefit from their familial connections. Qualitative case studies point to parents as an important source of encouragement and motivation (Ceja, 2006; Dennis et al., 2005; McCulloh, 2022; Rosiles, 2024) and suggest that access to siblings with college experience may influence how first-generation students progress through college (Ceja, 2006; Roksa et al., 2020). Recent research focused on first-generation college students who have older siblings who attended college finds meaningful differences in support and reasons for pursuing higher education between first-generation students who are first in their family to attend and those who have brothers or sisters already in college (Kim et al., 2020).

An Asset-Based Approach

Our report builds on emerging research by examining how parental, sibling, and other extended familial relationships as well as relationships with peers and institutional actors mediate first-generation students' college experiences, including their use of college-based services. To bolster the asset-based approach to exploring first-generation college students' networks, we used Yosso's (2005) Community Cultural Wealth framework to guide survey and interview data collection. We considered Yosso's six forms of cultural capital—aspirational, linguistic, familial, social, navigational, and resistance—to design survey and interview questions addressing the nature of the support that students receive from their networks. This facilitated our understanding of students' relationships with institutional and noninstitutional actors and how these relationships shape college journeys of first-generation students.

A Social Network Perspective

A social network perspective offers a lens to explore from whom first-generation students seek academic and social support, how and why they seek support, and how deeply or meaningfully they are engaging with that support. From this perspective, students' experiences and outcomes are shaped by the relationships (also called "connections" or "ties") between the student and others in their environment, including those providing student services within the college (Borgatti & Ofem, 2010).

Social network analysis can uncover hard-to-discern or "hidden" structures and relations that individuals may find influential (Quardokus & Henderson, 2015, p. 315). By applying a network frame in our analysis, we consider how first-generation students blend their formal and informal sources of support, both those that are college-based and those that are not, to better understand the interplay between first-generation students' informal relations and their experiences with formal college structures (Putnik et al., 2016). This perspective shows that social networks can influence academic success directly, and it also highlights an indirect path: Network members may act as brokers who connect students to college services that can, in turn, shape outcomes. This report elaborates on first-generation students' network properties, including whom students turn to for support and the nature of these ties.

Study Design and Sample

In this report, we apply a social network perspective to answer the following research questions:

1. Whom do first-generation college students turn to for academic and nonacademic support and why?
2. How do first-generation students describe their networks?

Student Surveys and Interviews

We employed two modes of data collection: student surveys and student interviews. First, we designed and administered a survey asking students to respond to two questions about their personal relationships, which we call network generator questions. One question addressed academic challenges; the second addressed nonacademic challenges, defined in the survey as "things other than your coursework."

For each network generator question, students were asked to list up to seven individuals whom they turned to for support. Both questions were unbounded, allowing students to list both college-based and noninstitutional connections. For each connection, students also provided descriptions, including the nature of the relationship (e.g., friend, advisor, etc.) and the frequency and type of contact they had with the person named. Before students completed the network generator questions, they were asked to reflect on the challenges they faced in their first year of college. For additional information about how the survey was developed, see the appendix.

At the conclusion of the student survey, students were asked if they were interested in a follow-up interview; if so, they were asked to provide contact information. Researchers contacted those who indicated interest, inviting them to participate in a 60-minute semi-structured interview. During the interview, researchers referred to survey responses, probing each of the relationships that the student had identified among their survey responses. The survey and follow-up interviews were conducted in spring 2022 and again in spring 2023.[2] This report draws on the data collected in spring 2022 (the spring semester after surveyed/interviewed students first enrolled). The spring 2023 survey and interview results will be used to examine the relationship between students' networks and their postsecondary outcomes; these results will be shared in our final report. In quoting and paraphrasing comments from our interviewees in this report, we sometimes identify them using pseudonyms.

Sample Description

We conducted our study at four California institutions: two community colleges and two four-year broad-access universities. Three of the colleges are medium-sized institutions, each enrolling between 22,000 and 25,000 undergraduate students, and one is a large institution with close to 35,000 undergraduates. Hispanic/Latino students are by far the largest racial/ethnic group enrolled at all four institutions (ranging from 44% to 71%). Three of the colleges have significant percentages of White students (18% to 20%) and Asian students (12% to 22%), with relatively few Black or American Indian/Alaska Native students. Undergraduates who report that they are first-generation college students are frequently in the majority at these campuses, ranging from 48% to 66% depending on the institution.

A total of 7,479 first-time-in-college (FTIC), first-generation students received our survey, representing the universe of students who met our study criteria at these institutions.[3] The surveys were sent to students' college email addresses and included a $15 incentive in the form of gift card for students who agreed to participate. We received a 28% response rate (n = 2,082). As shown in Table 1, our data are generally

representative of the population of FTIC, first-generation students at our partner institutions in terms of race/ethnicity and type of institution attended (two-year vs. four-year). Female students comprise the majority of first-generation students in both our sample and the population, though the proportion of female students is modestly higher in our sample compared to the population.

Table 1.
Survey Sample by Race/Ethnicity, Gender, and Institutional Sector

Characteristic	Survey respondents	Survey recipients (Population)
Gender		
Female	1,436 (69%)	4,504 (60%)
Male	638 (31%)	2,957 (40%)
Declined to state	8 (<1%)	18 (<1%)
Race/ethnicity		
American Indian/Alaskan Native/Native Hawaiian/Pacific Islander	13 (1%)	36 (1%)
Asian	208 (10%)	730 (10%)
Black or African American	62 (3%)	283 (4%)
Hispanic/Latino	1,578 (76%)	5,589 (75%)
Multi-ethnic	22 (1%)	85 (1%)
White/non-Hispanic	151 (7%)	564 (8%)
Other/unknown	48 (2%)	192 (3%)
Institutional sector		
Two-year	960 (46%)	3,714 (50%)
Four-year	1,119 (54%)	3,765 (50%)
Total	**2,082**	**7,479**

From the pool of survey respondents, our research team contacted 95 students who expressed willingness to be interviewed; we received responses from and interviewed 58 of these students. The interviewee sample is similar to the overall student demographics. About half of the students interviewed attended community college, and half attended a four-year university. The majority of interviewees were Hispanic/Latino, female, and of traditional college age without dependents.

Our sample is broadly representative of first-generation students nationally, both in terms of demographic characteristics and in terms of the challenges that students in our sample reported experiencing while in college. Similar to other studies of first-generation college students (Atherton, 2014; Crutchfield & Maguire, 2018), half of survey respondents in our study identified challenges accessing basic needs including "housing, food, and/or transportation"; and 41% reported struggling "paying for college." Nearly 54% of students reported being worried or stressed about having enough money to pay rent/mortgage at least "sometime" in the past 12 months. One third reported usually or always worrying about having enough money to buy nutritious meals, and 63% experienced at least some food insecurity.

Defining First-Generation College Student

First-generation college students are defined differently across studies (Ward et al., 2012). Some researchers include only students where neither parent has ever attended college, whereas others include those whose parents may have attended but did not earn a degree (Toutkoushian et al., 2018). Whether associate degree completion or college attendance by parents outside the US is included in such definitions may also vary, and different definitions of parent or guardian can also change who is considered first-generation. Because of these wide-ranging definitions, different studies may be examining considerably different student groups. Moreover, many studies treat first-generation college students as a monolithic group—despite the fact that within any selected definition of first-generation college students, there is often significant diversity in terms of race/ethnicity, income, language status, and whether the student has other people in their family or social network who have attended college (Redford & Hoyer, 2017).

While all students in our sample met the federal definition of a first-generation college student (i.e., neither parent had completed a bachelor's degree), more than 70% of respondents specified that they have extended family members who either attend or have attended college. The proportion was higher among four-year students than two-year students in our sample.

In addition to this diversity of connections, students' survey responses suggest variation in students' self-perceptions as first-generation students. Sixteen percent of students in our sample did not identify as first-generation, and an additional 9% students responded that they were unsure if they identified in this way. This demonstrates that even when colleges may agree on a particular definition, their students may or may not see themselves as first-generation college students.

Data Analysis

We employed a mixed-methods approach to data analysis. First, we conducted descriptive analyses of the survey data; our quantitative analyses included tabulating the total number of connections by type (e.g., parent, sibling, coworker) as well as summary statistics for each students' network composition, such as the size of the network and frequency of interactions. Next, we coded the student interviews, organizing emerging themes about the nature of the relationship and support identified by each student by connection type. We also considered interviewee explanations about the relationships identified on the survey as well as additional connections mentioned during the interviews. Based on emerging themes in the interview data about students' support networks, we conducted additional survey analysis such as exploring the relationship between the type of connection and the nature of the support students were seeking.

We organize our findings by describing, in aggregate, the network composition and properties of first-generation college students. We focus our findings on the nature of the connections using both survey and interview data. We also include more detailed examples that further illustrate the support that students attribute to certain types of relationships.

Findings: First-Generation Students' Network Connections

To learn more about how students navigate college, we asked students to identify the individuals they turn to for support for academic and nonacademic issues. Sixty-nine percent of students who responded to the survey identified at least one source of academic support, and 76% of students identified at least one source of nonacademic support (see Table 2).[4] Most students identified more than one person who supports them in each of these areas (academic and nonacademic).

Table 2.
Network Size of Survey Respondents

Number of connections	Academic percentage	Nonacademic percentage
0	31%	24%
1	13%	10%
2	11%	10%
3	10%	11%
4	7%	8%
5	4%	5%
6	1%	4%
7	23%	29%

For both academic and nonacademic support, family and friends are among the most commonly identified connections. Parents, in particular, are sources of both nonacademic and academic support for students (see Table 3). Further breakdown of these categories points to the prominent role of not only parents but also of siblings and extended family members such as cousins (see Table 4). Friends are also among the most frequently listed connections for both academic and nonacademic support.

Among college-based staff, only academic advisors are among the individuals most commonly referenced for academic needs. Unsurprisingly, while advisors were listed on the survey as a separate response item from targeted support programs such as TRIO, interview data suggest that at least some respondents who selected an academic advisor on the survey were thinking about an advisor or administrator at a specific college support program rather than someone from the advising office.

Table 3.
Prevalence of Broad Categories of Network Connections

Connection category	Academic percentage	Nonacademic percentage
Family	44%	61%
Friend/acquaintance	42%	50%
High school[a] or college staff	31%	16%
Community	7%	8%
Other	2%	3%

[a] A teacher or counselor from high school with whom students in their first year of college still interact.

Table 4.
Most Commonly Identified Connections

Type of connection	Academic percentage	Nonacademic percentage
Parent/step parent/guardian	28%	49%
Sibling	31%	38%
Cousin	17%	18%
Friend from college	33%	29%
Friend from high school/childhood	39%	48%
Academic advisor at college	29%	12%

In the subsections that follow, we discuss the most prominent connections identified in the data: primarily family, institutional actors, and friends.

Family Members: Key Sources of Academic and Nonacademic Support

Student responses to the survey reveal that, for first-generation students, parents are key sources of academic support (i.e., directly affecting coursework, including advice on what classes to take or what to study) and nonacademic support (i.e., affecting the college experience beyond the immediate classroom, including encouragement, motivation, and financial issues). Nearly half of students reported that they turn to a parent (or parents) for nonacademic support, and more than a quarter of students turn to parents for academic support. Most often, students reported that parents provide emotional support or encouragement or motivation; together, these types of support comprise 42% of the descriptions that respondents selected to characterize the support they receive from parents for nonacademic issues and 40% of the descriptions of parental support for academic issues.

While parental support was most commonly reported, survey respondents also reported the importance of siblings in providing academic and nonacademic support. Just over a third of respondents (34%) noted that that they receive emotional support or encouragement and motivation from siblings, and 17% of respondents seek advice from siblings about academic questions or concerns (compared to 9% of students who

seek academic advice from parents). Finally, extended family members, including cousins, aunts, uncles, and grandparents, are also sources of support for first-generation students; they mainly provide encouragement and motivation but may also give advice about academic questions or concerns.

In our interviews with students, we were able to further explore both how students receive support from family members and how these relationships may also introduce challenges for students. Several key themes emerged with respect to parental encouragement and conflict, the potential for families to be effective brokers between students and institutional resources, and the conditions under which these dynamics arise.

Parents provide encouragement and emotional support.

Interview data underscore the encouragement some students receive from parents and the way this encouragement shapes their postsecondary pathways. Twenty-five of the 58 students we interviewed referenced their parents when describing their college journey; 16 of 25 described their parents as a source of encouragement. For example, one community college student described his mom as "a sounding board": "I can share with her what I'm doing, and she's real supportive."

When asked to elaborate on the encouragement received from their parents, interviewees recounted how parents use their personal experiences, including challenges they experienced in seeking employment without a college credential, to encourage their children to pursue a degree. One four-year student said the following in reference to his father:

> *Yeah, it was really important because he told me he was never really good with school. He told me he graduated through a summer school actually. And after that he went into the military. So because of that, he had higher expectations of me. He expected me to do better than him. So he always pushed me to do that.*

While interviewees acknowledged that their parents do not typically help them directly with classwork, they noted that parents often shape their academic experience by providing emotional support as well as strategies for managing school responsibilities. For example, one community college student, when prompted to explain why she characterized her mom's help as nonacademic, stated, "Because she's not super good with math or any of that kind of stuff." However, she credited her mom with being there to listen when she needs to vent about the challenges in her life that interfere with her schoolwork. Several students similarly noted that their parents do not help them with the content of their classwork but do help them succeed in school by helping them stay on track with their assignments.

Parents' perspectives about college and family life can make it challenging for students to focus on educational goals.

While the majority of student interviewees described receiving encouragement and emotional support from parents, some also said that their parents express perceptions

of college that introduce some hesitancy in the decision to be in school. For some, parents express a preference for their child to directly enter the workforce rather than go to college. For example, one community college student said of his parents, "My parents didn't really tell me to go. My family believes more so in working, so sometimes it does get difficult when they think that I'm just like in school and I'm not really doing anything." Another student attending a four-year institution described how his parents think colleges exams are "a little test and it's a little hard," when in reality it is "a couple of very long tests that are difficult"; this misalignment in perspectives made it difficult for the student to feel fully understood and supported by his parents when needing to study and take exams. Other interviewees acknowledged that while their parents do not understand their experiences, they make an effort to try and to be supportive. One four-year student said of her mom, "She doesn't understand what's really going on, but she's there to motivate me, make sure I'm still on track… She'll have a conversation, like, 'Oh, how's it different from high school? How do you like it now?' Conversations like that, where she's trying to understand and be there for me and make sure that I keep going."

Other interviewees described that, while their parents encourage them to attend college, they do not understand the rigor of a college program and expect, and in some cases need, students to maintain their family responsibilities and participate in family activities. Nearly half of the students who responded to the survey found it challenging to "manage family responsibilities." Students described the challenge as "balanc(ing) out family life and school and work." Family life, for many, includes taking care of relatives, especially younger siblings. One student attending a four-year university said it is his responsibility to drop off and pick up his younger siblings from school; his college schedule has to accommodate this responsibility, as his mother does not have anyone else to help her with this task. Parents also often have expectations for students to spend substantial time with family outside of direct tasks. Reducing participation in family activities to focus on work or college, the same student noted, leaves parents asking, "Do you not want to be with us anymore?" Complicating matters, these responsibilities and expectations are often in tension with the same parents' encouragement of students to pursue a credential.

Parental expectations and related cultural norms also interact with students' access to the resources they need to be able to succeed in school. One community college student described her parents' reluctance about her having or driving a car and how that affected her ability to get to class:

> *I think the hardest thing is not having a car. So transportation is huge because you become dependent. If you're a first-gen, if you're a girl, sometimes it's like they don't want to give you a car because what if something happens? You can maybe have an accident or whatever. So I didn't have a car for the first two or three years of my career. So I had to take the bus or ask my brothers for a ride.*

Because the student must use public transportation or rely on rides, she limits her course selections to classes that meet at times that align with others' schedules.

Siblings and cousins who have attended college can be useful providers of practical advice about navigating educational institutions.

Siblings who attended college or attend college at the same time as interviewees may provide concrete advice about how to navigate college and whom to turn to on campus for help, often brokering connections with these campus-based resources. One student at a four-year college said that her brother had attended a community college, so when she almost missed the registration deadline for class, her brother realized it and helped her register in time. Her brother reinforced the idea that their mom wouldn't be that helpful on academic issues because she didn't graduate from college: "He helped me a lot on FAFSA, because he's always like, 'Mom doesn't know.'"

Another student at a four-year college said that her sister had attended a University of California (UC) college and pushed her to get help on campus. The student said, "She's like, 'Go to the writing center, go to this and that, go to this and that.' I'm like, 'I'm terrified.' She's like, 'Yeah, but just go. It's very worth it. And they're going to help you,' and stuff like that." A student at a community college shared that his younger siblings had all gone through the college process. He asks them for extra guidance and support because they live together (at home). He also said that he feels more comfortable asking his siblings for support rather than the academic advisors at his college.

Students also described how their cousins with college experience provide similar support as siblings. In interviews, students said that these relatives also encourage them to join on-campus activities and establish relationships at their respective colleges. They also provide advice about managing schedules and paperwork. For example, a student whose cousin graduated from a UC college credited that cousin with helping her manage the stress of college and with pushing her to join clubs and activities on campus in order to make connections and meet people. She said of her cousin,

> *She's always still a really good mental health advocate I can go towards, like if I'm ever stressing a lot or I need to blow off steam from class. She told me a lot to join the Latino programs at school. She's like, "You don't know how much those help. Trust me. You're going to create a good friend group and all that, and obviously don't be afraid to reach out. There're connections there for you."*

Several students described situations in which their older siblings had stopped out of college but are still key in helping them persist. For example, one student at a four-year college said that his brother is more of a "negative role model" of how not to do things. Nevertheless, while his brother left college, he says that his brother wants him to be successful and drives him to college to support him. Another student at a four-year college who lives with his brother described how his brother, even though he left college, still gives him useful advice on which major to pursue. A third student expressed a similar appreciation for her brother's perspective. Even though her brother did not graduate college, he said to her "Hey, I regret not going to school. Go to school. You don't want to be like our parents. You don't want to be like me."

Proximity and family dynamics are key factors in whether siblings, cousins, or other relatives help students connect to campus and navigate college.

One student interviewee who attends community college named Mathias provided insight into how much support siblings can provide when they are in close proximity. His brother left college, yet he nonetheless feels strongly about supporting Mathias so that he can persist and graduate. Mathias helps him take care of his children, and his brother loans Mathias his car so he can get to school. His brother also helps him out with money for tuition. Similarly, a student at a four-year college shared the various types of support she receives from her older siblings. Her sister provides academic help and pushed her to attend a four-year college rather than a community college. She also described her two brothers as very supportive: "Well, my older brother takes me to school, so I am really appreciative of him doing the effort to take me. He actually used to go to [my college], but he dropped out."

In some instances, students have relatives who are alumni of the college that they attend and who provide targeted information and advice about whom to meet with on campus for various challenges; they also give recommendations on which courses to take. For example, one four-year student said that her aunt attends the same college that she does, and she described a variety of ways her aunt supports her, including helping her with the FAFSA, with the enrollment and course scheduling process, and with general questions she has about navigating campus.

Distance and other family dynamics mediate the extent to which students are able to rely on family for advice about college. For example, one community college student said that he has a cousin who attended a prestigious university far from home, but he does not feel comfortable reaching out to his cousin for help. Other students described conflicts between their parents and other family members that shaped their ability or motivation to get support from extended family members. One four-year student said that, because her mom and her aunt do not get along, she did not get to spend time with her aunt growing up. But now that she attends college on her own and closer to where her aunt lives, she recently was able to develop a relationship with her. Now she feels like her aunt is becoming a source of support in her college struggles, and her aunt's home is a warm place to spend time when she needs encouragement.

Institutional Actors: Connecting Students to Campus Resources

College-based personnel were not as prominently featured among students' networks as family. In fact, a substantial proportion of students reported challenges engaging with institutional actors. Information about campus resources is hard for some students to access, both online and in person. Nearly one-quarter of survey respondents reported finding academic support online challenging; similarly, 28% reported "understanding how to find resources and services on campus" as a challenge. Even when they are able to get to a resource, students are not always happy with what they find; among survey respondents, 13% reported "trying to get academic help but dissatisfied with help

JC's Experience: Parents and Extended Family Encourage Success

JC is a first-year student at community college and plans to pursue a career in the medical field. She is the first in her family to attend college. She said her parents strongly encouraged her to attend college and had emphasized this to her since she was young. She described it this way:

> *Because I grew up in a Hispanic household, they always tell you, "Either go to college or you're going to work in the field." They always put it to us, "Do you want to work eight hours in the hot sun risking your health every day just for the minimum wage, or would you rather go through the struggle of getting an education and getting a well-paid job so you can live very well?"*

She said that over time, she came to feel proud of herself for pursuing higher education. "So I saw how being a first gen really brings a lot of pride and joy to your family. But it also makes you feel some type of accomplishment. You're like, "Oh my gosh, I'm going to be the first one to go to school and make my parents proud."

JC also described having a supportive aunt who encourages her to pursue her career goals and has also offered her financial help should she need it. As supportive as her family is, her circumstances are not without complications. When she changed majors, her mom was initially unhappy about it. Her aunt stepped in and spoke to her mom on her behalf about why the switch was a smart decision. In addition, JC has family obligations that take her away from her schoolwork. For example, she helps her elderly grandparents with errands, and she takes them to medical appointments when her mom and her aunt are unavailable to go. Yet, despite occasional conflicts and ongoing responsibilities, JC said she is close with her family and that they encourage her and push her to succeed.

provided." Suboptimal support experiences are widely reported by college students (Community College Survey of Student Engagement, n.d.) but are especially concerning for first-generation students who are more likely than their continuing-generation peers to need help in managing challenges to success, such as limited financial resources.

Among college-based actors whom students did identify as part of their network, most were advisors or faculty. Nearly 30% of respondents identified an academic advisor at the college as part of their academic network, and about 10% of respondents identified a faculty member. Respondents who listed an advisor most commonly described the support as "advice about academic questions or concerns" (30% of such respondents) and "information about campus-related services" (19% of such respondents). As expected, respondents who listed a faculty member stated that they turned to a faculty member most often (32% of such respondents) for "advice about academic questions or concerns."

In addition to college faculty and staff, high school teachers and staff also were included by almost 10% of students responding to the survey. High school counselors, teachers, and coaches were sometimes named by students in interviews even when not listed on the survey. Students described the influence that high school teachers and counselors had on their college application process and choices, and, interestingly, some students described that they continue to rely on these high school connections for emotional support, encouragement, and advice about job opportunities.

For some students, advisors are important brokers to services and opportunities; other students do not appear to find the help they are seeking through college support staff.

Interviewed students who identified an advisor connection often described how this person connects them to other campus services. Students who participated in programs like TRIO or EOPS were especially likely to make this point.[5] For example, a student at a four-year university described having "a little bit of a harder time doing my financial aid applications and stuff like that." She sought help from her Dream Center advisor, who "would give me tips on how to do certain things," and her EOPS advisor, who connected her to the university's counseling services.

Some students said that they seek advice—even as first-year college students—from college access programs that they had participated in when in high school, including Avid and Upward Bound. They noted that these programs teach them how to find help when they need it and how to make productive use of resources that are available to them. Support staff in these programs also serve as brokers to supports in college by informing students about programs such as EOPS, what they are, and how to sign up for them. For example, a student at a four-year university said it was an advisor from a high school program who told her to sign up for EOPS.

Students did not always report positive experiences with advising. For example, a few interviewees noted that it is hard to get an appointment with an advisor and that some appointments feel rushed and not that helpful. One community college student said, "There's a few that I like, but there's two that I've had—it was kind of like they were rushing." Similarly, a student at a four-year college said, "And I think this is just a general issue with academic advisors. We have a very big school and a lot of students, so it's more expected of you to go out of your way and to ask them for help. And while I completely get that—we're all adults—it's also very confusing on who's who. And even then, it takes time for them to respond and schedule an appointment, and that's a whole issue."

Faculty and staff engage in broad practices to help students access resources.

One way that some faculty and staff connect students with resources is through course materials, activities, and assignments that encourage or even require students to interact with campus offices and services. For example, some faculty include visits to the library and make assignments that require students to use campus resources such as the writing

center or tutoring center. One student at a four-year college described how her professor served as a broker to on-campus services:

> *I was taking a general education English course, and my professor noticed that most of us are freshman. She found it valuable for us to understand the resources the school has to offer. So one of the resources she recommended was the writing center; she recommended the IT help desk also.*

Some students experience positive interactions with faculty and advisors; these sometimes develop into enduring beneficial relationships.

In interviews, some students described how faculty and advisors come to know them as individuals and are therefore able to tailor support and advice to help them more meaningfully. Not surprisingly, students described feeling more comfortable returning to advisors with whom they have already interacted previously, especially those with whom they made a personal connection, in order to get help. For instance, a community college student named Samantha reported how these personal relationships matter to her. After attending a workshop for Enseñamos el Valle Central (We Teach the Central Valley), Samantha reached out to the program's counselor she had met previously in order to schedule an advising appointment. During the appointment, the counselor discussed the requirements for an associate degree program in Chicano and Latin American studies (CLS) and art history, which helped Samantha decide that art history was a better choice because she would graduate faster. The advisor also shared more information about the teaching credential program, which Samantha later applied to and enrolled in. Samantha said that this advisor had a substantial influence on her college experience.

One four-year student described seeing the same advisor several times, noting that this advisor came to understand her career interests and connected her with relevant opportunities:

> *This semester, she helped me a lot. She helped me determine when I would graduate, and she helped me determine what courses I should take. … And she was explaining to me how [the college] had certain programs and how they had different job opportunities. … And she introduced me to the California Teaching Fellows, which I am currently in the process of getting hired [for]; I'm doing the steps for it now.*

More than 10 students in the interview sample outlined specific ways that a professor connected with them as an individual and provided support that was specific to their needs, interests, and/or career goals. These include serving as a role model because of a shared identity, providing connections to internship opportunities, offering guidance on how to manage time and handle the stress of college, and serving as a source of information on where to get other types of help on campus. One four-year student said that her math professor gave her important time management advice, helped her improve her understanding of math concepts, and even assisted her in securing a tutoring position on campus.

Emily's Experience: Faculty Provide Guidance and Introduce College Resources

Emily is a student at a four-year college. She is studying pre-health and ultimately wants to be a pediatric oncology nurse. Her dad did not go to high school, and her mom had to leave community college because of a family health emergency. She described being originally fearful of her professors and not wanting to ask for help, but her boyfriend, who attends community college, encouraged her to reach out to them and go to office hours. She credits her professors with helping her understand viable career pathways and how to locate resources on campus. Emily said in reference to one faculty member,

> *He's my chemistry professor. He's the one that I went to go seek help from. And he's actually been really helpful when it comes to talking about career pathways. He always tries to integrate things into the courses. So he's like, "Nursing majors, you guys are going to be doing this."*

When asked how she found out about multiple resources on campus, Emily described an interaction with another professor:

> *It's usually when they're explicitly told to me. So, the learning center: I found out about it because my communications teacher actually gave us a tour of the library, which I thought was super cool. … That was my first semester. She was, like, "Oh, come on guys. Let me show you all your resources in the library." So, I knew about everything in the library—tech support, the learning center in the basement, etc.*

Some interviewees described how professors helped them overcome past academic challenges. One four-year student described her frustrations with her math education in high school and commented that it left her feeling unprepared and scared of college math. She said that this was a significant challenge for her at the beginning of college but that her first-year math professor's kindness turned things around for her:

> *I needed a very understanding teacher who could teach me and help me learn and help me grow without feeling like I felt in math classes in high school. I did not have a great last math teacher in high school—[the teacher] was not kind, and I very much needed a reset in what I thought that math teachers were like.*

Friends: Offering Support Through Shared Experiences

Childhood friends, college friends, and coworkers are an important part of students' support networks. Nearly half of all survey respondents identified a friend as part of their academic and/or nonacademic networks (see Tables 3 and 4). Specifically, 48% of respondents identified a friend from high school or childhood as part of their nonacademic network; high school or childhood friends were also prominent in

students' academic networks, with nearly 40% of respondents reporting them as a source of academic support. Twenty-nine percent of respondents identified a friend from college as part of their nonacademic network, and a third identified a friend from college as part of their academic network. These groups sometimes overlapped when students attended college with friends from childhood or high school.

Respondents who selected friends on the survey most commonly noted turning to childhood and high school friends for "encouragement or motivation" (22% of respondents), "emotional support" (22% of respondents), or "advice about personal matters" (21% of respondents). Fifteen percent of respondents who identified a childhood or high school friend as a source reported seeking "advice about academic questions or concerns." A slightly higher proportion—21% of respondents who identified a college friend as a source of support—characterized the support as seeking "advice about academic questions or concerns."

Only 13% of respondents mentioned coworkers on the survey, yet these relationships may provide support as well. Older coworkers may offer guidance based on their experiences with community programs—run by the YMCA or other organizations—that students can participate in. Other coworkers are current college students and can offer more specific guidance related to college processes.

College friends and coworkers from on-campus and near-campus jobs provide practical information about navigating college.

Our interviewees discussed how their friends—especially if they attend the same institution—support them in navigating college, both through advice and by brokering connections to campus-based services. And students we interviewed may help others as well. Hassan, a student at a four-year university, described a friend who is also a pre-health major and takes many classes with him. Hassan further shared that his friend is not in EOPS and thus does not have access to the same resources that have been pivotal in his college journey. As a result, Hassan's friend relies on Hassan for academic support. That is, in this relationship, information from EOPS funnels from Hassan to his friend, demonstrating the potential for this type of programming to indirectly reach students through peer relationships.

Karina, a four-year student, described how a friend of hers from college encouraged her to attend faculty office hours. Karina said that she had been struggling in her geology class, and her friend told her that this professor was particularly helpful in office hours. With this encouragement, Karina ultimately decided to go; doing so, she said, helped her gain a deeper understanding of the course material.

Alyssa is a community college student in her 40's. Alyssa described receiving assistance registering for courses from a coworker who was also enrolled in college. Alyssa said her coworker "was guiding me to, like, 'Oh, print this out. And this is going to tell you like what classes you need to take to go towards this and that.' So, she also plays a big part in helping me when I'm, like, 'Hey, what classes should I be taking? What do I do now?'" Interestingly, our interviews also suggested that work-study students may benefit from being assigned to work in offices with colleagues who have insight into college

processes. For example, a four-year student described her work-study assignment in the business school advising center at her university; when she cannot get an appointment with general undergraduate counseling, she asks coworkers for advice.

Students find comfort in sharing their challenges and getting help from friends who understand the first-generation experience. Childhood friends, in particular, may provide substantial emotional support and encouragement.

Students described feeling more comfortable openly relaying their challenges with their childhood friends, especially when they share a first-generation background, than with others. About one third of interviewees described childhood or high school friends and how they provide significant emotional support. Several of them mentioned how they turn to these friends when they are stressed about college and need someone to lean on.

Hassan stated that his friend provides encouragement and emotional support: "When it comes to nonacademic-related stuff, when I'm struggling with a class and I'm stressed out or something like that, something's bothering me, I can just talk to him about it. He can help me out through it." Another student described how a high school friend went with them to the gym when they needed to de-stress. And other students spoke about how friends make them laugh and also help them manage challenges such as imposter syndrome.

Olivia, a student at a four-year university, described a high school friend who attends the same college as a central figure in her network. The two friends commute together, so Olivia "spend(s) a lot of time with her." Olivia's friend, she said, "is also a first-gen, so yeah, sometimes we talk about how it can be very stressful. … We help each other with that kind of stuff." Olivia further noted that "we can't really tell our parents how stressful it is sometimes, so it's good that we talk with each other as friends," suggesting that there is a distinct comfort in speaking candidly with friends in similar circumstances about college-related challenges when parents may not fully appreciate some of the pressures or difficulties.

Another four-year student similarly said that she frequently speaks with two friends who are also first-generation college students about how difficult it can be. She said that they "talk all the time about how it's hard for us to relate to some of our family members because it's hard for them to understand what it's like to go to college."

Limited Networks: Feeling Isolated and Disconnected

As described above, 31% of students who responded to the survey did not identify any sources of academic support, and 24% of students did not identify any source of nonacademic support (see Table 2). While the identification of no academic or nonacademic connections in the survey may be due, at least in part, to the length and complexity of the survey, responses to other survey components suggest that many students are considerably isolated.

A significant number of respondents selected mental health challenges as a nonacademic challenge on the survey, and of these students, more than a third indicated that "developing and maintaining new friendships" on campus is challenging; 65% of those who selected mental health challenges also selected struggling to "believe in myself as a student," and almost half noted "feeling isolated or disconnected in college," which may relate to feelings of anxiety and depression that deter help-seeking. One four-year university student interviewee recounted how "a lot of insecurities building up" prevented her from going to the tutoring center:

> *I could not go (to tutoring). I would prepare myself. I would dress up, put on my backpack, walk out the gate, and then go the opposite way. I'll go somewhere else. And I'm, like, "No, I can't." Or I just wander around. I'm, like, "I can't go. It's so difficult for me." And the library alone—I was scared to go to the library because it's so quiet. There's so many people. I'm, like, "What if I get lost? Or what if the tutoring people get mad at me?" They might be, like, "You don't understand this?"*

Instead, the student resolved to "just struggle in my room" and learn independently. The student felt that "a lot of first-generation students struggle with this as well because we're alone. We're from a different town. We've never been independent because we've always been with parents and stuff like that."

Other students who listed only one person as a source of support on the survey also described feeling isolated. Diego, a student at a four-year college who listed only his

Noah's Experience: Childhood Friend Provides Support in Multiple Ways

Noah is a student at a four-year university and is interested in pursuing a teaching career. He shared that he grew up in a bilingual household and that he sees that as an important benefit that he can bring with him to the classroom. He is very proud of being the first person in his family to be accepted into college. He said that in addition to support from his dad and other adults in his life, his childhood best friend is important to his college success: "He understands what we've gone through. … I feel like he understands me best."

Noah said that this childhood friend, who attends another college, updates him frequently to let him know how college is going and sometimes offers him advice. The friend, for example, guided Noah on how to study for a final exam when a professor allowed a page of handwritten notes to be brought to the exam. Noah said that his childhood friend helps him in other ways, too. "He's encouraging me to go to events that the college offers. He's encouraging me to talk to people, talk to teachers and all that. … I'd say that he's overall having a positive influence." Noah added that he forged new friendships through this friend, and that these others exposed him to different career opportunities that he had not considered before and helped him navigate college choices.

brother in the survey as a connection, encapsulates one way that first-generation students can experience some marginal or modest support but still feel isolated. While his brother graduated from college and provides a lot of crucial support, Diego emphasized that he hesitates to rely too much on his brother. Diego said that because his brother is the only college graduate in his family, he worries that everyone relies on him. Diego does not want to burden him, but he also does not have other people to turn to for support.

Both the survey data and the interview data suggest that there are a sizeable number of first-generation college students who feel isolated, at least with respect to people they can turn to for help navigating college. When asked about the most challenging aspects of their college experience outside of the classroom, 38% of survey respondents reported "feeling isolated or disconnected in college." As illustrated by Diego's comments, even when students have one college-educated family member whom they can go to for help, they may perceive that this individual is carrying the load of an entire extended family and may not want to burden them further, exacerbating their own isolation. What is more, while first-generation students with small networks may be aware of supports available on campus, fear or anxiety may inhibit them from using these resources.

Conclusion: Takeaways for Supporting First-Generation Students

This study uses a network approach to analyze the relationships of first-generation students at two community colleges and two four-year universities, deepening our understanding of students' help-seeking behaviors and preferences.[6] First, our research adds nuance to commonly held views of the role of family in the academic journey of first-generation college students. Building on emerging studies exploring how parents without college degrees encourage their children to pursue college (McCulloh, 2022), our findings suggest that parents are important sources of encouragement, motivation, and emotional support. First-generation students may enter college with less tactical information about college from their parents, but they may lean on their parents in other ways to support their success in college.

Second, our study builds on emerging research showing how siblings with college experience shape first-generation students' college journeys. In addition to shaping what first-generation students and their families know about college norms (Roksa et al., 2020), our findings illustrate how connections with siblings and other family members can serve to link first-generation students with resources that can help them succeed in college. Like siblings, extended family members with college experience, such as cousins, aunts, or uncles, are potential brokers to college services as well as sources of emotional support and academic advice. Survey and interview data from this study indicate how siblings and extended family with college experience support students, providing a useful window into what college-oriented assets are available to first-generation students and how they use them.

Third, our study reinforces the importance of peers in helping students stay on track in college. Friends and fellow students can be crucial sources of information and of connection to services and opportunities. Friends also help students access practical supports such as rides to school. And childhood friends who are also pursuing higher education appear key in encouraging some students to stay in college and helping them navigate challenging situations.

Finally, our study shows that college faculty can be central in helping students find and use campus-based services. These observations about the faculty's role, along with our other findings, point to several concrete strategies and recommendations that colleges can consider to better support first-generation college students.

1. Collect more information on incoming students in order to target resources and invest in students' family relationships. Our study finds that many first-generation students rely on an extended network of family members beyond their parents for college-related support and information. A broader understanding of the way that family members' postsecondary educational experiences can shape first-generation students' journey has practical implications. Colleges should consider modifying intake processes to collect more nuanced postsecondary background information about family relationships beyond parents. Colleges may administer a simple questionnaire when students enroll in college or during their first semester to ask if they have someone to go to for help with academic or personal challenges. This information may be shared with students' faculty advisors and the college counseling team so that they can identify and reach out to students who seem most isolated and in greatest need of help.

Relatedly, while it is common for colleges to host outreach activities for parents, our findings suggest that other family members can be further empowered to serve as a source of support for students; colleges can frame these outreach activities more inclusively, encouraging participation by a broader range of family members.

2. Support classroom-based and extracurricular activities that deepen students' peer networks and that encourage the use of college services. Notably, friendships formed before college and in the first year of college are among the most commonly cited sources of support overall by our survey respondents and interviewees, which speaks to the importance of these relationships for students' educational journeys. Colleges should consider recruiting students for college programming, including support services, by leveraging these connections. For example, incoming students can be incentivized to bring a friend with them to orientation or other introductory sessions, which might make these efforts more effective. Students in the study were also motivated to join activities that related to their major or their future career or that involved peers with similar interests, so investing in major-based or career-oriented clubs may also help with college efforts to connect students with one another, which may enrich their college experience and promote help-seeking behaviors. Classroom-based activities, like project-based learning and other group work, may also help build peer networks and improve students' sense of belonging. These classroom-based activities may be especially practical and effective for commuting students who may struggle to get to events outside of class.

3. Promote engagement with targeted support programs and high school partnerships. Our findings reinforce the importance of programming designed to reach specific subgroups of underrepresented students. Advisors from targeted support programs can establish deep connections with students once they gain access to these programs. Colleges and other higher education groups should consider highlighting the importance of these programs to state and federal policymakers and advocating for expanded funding and access for these essential programs. Moreover, given the important role of high-school-based college preparation programs and of some high school faculty and staff in supporting students even after they have begun college, colleges may want to expand efforts to streamline entry to college-based targeted services from comparable high-school-based programs.

4. Encourage and incentivize faculty to serve as brokers to campus services. Interviewees in our study described how connections with college faculty who serve as brokers to campus-based services supported their progress in college. Embedding the use of the writing center, the tutoring center, or specific services at the library into course activities, for instance, can create avenues for students to learn about these resources. While faculty are stretched thin, they may be incentivized to take on such a role way if they are acknowledged for their efforts. For example, colleges may consider performing a brokering role to college resources, especially vis-à-vis first-year students, as service to the college in faculty annual reviews.

5. Leverage alumni relationships as an access and retention strategy. This study shows that students sometimes turn to relatives for support who are also alumni of the college the student attends, and they rely on these extended family members for knowledge about higher education. Colleges can use their relationships with their alumni as another information conduit to their current students. By deepening relationships with alumni and providing them with up-to-date information about what is happening on campus, alumni can serve as a source of support and brokerage in recruiting and retaining students.

6. Collaborate with intermediary organizations to empower students' personal networks. Colleges can also consider partnering with intermediary organizations that coach key people in students' networks. Funding and guidance for helping students identify appropriate people in their networks and then giving those people useful information about how to provide students with the support they need could be helpful. Colleges can provide college-specific and course-specific information as well. Nonprofits such as Circle of Champions are piloting models like this in partnership with colleges to support first-generation college students.

The observations of students' networks during their first year of college presented in this report offer insights into the assets first-generation students bring to college and how their initial engagement with advisors, faculty, peers, and others shapes their access to supports. Beyond the survey and interview findings shared here, our larger study uses additional data to examine how students' network connections influence their postsecondary pathways and outcomes. We will present these findings in a forthcoming report.

Endnotes

1. The analysis does not include controls for income or other demographic factors. First-generation college students are much more likely to be low-income, likely driving some of this difference.
2. These data were collected at a time when colleges and students were recovering from the COVID-19 pandemic. Remote learning conditions and the reopening of college campuses may have influenced students' survey and interview responses.
3. Study eligibility criteria included (1) enrollment in college for the first time in fall 2021, (2) status as a first-generation student defined as neither parent having completed a college degree, and (3) enrollment in a minimum of 6 credits per semester in fall 2021 and spring 2022.
4. Our qualitative data suggest that omissions may be due, at least in part, to survey burden. Among the 58 students we interviewed, two did not list any connections on the survey; these students, however, did reference relationships that shaped their postsecondary experiences during interviews.
5. TRIO (federally funded) and EOPS (California state funded) programs provide proactive outreach, advising, and tutoring services, among other supports, for low-income, first-generation, and other disadvantaged students.
6. We acknowledge that our data have limitations in that students in our sample may have forgotten or misstated some details, particularly related to their first semester, by the time they completed the survey and/or interview.

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Appendix. Survey Development

To develop the survey instrument for this study, the research team reviewed (1) education research using name generators and name interpreters, (2) seminal methodological literature on egocentric network analysis, and (3) research on the postsecondary experiences and outcomes of first-generation college students.

Name Generator Questions

Social network methodologists generally recommend using multiple name generators in a single instrument for a more comprehensive understanding of the respondents' personal network (Burt, 1984; Perry et al., 2018). The literature suggests that respondents more accurately identify members of their support networks when asked about a concrete rather than an abstract condition (Burt, 1984; Perry et al., 2018). Based on this guidance, we elected to use two name generators. One name generator asked respondents about their sources of support for academic issues, and the second asked respondents about their sources of support for nonacademic issues (defined in the survey as issues not related to coursework). We also prompted respondents to think about a concrete condition by preceding each name generator with a question asking the respondent to identify a specific academic or nonacademic challenge. Following Pustejovsky and Spillane (2009), we used name generator questions that began with, "To whom have you turned to for advice or information about XX?"

In developing the order of questions, we considered strategies for reducing the risk of "satisficing behavior." This can occur when the number of names listed in response to the first name generator leads respondents to list only a small number of names in response to the second name generator, thereby depressing responses on the second name generator. While the roster method (i.e., listing names and asking respondents to select which ones served as sources of support) is shown as an effective strategy for reducing recall challenges and satisficing behavior, it was not a practical option for our study. Pustejovsky and Spillane (2009) recommend randomizing the order of the name generator questions in cases when the roster method is not possible. Our survey thus randomized whether students were asked the name generator question based on academic challenges or the one based on nonacademic challenges first.

Name Interpreter Questions

We relied on a number of articles to help us craft the name interpreter questions. Most importantly, from Small & Sukhu (2016), we used a question about why the respondent asked this specific person for help. Berkman (1984) describes a framework for different types of support, which we used for generating the drop downs for the question about the type of help they received from the person named. Lastly, Pustejovsky and Spillane (2009) include name interpreters about the frequency of interaction that we used.

Resource Generator

The resource generator was used to determine the nature of the connections between respondents and a pre-specified set of potential supports (Van der Gaag & Snijders, 2005; Perry et al., 2018). We worked closely with each institution to ensure that we were accurately naming and describing each option for support at each institution and using language students would recognize (e.g., "counselor" versus "advisor"). The resource generator was designed as a matrix with each row listing a different

type of campus-based support that a first-generation student could access. Respondents selected which resource(s) they had used; how frequently they had used it; whether they had accessed it in person, virtually, or both; and lastly how they found out about the resource. The resource generator function ensured that we gathered data systematically about the use of college supports even if respondents did not list a college-based person in the name generator questions.

First Generation and College Success Literature

Beyond social network questions, our instrument included questions designed to understand students' socioeconomic characteristics and sense of belonging. Research suggests that first-generation students are more likely than their continuing-generation peers to have family and other caretaker obligations that make it challenging to focus on college (Barry et al., 2009). To capture these situations, we included questions on whether students either had children or had responsibilities for caring for relatives such as younger siblings or grandparents. In addition, research suggests that food, housing, and other basic needs are major challenges for community college students (Crutchfield & Maguire, 2018). We used questions from California's food and housing survey to ask about how often, if ever, students felt worried about paying for food and housing. Finally, our instrument included a three-question scale measuring the respondent's sense of belonging on campus from The Student Experience in the Research University (SERU). SERU is a survey based at the Center for Studies of Higher Education and is administered by the Office of Student Research and Campus Surveys at the University of California (UC), Berkeley, and is used throughout the UC system to measure belongingness (Stebleton et al., 2014).

Survey Testing

To inform the instrument design and administration decisions detailed above, we conducted three rounds of cognitive interviews to elicit feedback to reduce or eliminate response errors (Desimone & Le Floch, 2004). The first round of cognitive interviews piloted four iterations of the name generator questions; based on the responses we received, we narrowed the name generators to two questions. The subsequent two rounds of interviews focused on refining the language used in the two name generators as well as the name interpreter questions. In each round of cognitive interviews, we asked participants probing questions used by Spillane (2009), including, "Was there anyone whose name popped into your head that you disregarded? Why did you disregard them? Was the question easy or hard to answer?" We also probed for participants' interpretation of specific words used in the instructions or the question. To ensure that we did not recruit from the actual study sample for the cognitive interviews, first-generation students who had completed 30 more units (i.e., not first-year students) were recruited to participate. We conducted the interviews via Zoom using a PowerPoint presentation to display the instrument item.

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