AC 2010-913: EVALUATING A PEER LEADERSHIP MODEL IN A LARGE-SCALE PEER MENTORING PROGRAM

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Evaluating a Peer Leadership Model in a Large Scale Peer Mentoring Program

Abstract

Retaining students in engineering and the sciences depends largely on the availability of resources for first-year students, and as a result, mentoring programs have evolved to guide and support new engineering students[1]. In the past, a peer mentoring program at a large research university on the east coast was led by one administrative faculty member. A major structural change to the program was made this year, to incorporate six peer leaders, all veteran mentors, who assumed many of the tasks of the original coordinator. Along with expanding leadership, other changes included shortening the program length from a full semester to ten weeks and utilizing Scholar, the University's web-based course management system, to streamline the administration of the program. At the conclusion of the program, mentors were asked to complete an optional survey to evaluate the success of the program. Questions were focused on the relative success of the changes made to the program structure, including the leadership change, and shortened program length. Additionally, mentors were asked to comment on the use of Scholar and its ability to facilitate prompt feedback for weekly reports. The results of this survey have been analyzed and conclusions have been drawn. Finally, a model, based on the successes and failures of this year's program, has been outlined which can be used to implement an improved peer leadership model for future peer mentoring programs. The results of the survey data led to the formation of several recommended changes to be implemented including a reworking of the online course management system and a predetermined group of mentors assigned to each peer leader for the duration of the program.

Introduction

During the last decade, undergraduate enrollment in engineering has shown strong fluctuations. Freshman enrollment increased until 2003, experienced decreasing trends for 2003-2005, and then has gradually increased from 2006 to 2008[2]. Although the increase over the past few years in freshman enrollment numbers is promising, the retention of those students in engineering after their freshman year continues to suffer. Based on data from Gibbons' "By the Numbers,"[2] enrollment in engineering drops approximately 20% between freshman and sophomore year. This decrease in enrollment is primarily due to the challenging nature of the engineering curriculum coupled with the many adjustments that first-year students have to make during the transition to college life. These challenges make it difficult for many freshman engineering students to find a balance between a rigorous curriculum with all of the other changes.

Peer mentoring has been viewed as one promising solution to the retention challenge. Thus, peer mentoring programs have been adopted, with varying levels of success, at many colleges and universities across the country. The University of Arkansas[1] attributed the success of its pilot peer mentoring program to several key factors: proper mentor selection, mentor training, freshman mentee training, proper mentor/mentee matching, weekly targeted one-on-one meetings with mentees, well timed information and mentee support, proper referrals, group mentee social activities, and mentor handbook development. While the engineering peer mentoring program at a large public university in Eastern United States has many of these

elements, it differs in that it is of much larger scale, and is also peer led by a group of former mentors.

The implementation of a peer leadership model took place for the fall 2009 semester at the University. Since the expansion of the mentoring program in 2005, which provided an opportunity for all freshman engineering students to participate, it has been difficult for a single administrative faculty member to facilitate the program. Shifting leadership from a single facilitator to a peer led model reallocated the work required to run a successful program, and also enabled students to develop more leadership skills. Evergreen State developed an "Outing Program" that allowed first-year students to engage in outdoor activities that foster active learning and utilized a "mentoring ladder" which allowed students to increase their responsibilities as they "develop[ed] their skills and learn[ed] from more experienced peers."[3] The peer led model created an opportunity for mentors to learn from the peer leaders and veteran mentors can in turn lead new mentors. The purpose of this study is to assess the relative success of the transition from a single facilitator model to a peer leader model. The following questions are addressed:

1. How does the peer leader model compare to the single facilitator model with regard to program structure?
2. How does the peer leader model compare to the single facilitator model with regard to feedback?

Program Structure

There are 5 different segments of the peer mentoring program developed at a large public university in Eastern United States. These programs aim to provide the opportunity for all first-year College of Engineering students to be matched with a mentor from a select group of upper-division College of Engineering students. Mentors serve as resources for academic issues, assist in the development of academic and professional skills, and act as a sounding board for new thoughts and ideas. For a description of the different peer mentoring programs established at the University, see Implementing a Peer Led Model in a Large Scale Peer Mentoring Program.[4]

There are two program structures evaluated throughout this paper. The first structure, on the left hand side of Figure 1 below, demonstrates the single facilitator model, while the new peer leader model is shown on the right hand side. The single facilitator model is a traditional line organizational structure while the peer leader structure is a distributed line management organization. The peer leader structure is designed to establish a reporting system while the weekly seminars remain collaborative amongst all the mentors and peer leaders. The establishment of the peer leader structure in Figure 1 similar to the mentoring ladder[3], will be discussed in later sections as it has been adapted from the original peer leader structure that was used during the fall 2009 program. The original peer leader structure did not have each peer leader assigned to a set number of mentors to encourage all peer leaders to meet and know all mentors.

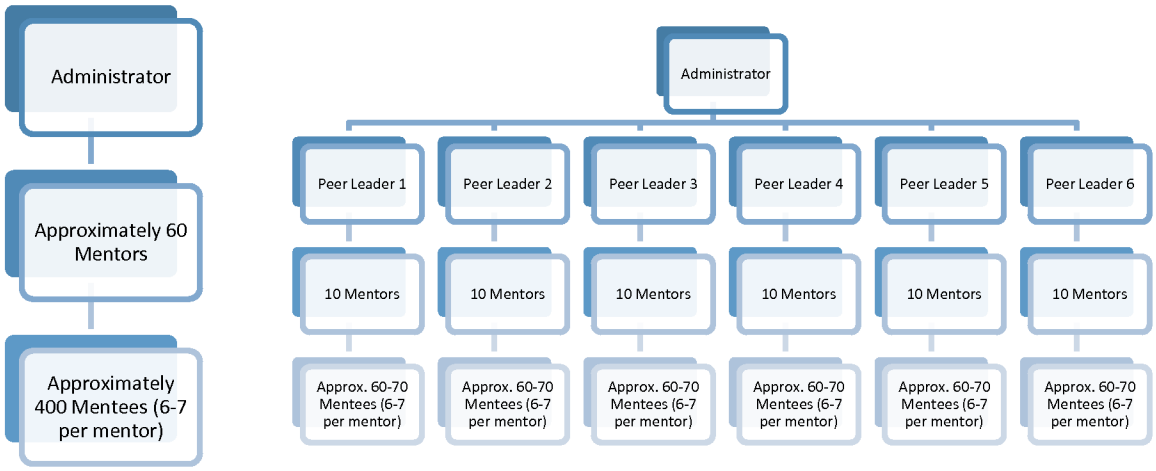

Figure 1: Flow Chart of Program Structure (Left: Single Facilitator Structure, Right: Peer Leader Structure)

Mentors have a variety of responsibilities ranging from weekly meetings with their mentees, social outings, weekly seminar with the peer leaders or single administrator, and weekly or monthly reports summarizing the activities of their group and each mentees progress. Details on the nature of these responsibilities are provided in a previous publication[5].

Methods

Setting and Participants

The setting for this assessment was a first-year engineering mentoring program at a large public university. This program employs approximately 65 mentors, 32 new mentors and 33 veteran mentors, who are upper-division engineering students from a variety of engineering departments. The program is catered to 404 first-year freshman and transfer engineering students. All mentors from the 2009 program were invited to participate in the feedback survey. From the 65 mentors who received the survey there were a total of 31 usable responses (47.7% response rate).

Data Collection

The principal data source for this summative assessment was a web based survey administered at the conclusion of the 2009 mentoring program. Preceding the survey, a focus group was conducted with a subset of the new and returning mentors and these responses helped to guide the survey design. This summative assessment survey was designed to collect quantitative data regarding the program from a larger population than the focus group. The combination of these data sources would be used to make recommendations for program level changes. The survey consisted of a total of 20 closed-ended questions, with a separate section for both the new peer led model and the original single facilitator model. Depending on the length of participation for each mentor in the program, each mentor was directed to fill out either one or both sections of the survey. The majority of the questions used a 6 point Likert scale, with an additional two open-ended questions at the end of the survey that were completed by both new and returning mentors. Survey questions covered the organization, program length, feedback (both quality and timeliness), as well as overall mentor satisfaction with each program model.

Data Analysis

Upon completion of the survey, the raw data was downloaded from the server and scrubbed of any identifying information or incomplete responses. Tables were created to compare the peer led program to the single facilitator model and both the mean and standard deviation were computed for each survey question. Finally comments from the qualitative feedback were reviewed to garner additional feedback from the participants.

Results

Quantitative results obtained from the optional survey have aided in the evaluation of the peer-led peer mentoring program. Questions were geared toward program structure, feedback, and program length. The questions were designed using a 6 point Likert scale with 1 corresponding to strongly disagree and 6 corresponding to strongly agree. Comparisons were made between the single facilitator model and the peer leader model to determine which structure was favored. The tables below compile data drawn from thirty-one survey participants. The mean and standard deviation were calculated and are shown below. Table I summarizes the results obtained from questions about the program structure. Through looking at the numbers obtained from the survey results, it is apparent that overall the peer leader model is preferred with a mean of 4.42 over a mean of 2.38 for the single facilitator model.

Table I: Program Structure

Structure	Single Facilitator		Peer Leader	
	Mean	Standard Deviation	Mean	Standard Deviation
I prefer the ___ model	2.38	1.56	4.42	1.61
I feel comfortable approaching the _____ with issues, concerns, or questions	5.14	1.06	4.48	1.39
I prefer meeting in small groups during seminar without the _____	4.42	1.61	3.2	1.21

Table II summarizes the results obtained from questions about the program length. As evident, the mentors felt that the new, shorter program length of ten weeks was a sufficient amount of time to provide the guidance needed to help the first-year engineering students get adjusted. Although mentors are encouraged to maintain contact and be available as a resource for their mentees following the conclusion of the program, the finite program length is in place due to limited funding as well as to provide a definite timeline in which mentors can establish goals and activities to enhance the first-year experience. It has also been found that after the first half of the semester, mentees are fairly established and have settled into their own activities.

Table II: Program Length

Program Length	Single Facilitator		Peer Leader	
	Mean	Standard Deviation	Mean	Standard Deviation
I feel that the program length was good.	3.35	1.50	4.9	0.75

Table III summarizes the results obtained from questions about the method of feedback given to mentors throughout the program. Mentors preferred receiving feedback online rather than on a hardcopy of their reports based on a mean of 4.52 for online feedback over a mean of 2.55 for hardcopy feedback.

Table III: Feedback

Feedback	Single Facilitator Model		Peer Leader	
	Mean	Standard Deviation	Mean	Standard Deviation
I received feedback in a timely manner	3.35	1.14	3.84	1.46
I found that the feedback I received addressed my questions and concerns	4.8	0.89	4.35	1.08
I read the feedback that I received on my reports	5.14	0.91	4.29	1.24
I prefer the method of receiving feedback under the ____ model	2.55	1.50	4.52	1.21
I prefer the method of receiving follow-up announcements and upcoming events under the ____ model	5.1	0.55	3.32	1.38

Discussion

Though the above results were expected, there were several unexpected results obtained. It was expected mentors would feel more comfortable talking to the peer leaders due to closeness in age and experiences, however, the mentors felt more comfortable talking to the single administrator about issues, concerns, or questions. The single administrator was able to develop a relationship with each mentor throughout the course of the program. However, due to the rotation of peer leaders among mentors, consistency was lost and it was hard to generate relationships and really get to individually know each mentor. Designating a peer leader to a predetermined small group

for the weekly seminar will help to foster a relationship among the individual members and promote networking.

Along similar lines, it was expected that mentors would find feedback from the peer leaders more constructive and better addressing their concerns; instead mentors felt that feedback from the single facilitator better addressed their questions and concerns. For the first few weeks of the program, peer leaders would read a different set of reports each week. This made it difficult to follow the progress of each mentor and their team and any corresponding issues. With a single facilitator reading all of the reports, week to week progress within the teams could be monitored. In addition to designating small groups, it will also be beneficial to have each peer leader read the same mentors' reports each week to provide more constructive and consistent feedback.

Mentors felt that feedback was timelier under the single facilitator model. Feedback was actually timelier under the peer leader model as the peer leaders read and provided feedback within a week of submitting weekly reports. Unfortunately, glitches were encountered with the University's web-based course management system that did not allow mentors to view the feedback provided by peer leaders. Several weeks into the program this issue was resolved. Mentors said they read the feedback more when it was from the single facilitator. This may also be explained due to mentors not being able to view feedback for part of the program. In addition, mentors may have read feedback from reports under the single facilitator model more because of the assumed respect towards the single facilitator since she was an administrator versus not having as much respect towards the peer leaders. The 2010 mentoring program structure will be designed such that the single facilitator will only be in contact with the peer leaders thus allowing the peer leaders to truly lead their designated group of mentors and foster a peer leader/mentor relationship in which the peer leaders can earn that respect. Also regarding feedback, weekly listserv emails containing follow-up announcements and upcoming events were preferred over postings of events on Scholar. With it being the first time using Scholar, it was difficult navigating to find appropriate announcements and events that were posted to the site. Reorganizing the site prior to next fall will facilitate more organization between the peer leaders and the mentors.

Conclusions/Recommendations

The survey results were extremely valuable in determining the success of this year's program as well as changes to the new structure that, if implemented, should create a more beneficial program for all participants of the program. The flow chart of the peer leader structure in Figure 1 was developed using changes mentioned in the discussion. Since it was found that mentors valued the relationship with the single facilitator but also wanted prompt feedback, a hybrid of the fall 2009 peer leader structure and the single facilitator structure was created. If each peer leader has the same group of mentors throughout the program, better relationships can be fostered, positive networking can be achieved, and more constructive feedback can be received.

Program changes/updates:

- **Small Group Consistency** – In order to promote networking and allow for more constructive small group conversation, pre-defined small groups will meet with the same peer leader each week throughout the program.

- **Feedback Consistency** – In order to allow for more consistent and useful feedback, the same peer leader will read and reply to the same written reports each week. This will allow each peer leader to establish a one on one relationship with their respective mentors. This will allow each mentor to develop a personal relationship with the peer leader who reads his or her reports in addition to the peer leader who leads his or her small group.
    - **Report Template** – Structured weekly and monthly report templates will be developed to help new mentors as well as help the peer leaders provide more constructive feedback.
- **Scholar –** To improve the use of Scholar, the online course site will be improved and re-organized before the start of the next mentoring program. The Scholar site will contain specific forums and tabs with clear labels to make information and resources both easy to find and use. This change will not only help mentors locate the information but it will help peer leaders stay organized as well.

The large scale Peer Mentoring Program continues to evolve and improve each year. This survey provided an important opportunity to assess the new program. However, further assessments will be conducted in the following years as more longitudinal data can be gathered as the program progresses. The six peer leaders developed the questions asked in the survey, reviewed the data to supply these recommendations, and drafted this paper, all in an effort to learn the value of assessment and subsequently enhance the upcoming 2010 program.

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