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Building Social Capital for First Generation Students through Intentional Multilayered Mentoring

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Introduction

As first year students transition into college, the building of social capital (the networks of relationships among people) through the development of their campus support network is critical to forming their collegiate success strategy, especially for first generation students. First generation status is operationally defined typically as both parents not having completed a fouryear college degree in the United States. For first generation students, the development of a campus support network is particularly important and can be especially difficult to establish. Members of the home support network are often unaware of the unwritten expectations and model behaviors that promote a successful college career. Connecting Mentor Partners for Academic Success in STEM (CoMPASS) is an NSF S-STEM scholarship program developed to create a pathway to guide first generation students from the X Public School District to develop their social capital through intentional mentoring throughout their first year experience at X University and beyond. The multilayered mentoring approach introduced distinctive campus mentors embedded within scheduled programming to align with the student's first year experience.

The CoMPASS program began with virtual sessions in spring 2020 as students' first interaction with the campus support network after CoMPASS scholars were accepted into the institution, but before they matriculated in the following fall. Spring and summer sessions were used for a twofold purpose: 1) building community amongst the cohort, and 2) introducing students to key campus resources very early. These sessions were intentionally spaced roughly one month apart to gradually introduce students to resources over time (as to not overwhelm them) and to provide a space for their home support network to connect into their onboarding process. This process is an important piece of establishing a line of trust with their student's new network of support. Students within the program also had many opportunities prior to their matriculation to engage with the campus community through optional summer courses, participation in the "Connections" program (designed to help students from traditionally underrepresented and historically marginalized population), and acclimate to campus a week prior to the arrival of other first year students on to campus) and new student orientation.

In response to the COVID pandemic, the Fall 2020 Connections program was lengthened to encompass the first semester with weekly check-ins by upper-class student peer mentors to help students not only navigate their first year of college, but their first year of college during a global pandemic. As they began classes in the fall, all first year students participated in the "Insight" program, which assigns a team of support through 1) a faculty or staff advisor for academic coaching, alongside 2) a community advisor and 3) a resident advisor for emotional, social, and residential support through community building programming and resource education (Table 1).

Table 1. Multiple mentoring touchpoints and opportunities for CoMPASS Scholars

Pre-matriculation, CoMPASS	Connections
all first-year students	Orientation Insight faculty advisor Resident Advisor
CoMPASS specific	<ul style="list-style-type: none">• peer or near-peer mentor [1] (e.g., LSAMP, Connections program, or first generation volunteers for the first cohort)• informal peer mentors through the CoMPASS cohort
Upcoming CoMPASS	Campus Champion mentor

CoMPASS Scholars receive the same support structure but they also receive support and mentoring starting the spring before matriculation with cohort meeting check ins. During these meetings they are not only receiving just in time information ahead of their peers but are also forming bonds amongst their cohort. Moreover, they are establishing connections with the support staff from offices around the university that play major roles in serving first year students. These support staff are invited to these pre-matriculation CoMPASS scholar cohort meetings where they are introduced and take part in the established cohort activities. Our scholars can put a face with a name very early on in their pre - matriculation process and reach out more readily if an issue arises. CoMPASS scholar's cohort sessions are the first instance where students begin to expand their social capital even before they set foot on campus. The purpose of this study is to identify the efficacy of program support structures designed to establish student success through progressive, intentional, multilayered mentoring during the transition into college for first generation students.

Methods

This study uses a mixed-methods sequential explanatory design [2] [3]. The analyses presented here are a snapshot of a larger multi-year initiative that is using multiple data sources. The goal is not to reduce inaccuracies through triangulation, but to honor the multiple realities experienced by students while learning how to best support their educational success.

Quantitative methods are used in this study to assess students' self-efficacy; a baseline is presented here with plans to measure changes over time during students' participation as CoMPASS Scholars. We administered a baseline survey to incoming CoMPASS Scholars using the Longitudinal Assessment of Engineering Self-Efficacy (LAESE). The LAESE is a validated instrument developed by the Assessing Women in Engineering project with NSF support (HRD 0120642, HRD 0607081). This instrument has been validated to measure the self-efficacy of undergraduate students studying engineering, their feelings of inclusion, and outcomes expectations [4] - [7]. In addition, a satisfaction tracker was used to solicit student feedback after CoMPASS activities.

Qualitative methods are used in this study to document student satisfaction with activities, student recommendations for changing supports, and student strategies for building and benefitting from navigational capital and other social supports like mentoring. Staff working with

CoMPASS recorded observations of the scholars, which were thematically analyzed and shared during peer debriefing discussions among staff and with the evaluator.

Results and Discussion

Multilayered Mentoring

Participation within the Connections pre-orientation program, was high with 8 of 10 total scholars participating. In addition, informal and formal mentoring sessions occurred ranging in time from 15 minutes to 1 hour. The progress of CoMPASS scholars and their student experiences were captured from the Cohort workshops and from debriefs with Connections program assistants. As a group, students expressed being very nervous about the start of the Fall term, adjusting to the rapid pace of the 7-week class schedule, and their newfound independence in managing their time and priorities both personal and academic. Students were made aware of academic resources like tutoring, or office hours with one program assistant in a Study Buddy Corner for students to engage in their academic work together. Students overall took at least 2-3 weeks to begin to engage in the academic resources offered despite being coached during cohort meetings, offered advice from their faculty advisor, and recommended by their peer mentor in the Connections program. As the term progressed, students were doing well in classes and engaging with the students in their cohort as evidenced by their feedback with their Connections mentors. One student wrote, “... her floor [first generation living learning community] has been so “lit” and awesome to have during this [COVID-19] time.” Students were able to work together as a group to make sure all students knew information about important academic resources through a variety of communication channels and social media which served to be an important way to foster connection amongst the group. Beyond their floor connections, students mid-way through the fall began to branch out into clubs and organizations and were encouraged by others in their cohort to do so. By the end of the Fall, each student was connected to a club or organization that reflected their major, their background, or a passion area. Despite the concerns and restrictions associated with COVID-19, students were very engaged with one another and the campus community, which ties into their feeling of belonging and inclusion on campus and within their cohort.

Belonging and Inclusion

As a group, students’ feelings of inclusion ($M= 4.75$, $SD=1.05$) are more modest than their self-efficacy ($M= 5.72$, $SD=0.93$ and $M=6.06$, $SD=0.99$), and with greater range among scholars (Table 2). This is consistent with what we would expect within a predominately white institution (PWI), even with highly accomplished URM scholars whose self-efficacy is moderately high. With a low number of student Scholars ($n=10$), it is important to investigate individual student responses. For instance, with feelings of inclusion, two students disagree or strongly disagree with three or all four factors considered in this score. One of these students has moderately high self-efficacy across the other subscales and the other has more modest, though not low, self-efficacy on other measures. These students may be at particular risk of feeling alienated. Another two students reported modest feelings of inclusion in the items regarding similarity to peers (i.e., “I can relate to the people around me in my classes” and “I have a lot in common with the other students in my classes”). Two other students reported modest feelings of inclusion in the items regarding extracurricular activities (i.e., “I can succeed in an engineering

curriculum while not having to give up participation in my outside interests” and “I can relate to the people around me in my extracurricular activities”).

Self-Efficacy and Progress

Almost half of the group (4 students) reported that it was easy for them to get the grade they wanted in either all their classes or with a few exceptions during high school. One student reported that they had to work some, but not that hard to get the grades they wanted, and half (5 students) reported that they had to work hard to get the grades they wanted in high school. All the scholars except one believes they will have to work harder in college to get the grades they want than they did in high school; one student reported they would have to work as hard as they did in high school. This reflects a self-aware, mature, accurate assessment of the rigor involved in college coursework. Course curricula are condensed into several short terms, which demand a more intense pace than most students have experienced. In addition, the project-based curriculum requires more student ownership over their own learning than what most high schools demand. As a group, students report moderately strong engineering career success expectations, math expectations, and self-efficacy (Table 2). Almost half of the group (four students) reported that they are fairly confident that they will complete an engineering degree; the rest of the students reported that they are very confident they will do so.

Table 2. Self-efficacy of CoMPASS Scholars (n=10)

Survey Item	Min	Max	M	SD
Engineering Career Success Expectations	5.29	6.71	6.11	0.47
Engineering Self-Efficacy I	4.60	7.00	5.72	0.93
Engineering Self-Efficacy II	4.50	7.00	6.06	0.99
Feeling of Inclusion	2.50	6.25	4.75	1.05
Coping Self-Efficacy	5.00	6.83	5.98	0.68
Math Outcome Expectations	4.67	7.00	6.07	0.78

Note: 7 point Likert scale from 1 = Strongly Disagree, 7 = Strongly Agree

The fact that CoMPASS Scholars understand the additional effort their college education will require on their part may function in either helpful or harmful ways. Understanding the challenge of academic expectations may protect students from the shock of a more intense workload. With this expectation in place, students may be motivated to rise to the challenge. However, students may position the challenge in ways that create a self-fulfilling prophecy that the curriculum is too difficult for them to be expected to excel.

It is important to understand the ways students are drawing on their assets and building community as they navigate their college experiences. This cohort of CoMPASS Scholars has some protective factors, but also some risk factors. The coping self-efficacy of the group is, on average, moderately high (Table 2). Every CoMPASS Scholar at least “somewhat agreed” with all coping self-efficacy survey items, and many “agreed” or “strongly agreed” they have various

coping skills. This suggests that the CoMPASS Scholars generally feel they will be able to handle academic difficulties when they arise.

However, many students reported low confidence in their ability to cope with doing poorly (or not as good as they had hoped) on a test in one of their engineering classes. Three of the scholars “somewhat disagreed” and another “neither agreed nor disagreed” that they could cope with this experience. About half of the group is also dubious that they can succeed in their engineering studies without giving up participation in outside interests, including extracurricular activities, sports, or family. College students who are engaged in multiple activities [8] [9] and have strong support from family and friends are more likely to persist to degree. This finding suggests that the CoMPASS Scholars are at risk of losing these protective factors to focus on academics. The community they build among themselves as a cohort therefore may hold value as students reduce their engagement in various activities to focus on their academic studies.

Conclusion

Overall, CoMPASS scholars are utilizing their mentor networks and experiencing high levels of inclusion and belonging, as well as self-efficacy around their academic work. Scholars are engaging well with one another and their cohort bond is a critical piece to their success thus far. Students are drawing from their assets and using their resources for academic support, even if their use of these supports is later than what would be ideal. Coping skills exist for our scholars but they believe they lack some capacity to recover or cope following bouts of failure or reaching their perceived definition of success. Additionally, the CoMPASS scholar cohort meetings focused on providing support, scholar introduction to key campus resources and professional staff which equipped students with resources but also identified where those resources are located on campus, and who specifically they could connect expanding their social capital and institutional knowledge. In doing this amongst the cohort, scholars reinforced among themselves, informally mentoring one another in the next right course of action as students asked questions during cohort meetings. The multilayered mentoring structure offered information around necessary institutional structures of support and the variety of near peer and informal mentoring provided guidance and support when troubleshooting issues as they arose, specifically when institutional resources were not readily available. This redundancy of support allowed for scholars to be successful in their first semester. The next step with this cohort is to identify a campus champion – someone on campus who has the student's personal success and well-being as their focus and is an important member of the mentor team model. Additionally, as students move into their second year, they will also be trained to be mentors for the next cohort class of first generations students. With the addition of their self-selected campus champion in the second semester, the expansion of this multilayered network will continue to grow the access students have to varied experiences, skillsets, and institutional knowledge to further increase student success outcomes.

References:

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Quote to include: Being a part of the CoMPASS program has connected me to people and resources who are not only willing to help me but want to do so. Whenever we have meetings the other scholars and I are given information on not only how to succeed in college but how to prepare for success in the future.

Being a "first-gen" college student is interesting because oftentimes we'll hear that maybe we'll be more confused or behind other students in some regards. Often, because we don't know what to expect from our college experience we have no idea what should be confusing and where we would be behind despite people highlighting what is more difficult for first-gen students. The CoMPASS program has definitely eliminated so much confusion, whenever things get confusing we have a contact sheet with people in several departments who can clear things up. There are also the CoMPASS scholar meetings we have where so many topics (academics, career readiness, campus-specific information) are discussed. CoMPASS meetings are a time when we learn, when it's ok to ask questions and it's ok to be confused- they're a safe place catered towards the needs of CoMPASS scholars.

Something that has been especially important to me is the diversity within the program. The WPI staff helping us are all so different and unique, and the more we learn about them the more it becomes obvious that we can all succeed. After attending the first meeting over the summer some of the other scholars and I discussed the meeting and how much the racial diversity stood out to us. The people that would be helping us navigate college look like us, look like our families, and may even have experienced things we've experienced. It's also been very helpful for me to see women who are successful in STEM

fields- women who radiate intelligence and make me want to do better. Without even realizing it the women in the CoMPASS program have helped me and even other female students on campus who aren't in the program in many different ways.

Quote to include: The support and outlet for advice and experience from the program and the advisors has been a giant help. Every question and advice was useful and applicable to my every day life at WPI

Quote to include: The people in the CoMPASS program are the best part of it for me. They provide so much in terms of support, advice, and building a strong bond with us freshmen amidst the chaos of this school year.