Creating Social Capital: Developing Resources in a Cohort Program

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Abstract

This qualitative research paper explores how undergraduate engineering students utilize social capital through the resources of a cohort program. Presented are the emerging themes generated from the data featuring descriptions of which parts of the cohort program were meaningful to undergraduate engineering students. This paper draws on social capital theory as an anti-deficit approach to guide the development of educational systems that support historically excluded students leveraging, developing, and utilizing relationships. The 16 participants in this study were in a four-year-long cohort and took part in focus groups at the end of each semester. This work focuses on the first two focus groups, representing the participants' first year in their engineering programs. Questions about how the cohort program helped the students prompted reflections on their experiences with the different facets of the program. These experiences were used to create themes representing the shared sentiment regarding the specific components of the program. Findings are presented to illustrate the importance of social capital development opportunities to first-year undergraduate students.

Introduction

There has been an emergence of extracurricular programming to support engineering students' pathways to degree attainment. These include minority enrichment programs [1], internship programs [2], undergraduate research experiences [3], and scholarship-based cohort programs [4, 5]. While scholarship-based cohort programs are well-established models for student development [6–10], there is limited published research evidence to help transfer findings from one project to another. As cohort programs continue to increase in popularity, there is a need to document effective practices for engineering student support. Here we focus on a key component of many cohort programs, the development of social capital within engineering. Social capital, or the ways students' relationships support their development as engineers, is an asset-based framing that can help researchers explore equitable development and deploy social resources in a cohort program [11–13]. Understanding how undergraduate engineering students make and use relationships allows for the institutional and programmatic changes that best support access and opportunities for students to leverage, develop, and use their social capital. This study aims to answer the following research question:

1. How do first-year engineering students utilize social capital resources in a cohort program?

Positionality

We present a group positionality statement to articulate the ways our individual experiences came together to shape the choices made in this paper [14]. The research team was composed of two graduate students, an undergraduate student, and three faculty members at a western, land grant, predominantly white institution. The first author who led the analysis and reporting of the research brings the unique experience of being a mixed-ethnicity woman in engineering. The second through fifth authors who led the larger project and provided guidance on the generations and revision of the reported research also share the identity of women in engineering. The last author is a gay white man faculty member in engineering education. Across our experiences the author team applies a constructivist paradigm to understand the subjective realities of the

students. While our experiences in engineering education have differed, all of the members of the research team value and champion equitable access to engineering education.

Theoretical Framework

To support the development of equitable programming in engineering, researchers in engineering education have advocated for and utilized anti-deficit, asset-based frameworks [13–20]. Our paper follows this tradition by utilizing social capital theory. Social capital was proposed by Harper [15], wherein an individual's network is an intrinsic asset. It examines how participants engage with their networks as support systems and sources of information [11, 13]. For this study, we leverage social capital derived from community cultural wealth [21]. Community cultural wealth is an asset-based framework that identifies the assets students bring and develop throughout their education. There are six types of cultural wealth: aspirational capital, linguistic capital, familial capital, resistant capital, navigational capital, and social capital. *Social capital* specifically focuses on the networks of people and community resources students bring and develop over time. Since our work focuses on a cohort that seeks to build relationships within the students' 4-year undergraduate programs, social capital is the most appropriate as it focuses on community building and relationships.

In this work, we explore the utilization of social capital through two sub-constructs: instrumental social capital and expressive social capital. *Instrumental social capital* assists individuals in gaining additional resources directly related to achieving a goal. An example of instrumental actions that develop social capital could be exposure to engineering professionals at a company tour, a professional contact connecting a student to internship opportunities, or a professor explaining course content during office hours [13]. Throughout this work, we use the term alter to describe people within an individual's network that may provide these resources [11, 13].

In addition to instrumental social capital, there is expressive social capital. *Expressive social capital* is defined as relating to "physical health, mental health, and life satisfaction" [11, 13] and may present as an "ongoing and ever-present atmosphere of support" (Holland, p.117) [22, 13]. Engineering students can leverage expressive social capital to support persistence in their academic studies. Puccia et al. (2021) found that expressive social capital via familial support can encourage students to persevere in their studies and prevent matriculation to other majors [23]. To support our exploration of participants' experiences within a cohort regarding their utilization of social capital, we leveraged these definitions to characterize students' networks and how they used social capital. Specifically, this paper focuses on the support provided to students inside and outside of structured institutional support mechanisms (i.e., the cohort program), such as the connections provided by relationships to faculty or professional contacts and the emotional support of peers and advisors.

Methods

This paper uses qualitative data from an ongoing NSF-funded mixed methods study (NSF grant #EHR-1833738) which looks at a cohort of academically talented engineering students with demonstrated financial need. This larger study used semi-structured focus group interviews to learn more about the students' motivation, identity, success, and involvement in engineering while participating in a four-year-long engineering cohort. For this study, we leveraged directed

content analysis to explore how participants accessed and utilized cohort resources through the lens of social capital theory [24].

Participants

This study was conducted at a large, land-grant, R1 university, with initial data collection beginning during students' first semester in the fall of 2019. The participants were 16 undergraduate engineering students who voluntarily applied to join a four-year scholarship-based cohort program beginning just before the start of their fall semester. Selection criteria for the participants included full-time enrollment in an engineering major (Biomedical, Civil, Chemical, Electrical, Environmental, Materials Science, or Mechanical Engineering, Computer Science & Engineering, or Engineering Physics), academic ability based on GPA or SAT/ACT test scores, passion for engineering based on letters of recommendation from high school teachers, financial need based on criteria determined by the Office of Financial Aid and Scholarships, and a commitment to participating in the program's required activities. The admissions processes were conducted by the project team, not the research team, using criteria already established for other university programs that were adapted to this program [5]. As the criteria were not established by the research team they did not center anti-deficit approaches. Including these approaches in future programs could help enhance equity. The required activities included meeting with a faculty and peer mentor, participating in an engineering summer bridge program, and attending professional or personal development seminars. Table 1 below displays the participants' pseudonyms and initial declared engineering major upon enrolling in the cohort program. As the cohort is an outward-facing program, the students' race and ethnicity have been omitted from the table to protect the anonymity of the scholars but had above average representation of Latin and Asian identifying students.

Table 1: Cohort participant pseudonyms, gender, major, and generational status

Pseudonym	**Gender**	**Major**	**Generation Status**
Michael	Man	CE	First
Jim	Man	ME	First
Kevin	Man	CSE	First
Karen	Woman	CE	Continuing
Andy	Man	BME	First
David	Man	ME	First
Toby	Man	BME	First

Roy	Man	ME	Continuing
Stanley	Man	ME	Continuing
Gabe	Man	CHE	Continuing
Pam	Woman	ME	Continuing
Erin	Woman	CSE	Continuing
Derryl	Man	ME	Continuing
Oscar	Man	EE	First
Todd	Man	CSE	Continuing
Kelly	Woman	MSE	Continuing

BME = Biomedical Engineering, CE = Civil Engineering, CHE = Chemical Engineering, CSE = Computer Science & Engineering, EE = Electrical Engineering, ME = Mechanical Engineering, MSE = Material Science & Engineering

Data Collection

We explored how first-year engineering students utilize social capital by conducting semi-structured focus group interviews. Focus groups were integral to data collection because they created opportunities for students to share their experiences related to cohort interactions and build on each other's narratives [25]. Focus groups were held at the end of each semester, lasted approximately one hour, and included four to five participants. The focus groups were led primarily by the second author, with the fourth author or last author as a secondary interviewer and note-taker. Initial data collection began at the end of the Fall 2019 semester; this study includes data from the participants' first (Fall 2019) and second (Spring 2020) semesters of study. The first round of interviews were conducted in person on campus, while the second round were conducted via a video conferencing platform due to the switch to remote learning because of the COVID-19 pandemic. All focus groups were audio and video recorded, professionally transcribed by Rev.com, and reviewed before being uploaded to NVIVO12 (QSR International).

Guiding questions prompted participants to reflect on the utility of program events, their experiences in their respective engineering programs, and how the program influenced their ability to achieve their personal and professional goals. Guiding questions and follow-up questions asked students to contextualize the role and impact of the cohort on larger theoretical

constructs like motivation and identity development. Table 2 presents interview protocol questions relevant to this study. Data regarding prior engineering experiences were collected by asking participants why they chose engineering as their major and through indirect information from answers to other questions. The open-ended nature of the focus group allowed the researchers to ask follow-up questions, gather important details about the participants' experiences, and allowed for additional experiences to emerge.

Data Analysis

Directed qualitative content analysis facilitated examination of participants' experiences with social capital. Qualitative content analysis is a process used to understand the study of a phenomenon [24]. It is suitable for interpretation of textual data about participants' lived experiences through codes and themes [26, 27]. Using directive or deductive content analysis helps researchers accomplish this by incorporating existing theory into different contexts. In this study, social capital theory is leveraged to explore how students utilize the different resources provided by the cohort program.

First, transcripts were coded using a deductive descriptive first pass to categorize the data. This coding method is suggested for longitudinal studies or ones with large quantities of data [28]. All transcripts were coded together as a team by the first, second, and third authors leveraging codes that identified the different cohort resources. The codes used by the researchers are available in Table 3 in the Appendix.

Second, the transcripts underwent a second deductive pass by the first and third authors who coded independently and then met to compare transcripts. This pass considered patterns and ideas across the data set to develop more nuanced emergent codes concerning the type of social capital and how it was supported. Additional codes were pulled from existing social capital theory that delineated social capital in terms of its utility [28]. Directed qualitative content analysis gives the opportunity to break large pieces of transcript data into smaller codes as part of a systematic process that allows patterns to be distinguished.

Finally, a thematic analysis was performed. Themes found by the first and third authors were shared with the second author and discussed until a consensus was reached. We as a research team generated descriptions of which parts of the cohort program were significant to the participants based on their experiences with the different elements of the program. The descriptions are presented to demonstrate different opportunities wherein undergraduate engineering students may improve their social capital via a similar program. The following results section will describe each of the themes in detail with illustrative participant examples.

Results

In answering our research question exploring how undergraduate engineering students utilize social capital, we identified two main themes: participants saw the availability of emotional support structures as reassuring and instrumental social capital assisted in revealing resources. These themes highlight how participants built and valued the expressive and instrumental social capital they established through cohort resources. The following sections discuss each theme in detail with specific considerations to significant alters and specific cohort resources participants leveraged to develop social capital.

Cohort Alters and Expressive Social Capital

The first theme focuses on how participants built expressive social capital through the networks of the cohort. Participants primarily focused on the relationships they built with their faculty mentor, their peer mentor, and their network of cohort peers. In describing these relationships and their benefits, participants delineated between the three alters as they described the value and utility of the social capital they developed.

When discussing the social capital built with faculty members, participants described how certain programmatic features of the cohort helped them establish and develop expressive social capital. The cohort program required participants to meet one-on-one with their assigned faculty mentor at least once each semester. Frequent interactions with cohort faculty mentors helped reduce the apprehension participants felt when talking to professors. Todd described this shared feeling when he talks about his faculty mentor when he says "*I liked how even though I'm a freshman and I don't have any connections at all, I was able to talk to [my faculty mentor] and not be that nervous about it."* For some, this nervousness was associated with the transition from high school teachers to college professors. Kevin outlined the specific value of his faculty mentor relationship when he said, *"I've had a rather hard time talking to my professors, or pretty much anybody above me. And having a mentor... I have [Introduction to Engineering Professor] for my mentor. That's kind of helped that transition, being able to talk to my professors."* When describing faculty-oriented expressive social capital, scholars emphasized the value of the informal environment and the benefit of having someone to go to for help if needed. Stanley emphasized: *"[Associate Dean] has been a big help. She was my faculty mentor, and that's been nice to be able to talk to her and ask her questions."* By providing participants with the easy access point of a faculty mentor, participants were able to establish a relationship with an alter that aided in developing expressive social capital early on in their program.

Similarly, participants discussed how having a formal peer mentor helped them develop their social capital. Participants met with their faculty mentor either one-on-one or as a group of cohort students a few times a semester. Similar to faculty mentorship, participants remarked that having an informal space to ask questions was important. Erin explained this when discussing how her peer mentor helped her begin organizing her class schedule to study abroad: *"My peer mentor has definitely been really helpful. She helped me create my schedule for next semester and was helping me figure out what classes I need to fit in where. So she's helped me start figuring out when I can do study abroad."* The participants first met with their peer mentor during the university-mandated, one-credit engineering bridge program. A common perspective among participants was that the bridge program helped develop relationships with this alter. Participants reported that having the informal opportunity to ask an older peer about topics like which classes to take and how to get involved with study abroad was helpful in their transition from high school to college. Andy articulates this collective feeling:

> *"I think another thing that really helped me was my peer mentor. And she was also my [bridge program] mentor, for instance. She's really helped me out with this transition, and she kind of really helped me foster myself in my class, and I knew I could go to her, and she'd help me out. I think she was really helpful to me this semester."*

Andy also highlights the expressive social capital he built from the consistency of the mentor and cohort grouping from E-FIT to the regular semester. The peer-mentor relationship has been

shown to be another easy access point wherein participants were able to establish a relationship with an alter that aided in developing expressive social capital early on in their program.

The third alter that participants reported helped them develop social capital was their peers in the cohort program. The informal relationships built between participants provided the ability to ask each other questions, which was significant. Some participants shared that they were afraid to utilize campus resources and preferred to get questions and assistance from each other first. Michael echoes this sentiment and adds how the connection to peers in the program helped him with his courses: "*The people [were helpful], because you always have someone there like when you have a small little question or you know the students, so you know they're taking the same classes as you… That's what helped me be successful"* It was commonly reported that the participants decided to create study groups based on their participation in the cohort program, which in turn helped them build proficiency with their course materials. In addition to frequent interactions with other cohort peers through seminars and cohort activities, the summer bridge program was often mentioned as a key place to develop peer-to-peer social capital. Kevin noted how this shared experience helped him in and out of the classroom: *"I think I attribute most of my success to having such a good group, especially from [the summer bridge program], I got to be in a good group to study with, just hang out with and talk with. So that really helped a lot."* Oscar remarked on the collective idea that having built relationships with other cohort participants early on in the semester helped him seek out help within the context of his classes: *"I guess the friends that we made during [the summer bridge program] when you see them again in your class you know that they know what they're talking about because they're also in this academically challenging dynamic the same way you are. So I guess [the cohort program] has made it easier to reach out for help."* Here Oscar specifically named his peers as important alters to his success.

Although participants frequently discussed developing relationships with these alters, they did not leverage the social capital from these relationships. Pam best captured the shared sentiment:

> *"I know for both my peer and faculty mentor, I met with [my peer mentor] twice and [my faculty mentor] once. I didn't really need anything at the time, so it was kind of just, "hey, how are you doing?" Knowing that support system is there definitely makes me feel secure, because if something does tragically go off the rails, I know that I have those people I can turn to. I feel totally comfortable going to [my faculty mentor] and being like, "Oh my gosh, this happened. Help me!"... It's just having the support systems there. I didn't necessarily rely on them this semester, because I felt like life was going pretty okay. Just knowing that they're there, definitely was something that helped me."*

Pam recounts that by meeting the mentoring requirement, she built expressive social capital. Even though she felt she did not need to call on those mentors for help, having built a relationship with them provided comfort. This established but unused social capital was often referred to as a safety net that helped participants feel confident they could handle future struggles.

Finding One's Path and Instrumental Social Capital

The second theme identified in this work explores how participants in the cohort program built instrumental social capital and how it was used to inform them of campus resources, less

common programs offered, as well as how and when to apply for professional opportunities like research or internships. Participants developed instrumental social capital using connections with two different groups of alters: people (faculty mentors or peer mentors) or programs (required cohort activities).

Kelly identified how her peer mentor was able to provide her instrumental social capital by encouraging her to engage in disciplinary clubs: "*[My peer mentor] – very helpful to talk to her. Honestly, one of the biggest factors for figuring out to going to grad school was the Nuclear Society. I spoke to a graduate student there and he was very, very helpful for making some decisions."* Michael illustrated how his peer mentor's experience with the student achievement building on campus influenced him to pursue those resources:

> *[My peer mentor] would always say, "You guys have got to use the [student achievement center] because it's amazing". I would go in chemistry. I struggled in the beginning too and I started going to the [peer-assisted study] sessions at the [student achievement center] and my grades just turned around.*

While this resource is provided to all students, Michael's peer mentor sharing her experience with the resource and recommending it to the cohort participants is an example of instrumental social capital. When asked about how the program had helped Pam during her first semester, she responded by highlighting how the different people behind the program helped her:

> *[My faculty mentor]encouraged me and Kelly to join SWE and go on their trip to New Orleans. So that's a super fun future plan. [Graduate Student], I love talking to you about how you did industry, came back, and got your Masters, because that's always something that was in my head. So just hearing different people's… what they did, what their journey was, and trying to relate that to what I want to do. So the connections are just something that is amazing that not many kids get in their freshman year of college.*

Here Pam expresses the instrumental social capital that comes from participating in the cohort program. She shows that the program provided an opportunity to build a relationship with the fourth author. By creating that connection, the fourth author was able to encourage the student to pursue extracurricular opportunities like joining the professional engineering organization Society of Women Engineers and traveling to their annual conference. She also shared that the second author provided instrumental social capital by sharing her career experiences.

A required aspect of the cohort program was attendance at two required seminars and four choice activities on campus, ranging from career fairs to applying for undergraduate research grants. When asked if these resources were helpful, Andy expressed: "*I think just all the opportunities with multiple people and a bunch of resources that I wouldn't have known if it weren't for [the cohort]"* He continues: *"I like all the resources you've been putting out, especially with applying to certain internships and what to be looking out for because I wouldn't know what to look out for".* In this statement, Andy pointed out that the exposure to instrumental social capital helped uncover opportunities and resources that he would have otherwise not known about. Michael reinforced this idea:

> *"I liked the events because they opened up things that I didn't know about, like the MBA, that business one. I wanted to do that because I also wanted to get my business major. So that was perfect for me. That list of events helps, it opens up more things to get you into more things that you didn't know about. One of the best things I got from it because I feel*

like if it wasn't for [the cohort program] I probably wouldn't have known about that opportunity."

Here Michael discusses an accelerated BS/MBA program offered by the university to engineering students. Preparation for the BS/MBA program requires years of planning to take enough business classes to qualify for acceptance. By attending the seminar discussing the requirements and application process, the cohort program has facilitated a way for Michael to develop his instrumental social capital. Michael has utilized the instrumental social capital generated because of the cohort program to explore different opportunities that are available to him that may diversify his experiences as an undergraduate student. Participants described various programs and people they used to develop instrumental social capital. However, the connecting element was that participants felt they would not have known about these if it was not for the resources of the cohort.

Discussion

This paper leverages previous research on social capital and seeks to understand how students utilize the social capital resources intentionally provided by a cohort program. This study identified two main themes that considered how participants built expressive and instrumental social capital. The themes in this paper are: participants saw the availability of emotional support structures as reassuring and instrumental social capital assisted in revealing resources.

Students saw the availability of emotional support structures as reassuring, even if these resources were not used during their first two semesters

Literature on social capital has shown that different higher education alters (e.g., faculty, peers, professional engineering organizations, etc.) provide a mechanism for students to develop their social capital [29, 30]. Previous research examining how expressive social capital is developed and its relation to persistence has shown that capital generally comes from alters close to the participant, such as parents [31, 13]. Mondisa (2020) shared the difference between developing social capital and the use of social capital by undergraduate students [32]. Our work extends these findings by examining how students participating in a cohort program utilize the expressive social capital provided by the different alters of the cohort program: the faculty mentors, peer mentors, and programmatic requirements.

While the participants noted that access to expressive social capital was helpful, a common theme was that they felt they did not need to utilize it within their first year. However, they noted that the availability of capital to them was reassuring. The participants felt they had a backup plan or people to turn to if they struggled with their coursework. This illustrates how students experiencing a transition from high school to college can be supported by having opportunities for them to develop their social capital. This phenomenon is important to note because it represents a distinct first step for students, building social capital before it can be utilized.

Instrumental social capital assisted in revealing resources

Another emerging theme was the importance of instrumental social capital in revealing resources to cohort participants. The alters for this capital included the mentors (faculty and peers) and the cohort program's required events. The results demonstrated that the relationships and

programmatic requirements were essential to participants developing instrumental social capital and extended to helping reveal harder-to-find resources. These resources are often considered part of the hidden curriculum (i.e., unwritten, unofficial, and often unintended lessons, values, and perspectives found in academic environments that students must navigate to attain their goals [33–36]. This cohort program delivered resources based on available literature to support developing engineering identity and the terminal goal of degree attainment. This study suggests a link between the hidden curriculum and students' social capital; by helping students build relationships, these relationships can be leveraged to reveal ill-defined aspects of undergraduate engineering.

Implications

The research findings highlight opportunities for students to develop social capital in their first year of undergraduate engineering. Specifically, these results indicate that offering cohort programming where students are programmatically required to participate may aid in developing social capital. The stories told through the data offer suggestions on what sources could be targeted when designing curriculum meant to support social capital opportunities.

Programmatically, it is recommended that cohort programs try to have as much continuity during the early weeks of the first term as possible. In this cohort, students were placed in the same Living Learning Community within a dorm, the same two groups for their engineering summer bridge program, and the same Introduction to Engineering course section. These group activities, combined with the required attendance at professional or personal development seminars of their choosing and required faculty and peer mentor meetings, helped support the cohort and their development of social capital.

Limitations and Future Work

This study sought to understand how students utilize provided social capital development opportunities but only captures the relationships built and does not examine the strength of these relationships. Further, this study solely considered social capital and did not consider potential navigational capital developed by the cohort. Future work should seek to consider the other forms and intersections of capital. Likewise, these results found that there are two separate processes in the development of social capital and utilization of social capital. Future research should consider the temporal nature of the development and utilization of social capital.

The second set of focus groups were conducted during the Spring of 2020, which was impacted by the COVID-19 pandemic. Education during this semester was conducted using a hybrid format that included both in-person and online classes. Participants had fewer chances to interact with peers and faculty during this semester which may influence the quantity and quality of opportunities to develop social capital. Future work should consider social capital within cohort programs for students across the different ways educational experiences are delivered including hybrid or online formats.

The participants in this study were academically talented and low-income, but these factors were not explicitly considered. Despite the population being relatively diverse in terms of racial and educational background, additional identities should be further examined to understand the broader transferability of the results. The student sample size was relatively small, future work

should expand the population of the study to develop a more broad perspective. Conversations about who has time for extracurricular opportunities to develop social capital can also be tied to ideas around privilege and access. This study also only considered participants' experiences during their first two semesters. How participants develop and use the developed social capital during the remainder of their engineering programs should be studied to assess transferability beyond entry-level students.

Conclusion

Social capital theory-guided data collection, analysis, and interpretation of findings for this study. Participants' experiences with developing social capital were used to generate descriptions of which parts of the cohort program were significant to them. They frequently discussed developing expressive social capital but rarely described using it. This established that unused social capital was often referred to as a safety net that helped participants feel confident they could handle future struggles. Participants described various programs and people that they used to develop instrumental social capital, but the connecting element was that participants felt they would not have known about these if it was not for the resources of the cohort. The results extend existing social capital work in engineering education and present findings that can serve as a tool to facilitate future conversations about cultural wealth.

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Appendix

Table 2: Relevant focus group questions used for the collection of the data used in this study

Focus Group Question	**Target Information**
Do you think the cohort helped with anything this year?	Social Capital from cohort
Do you feel there's any aspects of the cohort that helps you be successful?	Follow-up to probe for social capital
Do you think the peer or faculty mentors were helpful?	Social capital from specific alters
Do you think there was anything out of the seminars that you thought was useful?	Social capital from programmatic requirements
Do you feel that the summer bridge program was helpful?	When social capital was developed

Was there anything about the cohort program you felt wasn't helpful?	Utilization and activation of social capital

Table 3: The codes used in this study and their definitions

Code	Definition	Example
Expressive Social Capital	"Related to 'physical health, mental health, and life satisfaction" [13]	"I know [my parents] were proud of me"
Instrumental Social Capital	"Helps individuals gain additional or new resources that specifically help them achieve a goal" [13]	"I get to talk to other engineers and I get to talk to what they went through and their experience"
Peer Mentor	The peer mentor assigned by the cohort program	"those casual meetings with my peer mentor and my faculty mentor, really helps me"
Peers	Other students pursuing engineering disciplines	"Being in [cohort program], getting close with a bunch of kids who are kind of smart"
Pre-College Programs	Any relevant magnet programs, summer camps, or afterschool programs that were STEM related	"I also went to a magnet school so my parents knew I wanted to do engineering for most of my life…"
College Professor/Lecturer	Anyone that teaches a college level course	"meeting with Dr. [faculty mentor]"
College Personnel	Anyone that works in higher education, excluding professors	"I'm going to send [my resume] to get it critiqued by [Engineering Career Center Staff]"
PEOs & Engineering Orgs	Professional Engineering Organizations and engineering themed clubs or organizations	"I wanted to join the American Society of Civil Engineers. I don't know how"
Other Clubs & Organizations	Student groups not related to engineering	"I've been keeping up with Capture the Flag"
Internship/Work Experience	Any employment related to engineering that applies skills learned in the classroom	"I started working construction when I was 15 so I know a lot of people and now with my position as the estimator, I also know even more people from other bigger companies."
CREATE	The CREATE program as defined by the grant	"We would also talk about CREATE sometimes in the Engineering 100 labs"

Faculty Mentors	The faculty mentors appointed to students by the cohort program	"I feel knowing all the professors will be helpful later on…"
CREATE Personnel	Other University staff that directly supported CREATE students	"I mean, [Academic Advisor] knows like, everything, so that's helpful"
CREATE Activities	The required CREATE activities including faculty/peer mentoring, seminars, academic advising, "Choose Your Own" activities	"The resources… like the distinguished lecture series for [local company], getting to hear what they want."