

Work In Progress: Creating and building a Peer Advising Program to Increase Engagement with Pre-major Engineering Students

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Introduction

This is a work in progress.

Peer advising programs, when implemented as part of a holistic first-year experience program on a college campus, can assist students in their social and academic transition to the university environment [1].

The National Academic Advising Association identifies peer advisers as students who are selected and trained to offer educational services to their peers. Peer advising programs are purposely designed to assist students in attaining their educational goals through the following six roles [2]:

1. Help new students transition to/through the institution/school/department by offering a friendly peer contact
2. Assist advisees in mastering basic academic processes such as scheduling classes and declaring majors
3. Teach and reinforce student skills for success, such as time management or study skills, either in individual conferences or in workshops and group advising sessions
4. Act as referral sources for their advisees
5. Enrich faculty or staff advising by offering a different but complementary point of view from faculty/staff advisors' perspectives and by providing advising at alternative times (evenings/weekends) and in alternative venues
6. Serve as role models for successful students

Some first-year students adjust and transition smoothly and without difficulty to the college environment, while others report a real struggle with balancing time between academics, friends, co-curricular activities, work, and other commitments. Some students also report struggling with adapting to academic work, including classes, exams, and studying which differed drastically from their high-school experiences [1,2].

Often, students seek out informal peer-advising from friends and upper-class students at their institution [1]. Informal advising happens peer-to-peer in the residence and dining halls, on the bus or even at the gym. On occasion, informal advising can lead students down an incorrect path, causing them additional stress and struggle during their academic career [2].

Official peer advising programs ensure that students are getting assistance from peers who are trained, ensuring that information is accurate and resource referrals are appropriate. No matter the level of struggle, students who seek out peer-advising assistance report that they are provided with an adequate and appropriate level of support to assist them in resolving their issue or

question. Overall, first-year students who meet with a peer adviser report an additional level of support that assists with the overall transition to the university environment [1, 2].

First-year students relate to peer-advisers and consider them to be dependable sources of advice, support and reassurance. [1, 3]. Students report that talking with a peer adviser is more practical for them, as opposed to talking with a faculty or professional adviser, because their peers have first-hand knowledge about the lived experience of the coursework and being a first-year student at a university [1, 3].

Students who seek out peer advising report that they are able to connect more to their peers when they have similar majors or career ambitions. The literature shows that peer-advisers often give guidance on campus involvement opportunities, including ways to get connected with things like research, clubs and organizations and professional organizations. Students who are struggling academically find that outreach to peer-advisers can assist them with finding resources like tutoring and professor office hours. Peer advisers can also be a source of encouragement and motivation to struggling students [1].

Another benefit to peer advising is the immediacy in which students can get assistance with their question or problem. Often, students must wait several days and, in some cases, several weeks, to meet with a faculty or professional adviser. Typically, with a peer advising program, students do not have to wait for a scheduled appointment with a professional adviser. The convenience of being able to stop by, anytime, as often as they like, in different formats (in-person, virtual, via e-mail) to get immediate assistance from a peer is very appealing [1].

Students have reported that the peer-advising experience increased their ability to self-advocate and compete tasks on their own. The peer-advisers did not do the work for them, but instead provided them with the appropriate resources so that they could complete tasks on their own [1].

Peer advising is not meant to take the place of formal faculty or professional advising, but instead should be seen to supplement and enhance the overall advising experience for undergraduate students [3].

Background

For several years members of the team in the Engineering Advising Center at the Pennsylvania State University had a vision to create a peer advising position that would serve the needs of first- and second-year Engineering students in the college. Thanks to a two-year grant from the Leonhard Center for Enhancement of Engineering Education, in 2018 funding was provided to hire a graduate assistant to spearhead the creation of the Engineering Peer Advising Leaders (EPALs) program.

During development, the program designers used several similar existing programs as benchmarks (see appendix A for list of institutions), consulted with other institutions within the National Academic Advising Association (NACADA), and explored academic advising literature (see References) on the role that peer advisors play in the undergraduate experience, guided by the university and college values and mission as well as the NACADA Core

Values. The research and consultation showed that although many different peer mentoring programs existed across the nation, none were quite like what was envisioned for the Engineering advising office. This effort to create “peer advisers” would be unique, in that students would not be “assigned” a group of students to support or assist. Instead, they would be available throughout the day to provide more common advising support and consultation to students seeking assistance.

In Fall 2019, the inaugural EPAL team was launched. There were 9 students who represented several of the 14-degree programs represented in the College of Engineering. Each year the program has grown to a current total of 23 EPALS representing 12 of the 14 majors in the college.

In the Summer of 2020, through intentional investment by the College of Engineering, leadership of the program shifted from the graduate student funded by the initial grant to a newly created professional adviser position. This position spends approximately 60% of their administrative time with a roster of first- and second-year students, and the other 40% of their time is dedicated to organizing and leading the EPAL program.

Mission and Goals of the Program

The program developers spent long hours creating what they believed would be an appropriate mission, goals, and a code of conduct to guide the program.

1. Increase engagement between first- and second-year engineering students and the college.

The College of Engineering enrolls the most students of any college at the University. Key stakeholders saw that there was a need to increase the engagement that first- and second-year students have with the college and the peer advising program was one way to support this goal.

2. Avenue for students to feel more connected to the college.

Sometimes students would report a struggle getting connected with the college, in large part due to the size and number of resources available. The opportunity for peers to share their experiences would provide an additional resource for students to connect to individual departments, clubs and organizations, tutoring resources, research and study abroad opportunities.

3. Offer a peer-to-peer exchange of accurate information.

It was recognized that students talk among one another all the time and share information about their degree, the college, their coursework etc. Sometimes those conversations provided accurate information, but oftentimes they did not. This program would create a chance for reliable peer-to-peer connections and advice via students trained and supervised to provide accurate and reliable information.

4. Provide technical and common advising support.

Creating appropriate boundaries was always important to the program developers. The college has professional advisers to assist students with complicated policies and in-depth advising conversations. The creation of this position was meant to offer advising to students that would answer commonly asked questions. It was also important that students had the opportunity to talk with a peer who fully understands what it means to take a course in Electrical Engineering, or in Thermodynamics. Most professional advisers do not have a background as an Engineer, so having the support of students who understand the course material and can speak to students about their experiences was key when considering the mission and goals of the program.

5. Allow advisees time with professional advisers to focus on more in-depth conversation topics.

A high adviser-advisee ratio in the college made it challenging for academic advisers to focus on in-depth conversations with students during advising appointments. Academic advisers found that during their limited conversation time with students, they were addressing issues that were more common in nature. Advisers were looking for a place to refer students to discuss these common advising topics, such as learning university systems and selecting general education classes so a student's time with the adviser could be focused on more substantive discussions.

Keeping the above goals in mind, the following mission statement was created to guide the program:

The Peer Advising Program will advance the College of Engineering mission by offering technical and advising support to first- and second-year students. The Peer Advisors strive to promote academic excellence and student success by contributing to the intellectual and personal growth of students and by encouraging students to develop self-advocacy skills.

Delivery

The EPAL program in the College of Engineering at The Pennsylvania State University is different than most peer advising/mentoring programs. Traditional programs are designed to provide peer mentoring opportunities for students, which include assigning groups of students to a single peer mentor. The EPAL program is strictly a drop in advising opportunity open to all first-and second-year students in the college.

When the program developers were considering what to include as part of the experience, they discovered that most of the current student leadership opportunities within the college focused on public speaking and recruitment events, but none allowed students the opportunity to have one-on-one interactions with their peers. The EPAL position would create this opportunity for interested students.

EPALs are scheduled three hours a week either in person or during virtual hours to meet with students in a drop in environment. The program developers felt strongly that the EPAL's have a

quiet, private office space available to assist students in feeling more comfortable with their drop-in experience, and so an office space was designated specifically for this purpose.

The role of an EPAL is to answer questions that are more general or common in nature, or to offer technical assistance. The peer advising role is not meant to take the place of a traditional advising appointment, but rather to provide a peer's perspective on many different elements of an engineering degree program at the university.

EPALs are invited to present in First Year Seminar and Cornerstone Engineering Design courses to advertise the program, but the bulk of what they do is focused on traditional, one-on-one advising.

Currently, the position is voluntary and unpaid.

Selection and Training

Each spring semester nominations are sought, via email from key stakeholders across the engineering and university community. The position is also advertised widely among the university community, with special attention focused on areas/spaces where engineering students are/may be found. Examples of targeted locations include residential Living Learning Communities, University Student Center and buildings where engineering academic departments are housed.

The adviser responsible for the EPAL program reaches out directly to nominated students via email. In the email, the student is provided with additional information about the program and is invited to visit the EPAL website to learn more about the program and application process. Nominated students are invited to apply for the role if they have an interest in the position.

A committee is formed, comprised of current EPALs and advising center staff members. The committee members are invited to review the applicants' applications and resumes and determine who will be offered in-person interviews. One half-hour in-person interviews are held with each student hoping to progress in the process.

For the EPAL program to flourish, the developers of the program understood the importance of meticulous selection of the peer advising team. Based on the guide created by Koring and Zahorik [2], the following criteria were identified as the most appropriate elements in the selection of successful EPAL candidates:

- Strong 1-on-1 communication skills
- Committed to helping others
- Attentive to detail
- High academic achievements
- Dependable

The committee then selects students and offers are made via email. Perspective EPALs are given a deadline to accept the invitation to join the program. An end-of-semester meeting is planned in April where the new EPALS can interact with the outgoing team.

Over the summer, the new EPAL team completes an on-line training module. The module is estimated to take 3-6 hours to complete and covers a variety of topics including University resources, active listening and role expectations and boundaries. In late August, a six-hour evening/weekend virtual training is held for the EPAL team. This training again covers a variety of topics including the role of the EPAL, advising tools and technology and team building, interpersonal skills, and active listening.

During the fall semester, the EPAL team participates in a one-credit class, ENGR 291. Learning objectives for the course include:

- Articulate different definitions and related sub-themes that could comprise peer advising, peer mentoring, interpersonal communication, and leadership soft skills.
- Evaluate current level of development in soft skills and develop a plan for future reflection, evaluation, and adjustment to said skills.
- Demonstrate effectiveness as an Engineering Peer Advising Leader and build confidence in providing advising assistance to engineering students.
- Articulate familiarity with different resources and involvement opportunities in the College of Engineering and campus-wide opportunities and execute the effective sharing of timely and relevant information with new first and second year students in the College of Engineering.

Examples of in-class learning topics are given in Table 1 which contains a portion of the ENGR 291 course syllabus.

Table 1. Some examples of in-class learning topics.

Topic	In Class Learning	Assignment
Behind Closed Offices and/or Zoom Meetings	<ul style="list-style-type: none"> • Practice makes perfect. We will practice scenarios an EPAL might be faced with during a drop-in advising session. 	Behind closed offices and/or Zoom meetings reaction paper
Communication & Tutoring Resources	<ul style="list-style-type: none"> • Tutoring Resources • Communication Activity 	
Finding Your Why	<ul style="list-style-type: none"> • "Find Your Why" worksheet & Activity 	Finding Your Why reaction paper
Let's talk about Soft Skills	<ul style="list-style-type: none"> • Areas of strength and struggle activity 	Soft skills Reaction Paper.
Leadership Inventory – Student Leadership Practices Inventory (SLPI)	<ul style="list-style-type: none"> • Guest Speaker: (SLPI Inventory) 	
Clifton Strengths Quest Inventory	<ul style="list-style-type: none"> • Strengths Activity-comparing and contrasting our strengths 	
Leadership & Skills Portfolio Presentations	<ul style="list-style-type: none"> • Leadership & Skills Portfolio Presentations 	Based on your reflection assignments, experiences with inventories, and in-class activities, guest speakers, and any other information or experiences you wish to include. Please describe your top goals for the next 2-4 years and how these relate to your "why" statement, talk about what skills you anticipate will be most relevant to achieving those goals, how you define those skills (related sub-skills you would identify).
Leadership	<ul style="list-style-type: none"> • Guest speaker 	Leadership Reflection Paper.
Saving and Investing Financial Literacy	<ul style="list-style-type: none"> • Guest speaker from Financial Literacy Office 	
Graduate School Opportunities	<ul style="list-style-type: none"> • Guest speaker from career office 	

A student's ability to meet the stated course objectives are evaluated through a series of literature critiques, in-class participation, reflection papers, personality inventories, a semester-long leadership and skills portfolio ending with an in-class presentation and follow up and check-ins with Lead EPALs and the course instructor throughout the semester.

Each class period begins with a conversation about issues that have come up in meetings with students during the previous week. EPAL's share about the conversations they have had with students, and feedback is sought out and provided if necessary. An entire class period is dedicated to practicing potential scenarios that an EPAL could face during an appointment with a student.

The class is largely focused on self-discovery and growth-but elements of peer advising are woven throughout the experience. The hope is that by the end of the semester, the students in the class will have had the chance to really get to build cohesion and a sense of community among the team.

Each month a social and professional development opportunity is organized for the team. These monthly interactions allow for the continued development of the team/community atmosphere and for the individual professional development of each EPAL.

Lead EPALs

During the second year of the program the Lead EPAL role was created. This opportunity was meant to provide a second year EPAL with the opportunity to take on additional leadership within the group. Two Lead EPALs are selected each year. The only criteria are that those who apply will have had one year of experience as an EPAL and the desire to take on this leadership position.

Those interested apply for the position and interview for the role. Students in the lead EPAL role receive a stipend each semester for the additional duties they agree to take on.

Lead EPALS are responsible for organizing and publishing the weekly schedule. They organize monthly social and professional development opportunities for the team, and they co-teach the ENGR 291 course. They are responsible for checking in with their peers and they serve on the selection committee for the next years EPAL team.

Assessment

Assessment of the program is on-going and continuing to be developed. Upon completion of an in-person drop-in appointment, students have the option of completing a short survey about their experience meeting with an EPAL. Some feedback that has been received through this survey in past years includes:

- 99% said they would rate their overall experience as a 4 or 5 (on a 5-pt scale)
- 95% said they would be willing to meet with an EPAL again
- 99% said they were satisfied with the way the EPAL listened to them
- 95% said they were satisfied with the EPAL's knowledge or expertise
- 98% said they were satisfied with the EPAL's knowledge of campus resource

The authors are working with The Leonhard Center for Enhancement of Engineering Education to put in place a full assessment plan for the 2023-2024 academic year. Currently, there is a plan to conduct focus groups with the outgoing EPAL team to learn more about their experience in the role, and the assessment team will be working to revamp the assessment process for students who use the EPAL services next year.

Future Work

The program developers and the current advising center staff continue to look for ways to utilize the EPALs. The staff in the advising office recognize that over the last few years, this process has been a learning experience for the individual student leaders who take on the role. It has also become evident that the professional advisers have learned from the EPAL's as well. Because the advising office serves first-and-second year students in the advising center, often advisers do not have the opportunity to follow a student's progress throughout the four years of their degree program. Advisers rarely hear about student's experiences with internships, upper-level coursework, research, and study abroad opportunities. EPAL's can talk with advising staff about specific courses and the difficulty associated with their academic program, and they share information about the opportunities they have experienced as second- and third-year students. Advisers take that knowledge and share it with first-and-second year students during advising conversations and classroom visits, enhancing the conversations that professional advisers have with their advisees.

The program developers have considered other opportunities to grow the program. The creation of a university recognized Student organization is under consideration. There has also been discussion about inviting EPAL's to co-teach some of the Engineering First Year Seminar courses.

Support and Acknowledgements

Funding for the EPAL program initially came from The Leonhard Center for Enhancement of Engineering Education. This department at the university strives to catalyze and support the enhancements to teaching, learning, and assessment processes required to sustain world-class engineering education at the university. Leonhard Center funding is temporary, and quickly the college saw the added value the EPAL team was able to contribute to the advising center. Funding is now provided for the program on a yearly basis by the College of Engineering.

References

- [1] S.E Kuba, "The role of peer advising in the first-year experience," PhD dissertation, Dept. Education, Univ. of Wisconsin-Madison, Madison, WI, 2010.
- [2] H. Koring and D Zahorik, *Peer Advising and Mentoring: A Guide for Advising Practitioners*. National Academic Advising Association, 2013.
- [3] E. Swisher, "Practical considerations in developing peer advising programs," *The Mentor: An Academic Advising Journal*, March 2013.

Appendix A

Fox Valley Technical College: <https://www.fvtc.edu/support-services/counseling-advising-services>

Lynchburg College: <https://www.lynchburg.edu/academics/academic-advising/>

Missouri University of Science and Technology:
<https://discoverycenter.missouri.edu/involvement/student-ambassadors/>

The Ohio State University Fisher College of Business: <https://fisher.osu.edu/undergraduate/peer-advising>

Penn State Abington Peer Advising Program:
<https://www.abington.psu.edu/academics/academic-support/advising-center/peer-advisers>

Princeton Peer Advisers: <http://odoc.princeton.edu/advising/advising-residential-colleges/peer-advisers>

Stony Brook University: https://www.stonybrook.edu/commcms/advising/_apa/index.php

University of Montana

University of Wisconsin: <https://morgridge.wisc.edu/students-get-connected/meet-with-an-advisor/>