

Recruitment improvement in ASEE student membership

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Abstract:

Problems and issues for advancing engineering education from the student perspectives are important considerations in engineering education. For one month period ads asking the student to join ASEE's student chapter were placed in the student lounge and waiting areas in the engineering building. Only 9 students joined. Then a survey was made and distributed randomly to the students to know what exactly the students wanted and their needs were. The survey asked the students how important to them are the following issues by rating them on a scale 1 (least important) - 5 (most important). The issues ranged from job search to expanding engineering interest in secondary schools. Because of the questionnaire a focused list of deliverables to be delivered by the student chapter with their prioritized rank was made and distributed to the students. Within the next month, 13 more students joined the student chapter. Overall the student membership improved by 144%. Statistical tests were conducted to verify the significance of improvements on each issue. The t-tests and f-tests confirmed statistically the improvements at significant confidence levels.

Introduction

ASEE supports the profession and boosts the students' career. ASEE student chapter provides excellent support for the students in many respects. In order to empower ASEE to serve students better, ASEE's ranks including its student chapters must be strengthened. ASEE works to help students to see all the possibilities an engineering degree offers them¹.

Membership in student professional bodies is an important part of several engineering students' university-wide experience. Through these organizations, students are given various opportunities to obtain leadership qualities, excel in communication skills, work in teams, and build strong camaraderie with their classmates². Student chapters continue to thrive on college campuses indicating the value and importance of these organizations. Faculty advisors can use various methods to help nurture success, including identifying and encouraging strong student leaders and constructing a cooperative cohort of student peers. The faculty and student participants must also reduce the effect of factors such as limited resources and personality conflicts²⁻⁴. As a former president of the ASEE said, the future of engineering is in the hands of engineering students⁵. Engineering student chapters help students learn more about their chosen profession in many ways⁶.

The first step in maximizing the effectiveness of an ASEE student chapter is to identify its goals⁷⁻⁹. While the exact goals may vary between campuses, an effective way of identifying the goals is to use the prioritized feedback from students.

Methodology

In April 2008, ads asking the students to join ASEE's student chapter were placed in the student lounge and waiting areas in the engineering building. After a one-month period of placing the ads, only 9 students joined. Then a survey was made and distributed to the students to know what exactly the students wanted and what their needs were. The survey asked the students how important to them are the following issues by rating them on a scale of 1 (least important) - 5 (most important). A total of 12 issues were listed. The issues ranged from job search to expanding engineering interest in secondary schools as shown in Table 1. Because of

the questionnaire a focused list of deliverables to be delivered by the student chapter with their prioritized rank was made. New ads containing the top four student priorities as the objectives of the chapter were placed in the student lounge and waiting areas. Within the next month, 13 more students joined the student chapter. Overall the student membership improved by 144%. Statistical tests were conducted to verify the significance of improvements on each issue. The t-tests and F-tests^{10, 11} confirmed statistically the improvements at significant confidence levels.

Table 1. Survey of Student Priorities

ASEE student chapter would like to know what exactly you want from the chapter and your needs. Please rank the following activities on a scale of 1(least important) – 5(most important).

S.No.	Activity	Ranking on a scale of 1 – 5	Relative Ranking
1	Trip to National meeting	2.3	7
2	Trip to Sectional meeting	2.4	6
3	Building and enabling diversity in education	2.7	5
4	Job search	4.6	1
5	Expanding engineering interest in secondary schools	1.6	12
6	Creation of innovative websites and programs	2.1	9
7	Building peer network for group study and senior design projects	4.2	2
8	Becoming an ASEE chapter officer	3.8	4
9	Mentoring	2.2	8
10	Obtaining a mentor	3.9	3
11	Obtaining ombudsman services	1.9	10
12	Other reasons (specify)	1.7	11

Table 2. t-test Results for the Increased Interest on ASEE because of Job Search.

	Knowledge	SD
Base Value	50 %	0
Job search	91 %	3.14
Number of students	13	13
Increased interest	41% (from 50 to 91)	
t = 47.1		

With t-score so high, the p-value is 0.01, a score that formed the basis to reject the null hypothesis and conclude that job search made a statistically significant difference on the increased interest in ASEE.

Table 3. t-test Results for the Increased Interest on ASEE because of Peer Network

	Knowledge	SD
Base Value	50 %	0
Peer network	82 %	8.2
Number of students	13	13
Increased interest	32% (from 50 to 82)	
t = 14.1		

With t-score so high, the p-value is 0.01, a score that formed the basis to reject the null hypothesis and conclude that peer network had a statistically significant difference on the increased interest in ASEE.

Table 4. t-test Results for the Increased Interest on ASEE because of Obtaining a Mentor

	Knowledge	SD
Manual Process	50%	0
Obtaining a mentor	71 %	7.3
Number of students	13	13
Increased knowledge t = 10.4	21% (from 62 to 70)	

With t-score so high, the p-value is 0.01, a score that formed the basis to reject the null hypothesis and conclude that obtaining a mentor made a statistically significant difference on the increased interest in ASEE.

Table 5. t-test results for the Increased Interest on ASEE because of the Possibility of Becoming an Officer.

	Knowledge	SD
Base Value	50 %	0
Possibility of becoming an officer	65 %	8.1
Number of students	13	13
Increased interest t = 6.9	15% (from 50 to 65)	

With t-score so high, the p-value is 0.01, a score that formed the basis to reject the null hypothesis and conclude that the possibility of becoming an officer made a statistically significant difference on the increased interest in ASEE.

Table 6. Summary of Statistical Results of ANOVA test

Source of Variation	Sum of Squares	d.f.	Mean Squares	F
Between groups	12932.4	4	3233.1	82.5
Within groups	2352.0	60	39.2	
Total	15284.4	64		

The probability of this result, assuming the null hypothesis, is less than 0.01

S.No.	Activity	t-calculated	Result
1	Trip to National meeting	1.70	Insignificant
2	Trip to Sectional meeting	1.71	Insignificant
3	Building and enabling diversity in education	1.86	Insignificant
4	Job search	47.1	Significant
5	Expanding engineering interest in secondary schools	1.0	Insignificant
6	Creation of innovative websites and programs	1.6	Insignificant
7	Building peer network for group study and senior design projects	14.1	Significant
8	Becoming an ASEE chapter officer	6.9	Significant
9	Mentoring	1.6	Insignificant
10	Obtaining a mentor	10.4	Significant
11	Obtaining ombudsman services	1.48	Insignificant
12	Other reasons (specify)	1.1	Insignificant

Table 7. Summary of statistical significance of the activities.

Conclusions

1. Job search, building peer network for group study and design projects, obtaining a mentor, and becoming an ASEE chapter officer were ranked 1 to 4 respectively, among the activities.
2. The student membership improved by 144% because of the top 4 activities.
3. t-tests and ANOVA tests indicated that the top 4 activities increased interest on ASEE at a statistically significant level of 0.01.

Recommendations

Each year, student interest may be changing. Therefore, a preliminary survey needs to be conducted for adding new interests and removing insignificant interests from the list. Programs should be scheduled and implemented representing the issues. Energies and resources should be spent according to the weighted priorities of the students.

References

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