The Paul Peck Program: A Multi-Year Leadership Development Program

Ms. Alistar Erickson-Ludwig, Drexel University (Eng. & Eng. Tech.)

Ms. Alistar Erickson-Ludwig serves as the STEM Program Coordinator in the College of Engineering at Drexel University. She focuses on outreach and education programs for current undergraduates, k-12 students, and the community. She concentrates on the Greater Philadelphia Seaperch Underwater Robotics Competition, Summer Diversity Program, Introduce a Girl to Engineering Day, and Engineering Projects in Community Service (EPICS) at Drexel, among others. In collaboration with other College of Engineering faculty and staff she co-teaches a sequence of classes for the Paul Peck Scholars Program. Alistar received her B.A. from Drew University and Master's from Duke University.

Ms. Rosie Kelly, Drexel University

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Abstract

The Paul Peck Scholars Program is a peer mentorship program in the first year and develops into a leadership program in subsequent years. Students in the first year of the program are paired with an upperclassman peer mentor, and have the option to continue the program through their second, third, and fourth years, during which time they participate in the leadership development aspect of the program. Through six to eight specialized courses integrated into the engineering curriculum, including a culminating service learning capstone course, students learn that the essence of mentorship, leadership and innovation lies in the ability to communicate effectively and to apply critical thinking and reasoned problem-solving skills to any situation to produce tangible and measurable results.

Introduction

The engineering curriculum at many schools focuses heavily on technical skills development. Curriculums are limited to a specific number of hours of technical coursework leaving little room to add new courses, especially those that integrate soft skills.[1] The workforce demands technical skills, and the changing work environment and competitive global market also drives demand for teamwork, ethics, problem solving, and communication within the engineering curriculum.[1] Previous research[2] detailed competence in college graduates and the demands of the workplace, but also noted that a skills gap is present between the technical training and experience of students and the responsibilities of the job. Although other researchers[3] reported employer satisfaction with employee skills, it is likely that there is still room to improve upon the skills students acquire in their higher education programs and these inconsistent findings demonstrate that a skills gap may exist between students and the needs of their future employers. Programs like Paul Peck are shown to be effective in aiding in the development of soft skills, supporting civic engagement, and promoting leadership through a multipronged approach that includes peer mentorship and multidisciplinary coursework.

This interdisciplinary program provides a mix of mentorship and skills development to Drexel University College of Engineering students. Run with different iterations since its inception in 2009, it has expanded to a tiered peer education structure that focuses on peer mentorship, leadership, communication and civic engagement. It aims to equip students with a competitive edge in the workplace and develop the next generation of technological leaders. Peer mentorship, soft skills and leadership are often lacking in the workforce and are important elements that should accompany technical programs.

Importance of Peer Mentorship Programs

Peer education and mentorship programs are valuable tools in engaging students on campus and helping them to persist through to graduation.[4] Targeted student populations address and resolve concerns more frequently with mentor support than without it; students in mentored relationships also tend to persist at a higher rate than those who do not.[5]

As professional and faculty advisor caseloads continue to expand at many institutions, building meaningful relationships with individual students will become more difficult. This is why a well-prepared group of peer educators can serve as an extension of an advising and/or student programming office: trained, informed peer leaders can have unique interactions with target populations that staff and faculty cannot, and this is due to shared experiences between students.[6] It is important, as well, to create a pool of trained peer educators because informal peer advising already exists.[4]

By offering a multi-year, tiered peer educator/student leadership program, institutions can positively affect persistence and engagement through mentorship, and can provide leadership development and networking opportunities to participating students beyond their first year. As the program continues and mentored students become new student leaders, the program becomes self-sustaining and the network of informed peer educators grows. These peer educator/student leadership programs can compensate for limited faculty and staff resources, while still providing support for students.

Need for Soft Skills and Leadership

Soft skills are often character traits that define how one interacts with others. These skills typically include communication, creativity and adaptability, leadership, management, and collaboration or teamwork, among others. Communication and teamwork are important for graduates but it is difficult to adequately address these skills in existing engineering curriculum.[7] Interpersonal skills, socio-communicative abilities and leadership abilities are noted as important foundation principles for an individual's employability in their working life.[8] It is also noted that these soft employability skills are nearly inseparable from personal characteristics[8] so improving upon these skills should not be seen as simply something that is used to improve job prospects, but instead something associated with enhancing an individual's personal talent and self worth.

Leadership is a skill recognized both formally and informally in higher education programs. The leadership abilities of college students in engineering is gaining attention through reports from ABET, the National Academy of Engineering, and the National Research Council.[9] Providing students with the opportunity to gain leadership experience and cultivate their leadership skills is key.

Program Participants

The number of incoming freshmen students in Drexel's College of Engineering varies each year from about 850-1100. The opportunity to join this program either in the freshman year or in the sophomore year is made available to all College of Engineering students. Program information and applications are available on the program's web site, under the incoming undergraduate page and page for current students. Information is also disseminated to all first and second year students through the freshmen and sophomore newsletters. At this time, first-year students can easily opt into the program and upper-class students are chosen through a competitive application process.

Incoming first-year students apply to be paired with a mentor. Students are required to submit a short application that asks why they would like a peer mentor, what they are most looking

forward to when starting college, and what their greatest challenge was while in high school. In recent years, all interested students have been accepted and are randomly assigned a Paul Peck Scholar mentor for a 10-week UNIV 101 first-year experience courses in the fall and 10-week CIVC 101 civic engagement class in the winter term.

Upper-class peer educators (Paul Peck Scholars) are also chosen through an application process. Each student submits an application which asks about how they define mentorship, if they feel that they would make a good mentor, what their experience in leadership has been, ways they could encourage students to take advantage of their college experience, and how to encourage a student to be engaged with his/her educational pursuits. Students are then interviewed and selected for the program.

Program Structure and Classes

The program began in Fall 2009 as a pilot peer mentorship program for engineering students, primarily freshmen. In 2012, the coordinators of the College of Engineering Peer Mentor Program were tasked with merging their existing first-year program with the Paul Peck Scholars, a certificate program for upperclassmen focused on leadership development and communication skills. By leveraging these two programs, the coordinators were able to create a more dynamic experience for upperclassmen by incorporating a mentorship element into the existing leadership development course sequence. Now serving as peer advisors, these sophomore level Paul Peck Scholars were paired with first-year students in a UNIV 101 first year experience course. This special UNIV 101 section was designed so that the sophomore level Paul Peck Scholars could provide insight and a student perspective on the College of Engineering experience.

	Fall	Winter	Spring	Summer
Freshman (Mentee)	*UNIV E101: Mentor relationship*	*CIVC 101: Mentor relationship*		
Sophomore (Peck Scholar Mentor)	ENGR 295 (used to be ENGR 180): Mentorship (1)	ENGR 296 (used to be ENGR 180): Leadership (1)	Specialized co-op	Specialized co-op
Pre-Junior (Peck Scholar)	EGMT 380: Survey of Engineering Management (2)	BUSN 491: Survey of Organizational Behavior (2)	Specialized co-op	Specialized co-op
Junior (Peck Scholar)	ENGR 180 (formal name coming soon): Engineering Education (1)	ENGR 380 (used to be ENGR 180: Peck Scholars Capstone (2)	Specialized co-op	Specialized co-op

Figure 1- Course Sequence

These sophomore mentors (Paul Peck Scholars) were simultaneously enrolled in a foundational leadership course, which equipped them with the emotional intelligence, discipline and self- awareness to successfully serve in a mentorship role. In following terms, the Paul Peck Scholars progressed through courses focused on organizational behavior, communication, management, and research opportunities. The coordinators have also worked with the Steinbright Career Development Center (Steinbright) to create specialized leadership-driven internship experiences for the Scholars. Steinbright prepares students for their co-op search, and provides professional development opportunities for students throughout their college careers. See Figure 1.

Program Outcomes

The program began in 2009 with approximately 22 peer mentors who supported 35 classes of

UNIV101: The Freshman Experience, in the College of Engineering. These students served in a limited role as informal mentors. They were required to attend Drexel sponsored events, be available for questions, and hold office hours each week. In 2011, the mentorship program evolved and paired mentors specifically with small groups of 4-5 freshmen students. In 2012, the mentorship program fused with an existing leadership program. By Fall 2013, over 80 students were involved with the Peck Scholars program. The addition of junior year courses began in the 2013-14 academic year. By Spring 2014, nearly 125 students were associated with the Peck Scholars program, either as first-year mentees, sophomore Scholars/mentors, or third-year Scholars in advanced leadership courses. That number is expected to grow to about 135-150 students by Fall 2015.

The coordinators of the Peck Scholars peer educator program used a variety of assessment methods: focus groups, course evaluations, GPA data, and periodic web-based surveys to understand the types of students who have chosen to participate in the program and their perceived outcomes of this program. The program seems to attract a high number of women and international students; as of AY2014-15 data, 44 percent of Paul Peck Scholar program participants are women, compared to the College average of 18%; and 51% are international students, compared to the College average of 16%.

Survey Results

Anonymous quantitative and qualitative data was collected through surveys and focus groups at the end of the 2012-13 academic year and also the end of the winter term of the 2013-14 academic year for first year (mentee) and second year students (Paul Peck Scholars mentors). The survey data collected recently used questions adapted from National Engineering Students' Learning Outcomes Survey.[10]

On the scaled survey, freshmen students reported the highest improvements in their ability to:

- Communicate effectively with others
- Manage planning and organization of project tasks and processes
- Value how team diversity leads to diverse talents and ways of thinking
- Apply interpersonal skills when working with others
- Take initiative and ownership of problem solving and project work
- Engage in critical, reliable, and valid self-assessment
- Recognize strengths and weaknesses
- Demonstrate self confidence

In free responses, freshmen reported that having a mentor would strengthen one's skills and work ethic through team based projects and would help them acclimate to the university.

Using scaled responses, sophomore mentors reported strongest improvements in their ability to:

- Convey ideas verbally and in formal presentations
- Communicate effectively with others
- Value how team diversity leads to diverse talents and ways of thinking
- Apply interpersonal skills when working with others
- Take initiative and ownership of problem solving and project work
- Engage in critical, reliable and valid self assessment
- Recognize strengths and weaknesses
- Challenge themselves

- Demonstrate strong leadership and project management skills
- Demonstrate strong organizational skills
- Demonstrate a strong work ethic, and set and pursue personal learning goals.

In free responses, students reported that being a mentor helped them cultivate meaningful discussions with their mentees, encouraged self-reflection, taught them how to become a leader, helped them learn more about themselves and helped them become a member of a team.

Students who completed co-ops and classes in the Paul Peck Program reported that the variety of classes had been positive. They noted that the assigned reading material complimented discussions, that co-op experiences provided context for discussions in future classes and aided in the understanding of challenges associated with leadership roles, and that succeeding in the leadership program as well as at the University directly benefit each other.

Although the majority of students who completed surveys and attended focus groups felt that their experience was a positive one, some feedback noted that the program could be strengthened by the integration of industry visits, more relevant articles about the first year experience, and less structured mentor/mentee events. This feedback is valuable and will be used to strengthen the program in the coming years.

Co-op

Co-op is a required component of all Drexel Engineering students, including those in the Paul Peck Scholars program. Students in the program apply for their co-op similar to other students who are not in the program. Once a student and employer are paired, Steinbright contacts the student and employer and encourages the employer to provide leadership and independent work for the student. Steinbright has conducted limited research on outcomes from students in the program. Seven Paul Peck scholars were scheduled, and completed a co-op in the University's spring/summer co-op cycle, April to September 2013. Steinbright contacted all employers in late March 2013 to inquire about providing additional research/problem solving experience for Peck scholar at his/her employment site. Two employers positively responded to discuss extra on-the-job engagement in alignment with the stated aims of the Paul Peck Scholars Program. In April, conversations were conducted with student managers at each company about the program and its workplace outcomes; two companies assured Steinbright that efforts would be taken to allow each student time to seek extra co-op opportunity while on co-op. Steinbright then followed-up with students and managers in July and received very positive feedback from the students and employers. In September, Steinbright reached out to all employers and students to complete evaluations for the spring/summer co-op cycle. Overall, the cohort of Peck Scholars reported very positive experiences and was positively rated by their co-op employers. Additional data will be collected on the co-op experiences of other students in subsequent years.

GPA and Retention

Looking specifically at students who have taken at least one course in the Peck sequence (approximately 120 students), 92.4% are still at the University (7.6% left the University) and 82.2% remain in the College of Engineering. Although at this point in time the majority of these students are not in the final years of education, their retention rate is currently higher than the University level of 84% (as of 2013) and the College rate of 52% (as of 2012). The average

grade point average (GPA) of Peck students at the end of the 2013-2014 academic year was 3.07, compared to College of Engineering students overall who had a GPA of 2.77. At the end of the 2014-15 fall term, the Peck Scholar (sophomore level and above) student GPA was 3.58. This data indicates that this program not only provides students with skills but also improves their grades and their chances of staying and persisting at the university. This is likely due to the mix of peer mentorship and skills development.

Program participants show higher retention rates and GPAs than non-participants. However, it is possible that the students who choose to participate were already high achievers in high school and continue to take extra classes while in college, seek out additional programs, and are more aware of University resources. More research needs to be done to determine if the program is the only factor that results in higher GPAs and similar student gains.

Expansion

The program seeks to expand outside of the College of Engineering simply because mentorship programs can benefit students in multiple colleges. However because the program has remained relatively small, it is easy to adapt and shape the program to meet the needs and desires of the students. The students involved in this program also are proactive in shaping the outcome of their education as they propose extra classes, conferences or volunteer activities for their peer group.

Interest from the College of Arts and Sciences has served as the impetus for program growth. In the 2015-2016 academic year, the program will be expanded and will include a mentorship class for 28 upper-class students from chemistry, physics and biology. Expansion beyond that point does not seem feasible without additional faculty and administrative support.

Conclusion

The Paul Peck Scholars program is the only mentorship program in the College of Engineering. Growing student interest, diversity, and strong GPA and retention rates indicate the success of this program. However, the rigors of the curriculum and pace of the quarter system have been some limitations. Some students also do not seem to understand the value of having a mentor. These factors need to be explored further. In addition, more data needs to be collected as students graduate and enter the workforce as a way to understand the long-term outcomes this program may have.

In conclusion, while emphasis is placed upon transition and development of first-year students, it is important to continue these programs into the second year and beyond. By implementing a tiered peer education structure, institutions can promote students from mentees to engaged leaders in their campus community. This is accomplished through our structure of a four-year program, which provides students with skills in leadership, communication, civic engagement and collaboration across multiple disciplines.

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