Work in Progress: Developing a Model for Student-led Peer Mentorship Programs

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Motivation

Mentorship programs are a proven method that can help people navigate the perils of various life experiences. One of the most challenging transitions for someone to make is to move from the controlled environment of high school to the more independent atmosphere of college. Many universities implement mentorship programs to help their students make this transition. In the paper "Engineers Need Mentors Too!" the authors describe a successful mentorship program called GUIDE where they pair first-year engineering students with an upperclassman and a graduate student. From the survey data collected by the authors, they concluded that "having a mentor made adjusting to college life an easy transition. [1]" Similarly, Southern Illinois University, Carbondale instituted a program with their residential first and second year engineering students. The students were given a mentor who lived alongside them in the residential halls. This program resulted in a large percentage of mentors indicating that they were able to successfully help mentees with their academics, including coursework and study habits. Additionally, the mentors were able to help mentees successfully establish meaningful and trusting relationships as well as navigate the social aspects of college [2].

Many of these programs have a common goal of increasing retention numbers within the college [2]. Gattis, Hill, and Lachowsky at the University of Arkansas comment in their paper that they saw an increase in retention for groups of students who participated in their mentorship program compared to ones who were not in their program. They paired each incoming student with a junior or senior engineering major. The program had such a positive impact that they are making it mandatory for all first-year students. They also discuss some key factors that they felt contributed to the success of their program. These factors included selecting the right mentors, advertising to potential mentees, training for the mentors, and having scheduled meetings between the mentees and mentors [3]. These are key factors that the lead faculty for the mentorship support model described in this paper made sure to consider.

Helping students be successful works in concert with increasing retention. When students are successful, it is logical to assume they (mostly) will be retained. One such mentorship program, ME$_N$TOR at NC State, focused on peer-mentorship to help "increase student success in engineering though early connections to a positive peer network." Although the results of their initial pilot were mixed, the authors believe that the program has a lot of potential for meaningful impact [4].

After reviewing the literature on various mentorship programs, it is clear that they are viewed as beneficial experiences for engineering students. Mentorship programs can help with retention while also making a student more confident and successful. It is also evident that there are many different ways to implement a mentorship program. Whether the program is instituted in the residential setting [2], mandatory for all first year students [3], geared specifically towards underrepresented groups [5], or some other combination or implementation, they can be mutually beneficial to both the university and the students. Knowing this information, faculty at Louisiana Tech University, have decided to leverage their many student organizations to help build and support peer-mentorship programs for a variety of students across the College of Engineering and Science.

Developing the Model

Faculty at Louisiana Tech University in the College of Engineering and Science realized the importance of a peer-mentorship program for undergraduate students. Research shows mentorship programs can help with retention efforts, give students positive role models, structured support systems, and a feeling of connectedness to the college. One at risk group at Louisiana Tech University is first-year freshman who typically have lower retention rates. Faculty wanted to provide all students, but specifically first-year students, more opportunities and resources that could help them achieve success. A mentorship program was a natural direction to pursue.

In the early stages of development, the faculty wanted to build a structured peer-mentorship program that was sponsored through the college. After collecting feedback from various students, it was determined that many of the student groups already had a peer-mentorship program in place. However, what they did not have was training and support for their mentorship programs. This realization led the faculty to develop a model to empower student groups to enhance an existing or build a new peer-mentorship program for their organizations. This model places most of the responsibility on the students which will help them take ownership of the programs. Establishing the model for college-level support of these organizations is the critical first step in guiding the students to build their peer-mentorship programs and in turn yield the desired benefits to the college like increased retention.

To promote the new peer-mentorship support program, faculty went to a leadership meeting attended by the presidents of all the student organizations in the College of Engineering and Science. Organizations were given the option to elect to participate in the program. Five organizations including American Society of Mechanical Engineers, Eta Kappa Nu (Electrical Engineering Honors Society), Eco-Car, Society of Women Engineers, and Biomedical Engineering Society opted into the program.

Model Structure

The structure of the model for the peer-mentorship support program consists of three main components: (1) a mandatory training session attended by at least one or two representatives from each participating organization, (2) a required status report at the end of every quarter, and (3) a funds proposal for any monetary requests to help support their program. The faculty decided that they did not want to put requirements on what the peer-mentorship program would look like for each organization. The organizations were vastly different and had varying needs. Therefore, setting requirements on what each organization's peer-mentorship program should look like could have negative or counterproductive effects. For instance, the Eco-Car group consists of students at all levels, where they work throughout the year to design and build a car used to compete in an international competition. Their mentorship needs focused largely on training new students to understand the complexities of designing and building the car. The Eta Kappa Nu electrical engineering honor's society, however, consists mainly of juniors and seniors. The needs of their peer-mentorship program focused on helping to grow and sustain their organization. It was obvious that the same peer-mentorship model would not work for each organization. Thus, empowering the students to develop their own program based on their known needs would be more impactful. The faculty did, however, provide guidance and feedback on aspects that the organizations should include and/or consider implementing within their programs.

It should be noted that Louisiana Tech University operates on a quarter calendar. The academic year consists of three quarters. The peer-mentorship support program was first introduced in the fall quarter, and the training session occurred the same quarter. Following the training session, the organizations had time to think through and develop the structure of their individual program. Each organization was required to submit a status report describing their mentorship model at the end of the fall quarter. The organizations initiated the implementation of their programs in the winter quarter (current quarter).

Training Session

The training session was offered on a Saturday morning from 9AM to 12:30PM where breakfast and lunch were both provided. The resources for the training session consisted of a compilation of materials adapted from various peer-mentorship programs conducted by universities across the country. At the training session, the resources were made available to the organizations via a physical workbook. The attending organizations also received the documents from the training session through an online file sharing system. Providing the organizations with virtual copies of the resources allowed them to share the materials with the other members of their organization as well as have a digital copy to refer to when completing fund proposals and status reports.

The training session began with a few words from the College's Associate Dean for Strategic Initiatives. Having someone from the College in such a revered position set the tone to the students that this is a program the College believes in and wants to support. The training session then continued with a workshop organized by the two lead faculty members overseeing the program. After talking through a presentation on peer-mentorship programs; which included topics like what is a peer mentor, why have a peer mentor program, myths about peer mentoring, benefits of being a mentee, benefits of being a mentor, qualities of a peer mentor, and university resources; the faculty leads went into deeper discussions with the students on each topic including interactive activities for the student participants.

A deep discussion was held on the roles of a student peer mentor and the necessary qualities of a mentor. Students brainstormed the qualities they would like to see in a peer mentor and discussed them openly with the group. Emphasis was placed on a mentor needing to be a good listener and the different habits that constitute a good listener. A template was given to the students on creating a mentoring needs assessment. Using the template, each organization developed a list of topics that they thought would be applicable to a mentee. The assessment they created could be given to potential mentees in each organization. The feedback from the assessment could let the mentors know what topics are most important to their mentees which could help steer their mentorship program. The group then looked at sample mentorship agreements that would be a signed contract between the mentees and mentors. A blank template was included in the resources packet to help the organizations develop their own agreement form.

Following the discourse on what makes a good peer-mentorship program, the faculty leads transitioned the discussion towards the requirements for the peer-mentorship programs to receive college funding and support. An example funds request form was presented along with a blank template. Students were instructed to come up with a potential activity for their peer-mentorship program and fill out a funds request form as practice. This task helped the students understand how to fill out the form as well as think through various costs that may be associated with a given activity. A sample status report template was also presented to the students to help curb any concerns associated with having to fill out a status report. It also ensured that the reports

would all be submitted in a similar format and include all pertinent information. Finally, the resource book concluded with prompts and blank pages to help the students develop the peer-mentorship model for their organization.

Implementation Peer-mentorship Programs

Many of the organizations that attended the training session are still formulating the desired structure for their peer-mentorship programs. They have decided to use this year as a planning year and begin full implementation in the upcoming school year. Therefore, we do not have much data to report on their programs.

Two organizations that decided to start implementing programs this school year are Eco-Car and Society of Women Engineers (SWE). Eco-Car's peer-mentorship program is not as developed as SWE's program, but both will be discussed in this work in progress to provide a comparison of the different directions the organizations are taking given the freedom of developing a peer-mentorship program geared towards their needs.

The Eco-Car organization consists of a group of highly motivated students and faculty working together to design competitive, fuel-efficient cars. The team works nearly year round engineering cutting-edge vehicles that not only challenge today's standards of gas consumption but look good while doing it. For their peer-mentorship program, they decided to develop an apprenticeship model where experienced upperclassmen work with inexperienced students to train them on equipment and build competencies related to building the car as well as communication and team working skills.

Eco-Car's mentorship program consists of seven mentors and thirty mentees. Of these thirty mentees, fifteen of them are first-year students. This large number of freshmen students is critical to help build and maintain the Eco-Car organization. Additionally, it provides hands-on experiential learning with an upperclassmen role model that the first-year students can associate with engineering. On average, each mentor has three to seven mentees. The Eco-Car organization has sponsored workdays, where new members get paired with older members to complete projects. The workdays have encouraged mentor to mentee relationships, which involve teaching new members various skills. They have set up an organized system of sub-leads, where a sub-lead of a specific aspect of the car would serve as a mentor to a group of mentees. This gives the mentees a consistent person to go to if they ever need help with Eco-Car projects or projects outside of the organization, such as schoolwork. They plan to set up additional activities, not directly related to the car, but for various side projects that will allow mentees to mix up who they normally work with to give them get a chance to learn from others.

Like Eco-Car, SWE appeals to various students in different disciplines. Their membership consists of a range of levels, freshman through senior. Therefore, leveraging upperclassmen to mentor underclassmen was a natural fit for the organization. In contrast to Eco-Car's apprenticeship peer-mentorship model, SWE has a more classic and structured approach.

SWE is an active organization on Louisiana Tech University's campus, empowering women to achieve their full potential as both leaders and professionals. To promote this empowerment, they re-launched a peer-mentorship program for their members in mid-January 2018 following the training and support provided by the College. In this program, junior and senior level members are allowed to be mentors. Sophomore level students may be a mentor, mentee, or

both. First-year students may only be a mentee. Class level is determined by the engineering series the student is currently enrolled in, as opposed to the course hours completed on one's transcript. They currently have seventeen members enrolled in their program with three out of the seventeen being freshmen.

When re-launching this program, officers of the Society of Women Engineers attended the College-sponsored weekend peer-mentorship training session. In this session, the program leads worked with a SWE representative to create a model program that best matches the SWE organization structure. SWE decided it would be best to begin with the requirement that mentorship groups meet at least once a month when there is not a common event with the organization.

After attending the training program, funding was made available by the College to help support mentorship events. As SWE's first event, they hosted a board game night with refreshments for all members wishing to become mentors or mentees. This allowed for students to get to know each other in a small group setting. After the event, each student filled out an anonymous form (only seen by Executive Officers) ranking preferences for their prospective mentor or mentee.

At the second event for the quarter the pairings of mentors and mentees were announced, followed by a team building outing at a local "Escape Room." An Escape Room is a strategy based game where participants must work together to find clues to "escape" a room within a certain time limit. Some goals of this event are to help mentors and mentees get to know each other better, work together to solve complex problems, and to have a meaningful shared experience between mentors and mentees.

SWE believes that there are many advantages to both hosting and participating in a mentorship program. This can be seen through the relationship each mentor gets with their mentee(s) and vice versa. A common misconception is that a mentorship program is one sided. However, SWE believes that this mentorship program will encourage member involvement, allow networking across disciplines, increase comradery within the organization, and provide opportunities to help develop interpersonal and professional skills. SWE hopes that close relationships and trust are built between groups by giving each an opportunity to ask for help, provide guidance, and/or simply socialize.

One problem SWE encountered with their structure, however, was having more mentors than mentees. They overcame this by assigning each mentee more than one mentor. Because this is their pilot year, they felt it was reasonable to experiment with mentor/mentee pairings now and ask for opinions from the participants at the end of the academic year. So far, they have had many positive responses. Mentees have expressed this was a good decision, as one person does not always have all the answers.

SWE has also used their mentors to help with outreach efforts to the first-year students. They invited first-year students to attend a general body meeting that focused on the first year experience. At this meeting the mentors showcased their freshmen design projects and discussed good practices for getting through the first-year. By leveraging the mentors in this way, SWE was able to publicize their mentorship program and help, not only the first-year students in their peer-mentorship program, but first-year students who were not in their program receive valuable advice from upperclassmen.

In future years, they hope to see greater involvement with this program. They intend to reach out to more freshmen to encourage their participation with the program. They have already had very positive response from the participants themselves and other members wanting to join. Once SWE publicizes this as an established program, they expect to see the numbers double and the positive experiences increase substantially.

Future Work

The critical first step towards collecting data for the peer-mentorship programs developed at Louisiana Tech University is establishing the support structure provided by the college which was outlined in this work in progress. With the College support establish the initial few organizations have developed their peer-mentorship models. The initial year of the peer-mentorship support program appears to be having a positive impact on the participating organizations. Specifically, the SWE and Eco-Car organizations have seen a lot of interest and areas for future growth with their program implementations. A main goal of the lead faculty is to grow this support program in the coming years. Starting with only five organizations was positive experience and made the project manageable. However, the College would like to see more participation. There is strong support from administration because peer-mentorship programs are viewed as mutually beneficial. Through peer-mentorship, students receive a support system, and from the College's view point a potential increase in retention. As the programs grow we will be able to collect quantitate data to assess whether the peer-mentorship programs are yielding the expected retention results.

The status reports submitted by each group could yield a wealth of information for the authors to investigate. Looking at successes and failures of each organization could help identify positive and negative aspects of a peer-mentorship program. This information could be provided in subsequent training sessions to help improve future programs. Observing and analyzing the positive and negative aspects of the different peer-mentorship structures established by the different organizations could help build a model for best practices in peer-mentorship that future organizations can adopt. Additionally, understanding the types of events that the students request funding for could provide interesting data points on the students and their interests, leading to future event opportunities for the College to engage its undergraduate population.

Another aspect that the College will look into is engagement by first-year students. Assessing the number that elect to participate in an organization-led peer-mentorship program and their retention compared to students that elect out of a peer-mentorship program could provide interesting results and influence next steps. If retention is increased by those who elect to participate in an organization-led peer-mentorship program, the College could make participation in such a program a requirement for all first-year students. The College could also decide to build an alternative peer-mentorship option that is not run by a specific organization, but instead through the College itself. This could provide an option for first-year students who may feel isolated and are not associated with an organization.

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