Utilizing a Student Organization to Create a Self-Sustaining Mentorship Program in Engineering

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The goal of STEM Talent Expansion program at Louisiana State University (LSU) is to increase the number of students graduating from the College of Engineering by providing community building activities and programs between incoming students and the college staff, faculty and upper-class students. This goal is achieved by a variety of freshmen and transitional programs. These include: the Encounter Engineering Bridge Camp (E^2), transfer student Shadow Days, Career Days and Peer2Peer talks, freshman introductory engineering classes, supplemental instruction, robotics outreach and engineering activities in K-12 schools, and other community based activities. The LSU STEP initiative has improved the overall incoming student retention rates between 8-15%. This has translated into an increase of overall graduation rates of approximately 8-10% for the last 2 years[1]. One key to the successes of this initiative was incorporating an interdisciplinary-service based leadership program–Peer Mentoring.

The Peer Mentor program started in 2007 with 5 upper-class students. The LSU peer mentors represent all majors within the College of Engineering and are a diverse group, with 30% female and 20% minority students. Peer mentors are more likely to sign up for interdisciplinary projects within the college; they provide service to the community through outreach activities; and they act as liaisons between the college and industry representatives, many of which who are recent graduates of the peer mentor program[3]. With the growth of the freshmen and transition programs and the peer mentor program, a hierarchal leadership structure was implemented in 2010. The effectiveness of this program was further enhanced by the founding of a student organization, Society of Peer Mentors (SPM), to help with interviewing, training, and building community between students. Students involved in this organization are eligible for paid positions in the College's Peer Mentoring program. The student organization has key functional positions such as president, vice president, outreach coordinator and historian. A system for monitoring participation and encouraging responsibilities was developed and implemented in 2013.

In 2013, over 90 students have participated in at least one of the core components of the program. The LSU program interviewed over 40 additional candidates for mentor positions in 2014.

Background

The Society of Peer Mentors (SPM), a college-wide student organization, provides support to the LSU Peer Mentor program. SPM provides mentoring and leadership experiences for students, community building between engineering disciplines, and recognition for outstanding students in the college. Students in this organization collaborate with the LSU College of Engineering to promote leadership within the college, interview and recommend prospective students to the Peer Mentor program, assist with the training of new mentors, and lead activities in the Encounter Engineering freshman bridge camp. SPM was created in 2011 with a group of about 35 students, however, the organization was not actively involved in the interview process of new mentors, training mentors, or running the bridge camp until late 2012.

One of the main goals of the Society of Peer Mentors is to facilitate the transfer of knowledge and to allow for the change in leadership without a negative change in the culture of the program. The leadership in the program changes once every two years, and this transition would remove some of the information that is gained by the students in the peer mentor program.

Knowledge is passed from experienced mentors to the younger mentors through training and experiential learning activities. The implementation of the hierarchical structure of leaders within the organization training new mentors is key to the organization's success. See Figure 1 below for a flow chart of the components and structure of the Peer Mentor program and SPM.
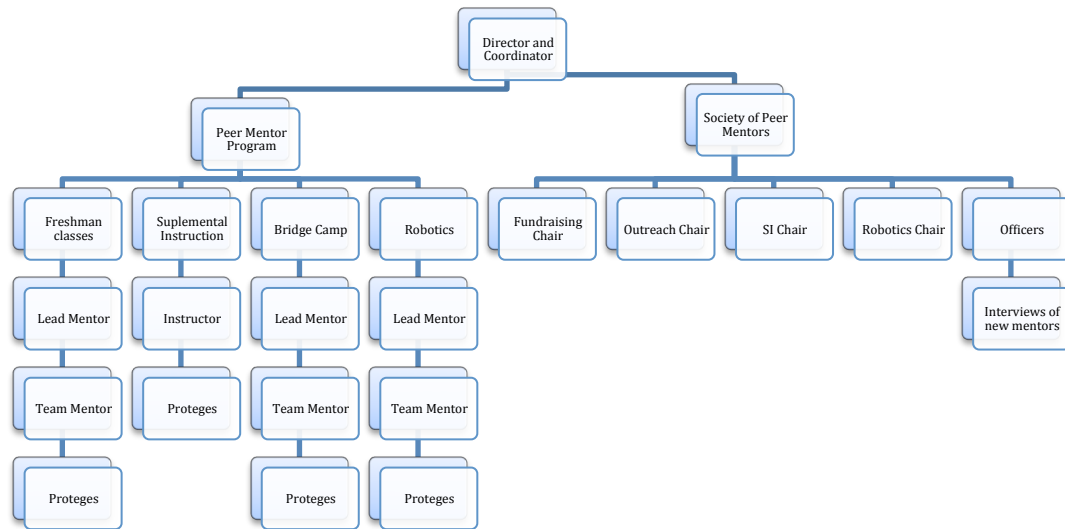

Figure 1. Structure and components of the Peer Mentor program and the SPM student organization.

Traditionally, the problem with student leadership organizations is a lack of participation across the overall membership. Additionally, large organizations generally lack a sense of community[4]. The main purpose of SPM was to create this sense of community, thereby increasing the interest in the organization overall, and increasing the number of students involved in the peer mentor program. The community building events are discussed and planned by the officers of SPM and are offered to the entire student organization as well as prospective mentors in the peer mentor program.

The interviews are organized and conducted entirely by the student officers within the organization. Prospective mentors are interviewed by a minimum of three SPM members in a group interview setting. Student recruiters who are selected to interview prospective mentors represent each of the core components of the program (bridge camp, freshmen courses, SI, and robotics) in a wide variety of majors within the college. The officers determine the interview schedule, obtain interview rooms, and determine the questions to be asked. Interview questions gage past experiences, motivation, and leadership potential. The process begins in mid-January and concludes by the end of February. Student officers within the organization have interviewed over 120 candidates in the last three years, with the number of prospective students increasing each year.

After the interview process, student recruiters meet with the Peer Mentor Program team to recommend new mentors and to debrief regarding the interview process itself. Documentation on each interview is stored in the program office as well as mentor contracts, waivers, and other training documents. Additionally, each of the student officers who have interviewed prospective mentors have stated that the process helped him or her to get an internship or job offer due to the benefit of having experienced the other side of the interview process.

Training

Once a student is selected to be a mentor, the student must attend 8 hours of basic mentor training, participate in an additional 4 hours of program specific training, and earn volunteer points. Officers in the SPM student organization and the STEP team work together to train the students selected for the Peer Mentor program. The training that the peer mentors undergo aims to prepare students for leadership roles in the program as well as for careers in industry. The main topics covered in the basic training include teamwork, conflict resolution, leadership styles, preventing sexual harassment, inter-generational communication, cultural awareness, professionalism, and safety.

Peer mentor training utilizes topics from 7 Habits of Highly effective people, John Wooden's Leadership Pyramid and John Maxwell's leadership books. [5-9] New mentors are given John Maxwell's *Mentoring 101*; students who are returning for a second year are given *Leadership 101*; and students who have been in the program for two years or more are given *Equipping 101*. The leadership portion of the training is supplemented with lectures and activities from military officer trainers, industry partners, LSU faculty/staff, and student organization leaders.

To prepare students for careers in the global environment, the training covers intergenerational communication and cultural awareness[2]. Student leaders within the program, as well as professors from the university, discuss how communication differs by generation and also throughout the world. In 2013, a cultural forum was introduced to allow students to ask questions to international faculty members and to students who participated in global programs about his or her experiences abroad. The safety training conducted is the same training that many of the university employees receive—it focuses on basic first aid, fire safety, bomb threat training, and shooter awareness training.

Experiential learning through program activities such as the bridge camp, freshmen courses, K-12 outreach, and transfer days became a critical part of the program to develop the next generation of engineering leaders. Several layers of increasing responsibilities are built into the mentoring model (see Figure 1). Students are encouraged to start as team leaders in the camp, robotics or courses. A team leader is directly in charge of small groups of incoming freshmen, transfer students, or high school students. Once a student shows competency and builds up basic leadership skills, they are then encouraged to become leaders in the programs and/or SPM officers. Examples include group leaders for camp and class, or chairs of the robotics, outreach, and SI programs. The group leaders in camp and class manage younger mentors (team leaders and their protégés) by handling problems, questions, and concerns that the team leaders cannot address on their own. This model of developing leaders has proven to be effective. For example, out of the eleven majors within the college, peer mentor leaders have become officers of seven of their professional organizations. Other mentors hold officer positions in interdisciplinary organizations such as the Society of Women Engineers, Engineers without Borders, and student government.

Member Tracking and Recognition

In order to encourage participation in the Society of Peer Mentors (and the Peer Mentor Program), SPM officers developed and implemented a point system to track both volunteer hours and paid positions. The core components of the mentoring program–Encounter Engineering bridge camp, robotics outreach, freshman classes, and supplemental instruction–are worth four

points. SPM meetings and leadership trainings are worth two points each; K-12 outreach activities are worth one point each (e.g. K-12 STEM Nights, career presentations, robotic competitions). To remain an active member in SPM, students are required to participate in one core component and to participate in a minimum of four outreach events in order to obtain a total of 20 points (Table 1). To be eligible for an officer position, a minimum of 25 points is required. If a student does not achieve the 20 points necessary, he or she is encouraged to reapply to the program and to repeat the interview process the following February. If this happens two years in a row, a student is not allowed to reapply to the program.

ACTIVITY	POINTS EACH	TOTAL POINTS
2 required leadership trainings	4	8
worked E2 bridge camp	4	4
attended 2 SPM meetings	2	4
participated in 4 outreach events	1	4
TOTAL		20

Table 1. Example of a SPM member's point accumulation.

SPM officers have additional benefits such as serving as student representatives on advisory boards, meeting high-level donors, leading presentations, and other high publicity events. Several of the officers have presented at conferences and two presented a webinar for the entire NSF STEP Grantees community in 2013. This year, SPM leaders have planned and implemented the training of the new robotics mentors. Already, under the new points system, the number of participants actively involved in the SPM volunteer activities has increased from 10 students to 45 students.

To recognize the mentors who maintained active involvement with the organization, several award and recognition systems have been developed. Students who have actively participated in the program for two or more years are eligible for honor cords at graduation. This fall, a new LSU Leadership Legacy Award was introduced and funded. This award was developed to recognize the graduating student(s) who have made significant contributions to the mentoring program. The students who receive the LSU Leadership Legacy Award must be nominated by current mentors in the program and voted on by the faculty/staff advisors. More than one student can be selected for the Legacy Award each semester.

All of the mentors are encouraged to join the LSU Distinguished Communicator program, a university wide program that is listed as a special designation on students' transcripts. The Distinguished Communicator program recognizes students' exceptional abilities in four areas of communication: verbal, written, visual and technological. Currently, every officer in SPM has been accepted into the program and is working to earn the Distinguished Communicator Award. Additionally, the SPM leadership training is one of the only programs certified by the Distinguished Communicator program as one of the required components for the award. Each student who participates in the program receives training to hone his or her presentation skills. This allows for participating students to receive practical industry training as well as academic training.

Assessment

Assessment of the Peer Mentor program and the SPM includes: focus groups, surveys, retention statistics, and graduation rates. At the end of each program, leaders participate in focus

groups and all of the mentors and participants are surveyed. Feedback from the students provides for continuous improvement of the programs and for meeting the needs of the stakeholders and for the College of Engineering as a whole. New activities, such as "Dress for Success" in the Encounter Engineering bridge camp, changes to the design project in the Introduction to Engineering class, and the expansion of additional robotics competitions, have all been implemented based on student feedback. The main change to the student organization was the implementation of the point system. This system was the result of brainstorming by both new and seasoned mentors.

The students in the Peer Mentor program have a graduation rate close to 30% higher than that of the college as a whole–over 90%[1], and the officers in the program are all leaders in the college. Since the inception of SPM, the enrollment and interest in the Peer Mentor program has increased from 125 mentors.

Conclusions

The model of having a student organization supporting the college recruiting and retention goals has increased participation in the Peer Mentoring program, increased retention in the college and prepared students for managerial roles in industry. In the past two years, LSU STEP has succeeded in creating a program that is self-sustaining by molding the leadership abilities of the students within the SPM student organization through training, experiential learning and continuous feedback and coaching. The point system that was developed last year has already had a positive impact on the program by increasing participation in STEP activities, particularly regarding the volunteer and recruiting events hosted by LSU's College of Engineering.

The first six students recognized with SPM honor cords graduated in Fall 2013; approximately 25 students will have earned honor cords for May 2014 graduation. The first Leadership Legacy Award was presented to a graduating civil engineering student in Fall 2013 who hosted a national webinar, was a leader in the program for two years, implemented the first peer mentor interviews, and served as an ambassador for the university.

In 2014, the program has already begun to grow and evolve the leadership training. The Society of Peer Mentors is opening the training sessions to other student organizations in the College of Engineering, such as the Diversity Ambassadors and Board of Regent Scholars. In addition to the existing FaceBook and LinkedIn groups, a Community Moodle was created in order for mentors to have access to their point totals and to view details of upcoming events. SPM leaders will become more and more responsible for the operation of the organization and its activities, thus becoming self-sustaining.

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