

## **AC 2008-824: TO SINK OR SWIM: EFFECTIVE STRATEGIES FOR MAINTAINING AND NURTURING AN ASEE STUDENT CHAPTER**

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## **To Sink or Swim: Effective Strategies for Maintaining and Nurturing an ASEE Student Chapter**

As an ASEE Student Chapter, one of the toughest aspects for operating a chapter is providing beneficial opportunities that meet the needs of the members. Due to the varied scope of the needs for each member, finding a harmonious balance between member desires while avoiding duplication of existing programs can be challenging. This leads to a strain in building and maintaining a healthy membership. In a previous paper, we presented an analysis on the ability of our student chapter to evolve with the changing focus on a major university campus. As a chapter with a majority of graduate students, a challenge was placed upon us to develop new programs that still met the needs of our members while passing successful programs to the college. We follow up that report by presenting effective strategies that we found useful in keeping us afloat while working to re-identify ourselves in the college.

We focus on the graduate student turnover in a student chapter. The phenomenon of graduate student turnover is certainly not unique to our institution; however, it is an important factor in the health of a student chapter. Each leadership transition typically involves a shift in vision and can be accompanied by fluctuations in overall membership. In realizing our desire to perform high-impact service to the university and local community, we have recognized the benefit of partnering with various campus organizations. These partnerships enable us to have a broad impact relative to our group size. In order to build and retain a substantial membership base, we have attempted to identify and focus on those program areas that appeal to a large audience in the engineering community. The topics are selected to fill needs and supplement engineering education provided by departments within the college. A discussion on future initiatives focused on increasing and maintaining interest in our student chapter is presented.

### **PART 1: Where We Have Been – History of the ASEE Student Chapter**

The ASEE student chapter was formed to provide an interdisciplinary organization for graduate students of various backgrounds to pursue their common interest in engineering education. Many of our previous members have gone on to become successful faculty at a wide range of institutions, including teaching-focused and Research I level universities. The student chapter has had a long history of active involvement directing, organizing, and running various service projects. In recent years, the student chapter has served in the capacity of a service organization that offered various opportunities to organize a diverse set of teaching-oriented sessions that many students felt were not available from other sources and appealed to a wider student body. These sessions included:

Martin Luther King Multicultural Fair – This annual event provided members of the university community a chance to learn about how they can do their part in fostering a diverse community inside and outside of the main university campus. Various student groups provide food, education, and excitement to bring awareness to all who attend.

Future Faculty Series – Held in four parts, the Future Faculty Series gives graduate students an opportunity to explore the various options awaiting them in an academic career. Graduate students learn about life in research-based and teaching-based universities, how to run a research

group, and how to successfully obtain grants and other funding. A highly regarded program, the Future Faculty event tends to draw large crowds to hear from the various panelists from within and outside of the university.

Gearing Up for Graduate School – An initiative targeted mainly towards undergraduate students, this series provided undergraduates an opportunity for getting any questions they may have regarding the graduate school process answered by graduate students and faculty members. Events included choosing the right graduate school, applying for fellowships and other sources of funding, and meeting other potential graduate students.

Non-Academic Careers for Ph.D. Students – This highly attended program began in 2000 and provided students with information on alternate career paths. As not all Ph.D. students enter academia, the student chapter felt it was important to meet the needs of this portion of the population by providing information via panelists who have walked a similar path. Panelists were selected from varied backgrounds to provide breadth in the discussion.

The population of the student chapter has varied over the life of the group. Currently, we have approximately 15 students involved in the chapter. These students are all of graduate standing. This number is an increase in size from what was seen three years ago. The student chapter had at one point a membership base of five people. There are a variety of reasons why the numbers have changed so much. Primary reasons include graduation and subsequent moving to the next phase of life, no time to take part in the chapter affairs, etc. We have been able to triumph over these challenges by reaching out to that small group of people who have a strong desire to do more in engineering education, which has been a huge success.

As with anything, though, change is inevitable. Due to the strong performance of the student chapter's programs, the college administration recognized the importance of them for professional development and career advancement purposes. As such, the college asked us to transition most of these programs over to their control. From our perspective, this impact was positive and negative. The positive side demonstrated our ability to create change within the college. Having the college administration run these programs would allow more people to attend and expand the student base that a chapter like ours could not reach without additional support. While this action would be beneficial for a small organization like the ASEE student chapter, it posed significant challenges for us. Several questions were left for us to answer:

1. What unique educational offerings could our student chapter provide to the student population?
2. How could we recruit new members without a clear direction we intended to take?
3. Assuming we could recruit new members, how would we be able to retain them?
4. Could we partner with the college or another organization to help get the word out about the student chapter?

These are questions we have worked to answer over the past two years. In Part 2, we examine what student members would most likely want from their ASEE chapter. Understanding their needs is a cornerstone to being able to nurture the longevity of the chapter. Part 3 will examine where our student chapter is heading. We have brainstormed several ideas that we believe will help us maintain our identity and contribute positively to the college and surrounding communities.

## **PART 2: What Students Members Want from an ASEE Chapter**

As an ASEE student chapter develops its member base, it often attracts students from many different areas. Not only are their engineering disciplines diverse, but also their ages, backgrounds, and goals for the future. Some members may have just entered graduate school and are looking to join a group that focuses on more than just academic research. Others may have just started working as a Graduate Student Instructor and are looking to improve their teaching skills. Students who are nearing their graduation may have just started looking for an academic position and are in need of some guidance. Still others may simply have a passion for teaching and want to share their thoughts and ideas with a group of like-minded individuals. An ASEE student chapter can address all these different needs, but it must be aware of the fact that its members occupy many different stages in their academic development and, consequently, the support that it provides must be equally diverse.

This section of the paper will discuss several things that student members want from an ASEE chapter. These needs fall into three broad categories: *teaching advice and support*, *time management and balance*, and *career guidance*. Each of these areas will be discussed in more detail below and specific examples will be given.

### **2.1 Teaching Advice and Support**

Members of the chapter who join early in their academic careers may just be starting out in teaching. They often have little or no knowledge of effective teaching practices since the majority of their experience has been from a student's perspective. In addition, their experiences in the classroom may have presented inadequate models of best practices for teaching engineering. Therefore, it becomes imperative that the ASEE student chapter provide these students with the techniques and methods that they can use in the classroom to be successful educators and, moreover, advance the quality of teaching in our nation's colleges and universities.

Alternatively, some members come to us having already embarked on their teaching careers and are looking to enrich their knowledge by exchanging and debating effective teaching strategies with the other members of the chapter. This type of exchange can help those who are new to the discipline and those that are seeking more knowledge through mentorship opportunities. Experienced members, acting as mentors, can provide young educators with hints and tips to get them started in the right direction and help them avoid common pitfalls. Also, conversations among the mentors can show new members that teaching methods and techniques are an active area of discussion and they continue to evolve as research and technology advance the field.

Members may also be looking for support in other areas, and the chapter can provide a discussion forum for these topics. Some may be having personal problems with a particular student or instructor and are in need of advice. Since many of the more experienced members may have been in similar positions, they can offer assistance and guidance in navigating tough situations.

## **2.2 Time Management and Balance**

Since many of the members of the chapter will be spending the majority of their time doing graduate school activities, they will often find it hard to balance their time properly. Some may have overly demanding advisors that expect a great deal of work from their students while others may be so involved with teaching they have lost the focus on their graduate studies. Therefore, the chapter must be able to provide counseling for those students who are having trouble with time management. This area of support, however, can be very tricky to implement.

In the case of providing teaching advice and support, it is very likely that the more experienced members will be able to provide good advice. However, simply being an experienced Graduate Student Instructor does not imply that one also possesses proper time management skills. It can often be the case that the students with the most experience have only had the opportunity to obtain that experience by not effectively managing their time and have, therefore, been in graduate school for far too long. If the new members are looking for advice on how to effectively manage their teaching and academic lives, it will be necessary to have a forum that includes large amounts of thoughtful discussion and a wide variety of experience in the participants. This will allow for the proper dissemination of advice.

## **2.3 Career Guidance**

For those members who are nearing their graduation and are beginning to contemplate the academic job search, the services that the ASEE student chapter can provide in this area can be invaluable. Apart from the obvious career advice, the chapter can give these members tips on what the academic hiring process will look like, what they can expect to see on their first interview, what things they should know that will give them an advantage, and how they can effectively network once they have started the search. The mere existence of the chapter already provides a basic networking structure to those members who are in need of contacts in the academic world. Since many chapter members intend on pursuing careers in education, ensuring that members become acquainted with each other at an early stage will help to guarantee that they stay connected once they graduate. This networking can be essential if the members want to pursue any collaborative activities or if they need someone to contact at another institution. Knowing people from many different institutions can be very helpful on both a personal and a professional level and it can provide many benefits in the future.

In addition to the member network, a close interface with faculty can provide an even firmer foundation that its members can build upon if they are in need of letters of reference, suggestions on where to apply, and hints on what positions may be opening up in the near future. In addition, faculty liaisons can provide advice on the many things that one can expect to encounter upon

entering a new academic position and help prepare the members for any difficulties that may arise

### **PART 3: Where We Are Going – The Next Phase of the ASEE Student Chapter**

We have provided a look back at our Student Chapter history and discussed the features that students desire from our organization. We now describe how we have met the challenge of delivering meaningful programs to a diverse and ever-changing student population over the course of our existence as an entity on campus. Change is inevitable in our modern society. Colleges and universities, along with their departments and organizations, are not immune to the changing trends in enrollment, funding, technology, and both educational techniques and content. We include a discussion of how the Student Chapter has transformed itself to meet the changing needs of the engineering community and describe some new initiatives that have helped maintain the identity of the organization in the face of this change. Finally, we provide strategies for existing and new student chapters to successfully maintain their relevance based on our own observations.

#### **3.1 Evolution of the Student Chapter with the Changing Campus Landscape**

An advantage of our Student Chapter residing on a research-intensive university campus is the tremendous resources that can be brought to bear to implement our initiatives. During our existence, our freedom to innovate has been supported at all levels of administration. Interestingly, this infrastructure has also required our ASEE Student Chapter to evolve as more educational programs are offered for engineers under the auspices of various arms in the College of Engineering and Graduate School. As an example, programs that provide guidance on teaching strategies for engineering Graduate Student Instructors are offered by the Center for Research on Learning and Teaching (CRLT). The Office of Graduate Education recently offered a panel discussion on finding a post-doctoral position. These programs fit well with the educational mission of an ASEE Student Chapter, yet it is clear that we must establish a niche to provide offerings in alternate areas of need.

A second resource, people power, is critical to the success of a broad range of activities. We have become accustomed to the cyclical nature of graduate student organization membership. This has made us increasingly mindful of our physical resources when committing to various university events and developing novel programs of our own.

The evolution of our student chapter has taken a course that has caused us to maintain focus on programs that we consider vital to the mission of ASEE. These core programs include the aforementioned Martin Luther King Multicultural Fair and Future Faculty Series. Two additional programs are also staples: Summer Seminar Series, and the Outstanding Student Instructor Awards (OSIAs). The Summer Seminar event allows students to receive constructive feedback on the content, structure, and delivery of technical talks. We recognize our excellent Graduate Student Instructors with an end-of-year ceremony for OSIAs, an event befitting the culmination of our educational mission for each academic calendar. These events are components of our service to the undergraduate, graduate, and overall engineering communities. In addition, we recognize the need to focus on these value-added activities to dampen the cyclical effect of

limited physical resources. The return on our investment of resources is substantial as these programs are well attended (often > 50 students) and receive high praise from participants. While certain programs have transitioned to the College of Engineering or CRLT, this has freed up resources to improve our core programs and provide opportunities for innovation.

We can only go as far as the energy and dedication of our members take us. This energy spawns a great deal of ideas for new events. If they are not immediately implemented, the ideas are catalogued in a database for future leaders of the ASEE Student Chapter. This forms the basis of a 'Leadership Manual' to guide our future executive boards and members.

### **3.2 New Initiatives to Maintain the Identity of ASEE on Campus**

The most important part of any organization is its members. We have traditionally recruited graduate students at college wide activities or by offering an informational brochure at our events. As an organization comprised primarily of graduate students, the value-added aspects of membership must be highlighted with respect to the amount of time invested in participation. Analogous to means of improving retention of engineering students,<sup>1</sup> we seek to offer opportunity, guidance, and a sense of community among those interested in the ASEE mission on our campus. In an effort to recruit both new general members and leaders to the organization, we are implementing an idea to advertise the benefits of ASEE Student Chapter membership through alumni testimonials. These testimonials will promote the advantages of playing an active role in the chapter such as professional development, networking, and preparation for an academic career. The initial media format will be a paper-based supplement to our traditional ASEE Student Chapter brochure and could be expanded to electronic media via streaming video on our homepage or podcasting.

We have expanded our academic career preparation program to include a seminar on academic interviewing. "Acing the Academic Interview" was offered as a customized component from Career Services 'Workshops on Wheels'. This collaboration proved extremely successful as it allowed the student chapter to focus on the organizational details while the Career Services experts provided the content. The effort inspired an academic interviewing blog for questions and open discussions long after the session concluded.

All academicians have a responsibility of service to their discipline. An interesting study recently found that faculty and students have differing opinions on community service.<sup>2</sup> The ASEE Student Chapter can play a role in educating undergraduate and graduate students in the importance and benefit of supporting scientific and engineering endeavors in the local community. We have chosen to organize groups of judges for local and regional science fairs as part of this effort. These judges will help to award special "ASEE Recognition" certificates to inspire future generations of engineers (and begin the recruiting process too!).

The ASEE Student Chapter has recognized the need and benefit of collaborating with various organizations and departments on campus. When considering evaluators for our Summer Seminar Series, we included members of Career Services, CRLT, and the Center for Professional Development (CPD) in order to provide an alternative to faculty perspectives. The students obtained feedback on the structure and mechanics of their presentations, which rarely was

provided in research group meetings. The event has become a vital professional development activity for many graduate students. The natural evolution will be to work with CPD and establish a network of evaluators from local industry, particularly for those who will pursue jobs outside of academia. Keating and Deloatch have recently commented on the benefits of such industrial collaboration in ASEE activities.<sup>3</sup>

Many of the value-added activities that our ASEE Student Chapter offers are centered on professional development for those entering the academic community. A novel idea that we propose for the future is to unify some of these activities under a certification program, similar to the Engineering Futures certification offered by The Tau Beta Pi Association, Inc.<sup>4</sup> We propose this program, under the preliminary moniker ‘ASEE Enhance’, as a collection of activities that could be completed to achieve competency in core areas of development for future educators, such as academic research, inspiring creativity and innovation among students,<sup>5</sup> collaboration with industry, mentorship, etc. The components could be designed to address some of the concerns of new faculty.<sup>6</sup> The structure and requirements of the program must be developed but might be an appropriate activity for the new Student Division of ASEE forming this year.

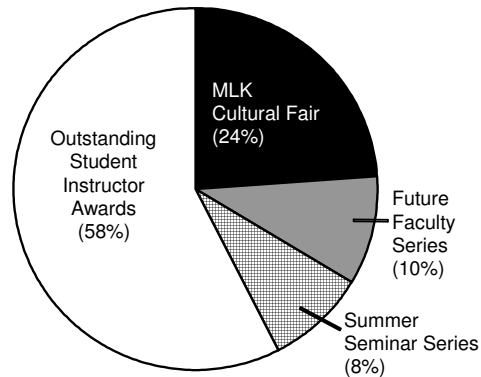
The table and figure below summarize our activities and how we have distributed our resources to help see these programs succeed.

**Table 3.1 Student Chapter Major Activities, Resources, and Students Served**

<b>Event</b>	<b>Role</b>	<b>Collaborators</b>	<b>Students Served</b>
Martin Luther King Multicultural Fair	Cultural Education	CoE EGL	200-300
Future Faculty Series	Career Education	Faculty Volunteers	50-80
Summer Seminar Series	Career Education	CPD CRLT Career Center	12 (speakers) 50 (audience)
Outstanding Student Instructor Awards	Teaching Recognition	CoE	10 (awards) 40 (audience)

Abbreviations: CoE = College of Engineering, EGL = Engineering Global Leadership, CPD = Center for Professional Development, CRLT = Center for Research on Learning and Teaching





**Figure 3.1 Resource Allocations for Major Student Chapter Activities**

### 3.3 Strategies for Ensuring Longevity of a Chapter in the Face of Transition

As an established student chapter, we believe that evolving based on our experience has contributed to our own longevity. On our own firm footing as a campus chapter, we offer the following suggestions for the continued health of both new and mature chapters alike:

1. Seek to provide value added activities as viewed by both the administration and by the general engineering population.
2. Be mindful of the organizational limitations in terms of people power and resources so that these may be allocated to programs that make the most impact.
3. Look for collaborations with other organizations on campus that allow the power of ASEE initiatives to be felt in broader circles compared to going it alone.
4. Maintain the focus of service to the engineering discipline by directing efforts toward educational endeavors in the undergraduate, graduate, and local public communities.
5. Explore new recruiting methods for ASEE members. Develop alumni testimonials if possible. Showcase ASEE initiatives at prospective student visitation and ‘welcome-to-campus’ events.

Undoubtedly, participation in the new ASEE Student Division will provide substantial support for chapter maintenance by ensuring connectivity with our parent organization even in the face of lean years in terms of membership and interest at individual campuses. Aim to be active in this exciting new endeavor!

#### Bibliography

1. Farvardin, N. “Retaining Students – and Their Hopes and Dreams.” *ASEE Prism*, 16 (7), 2007, 64-65.
2. Bauer, E. H.; Moskal, B.; Gosink, J.; Lucena, J.; Muñoz, D. “Faculty and Student Attitudes Toward Community Service: A Comparative Analysis.” *J. Engr. Education*, 96 (2), 2007, 129-140.
3. Keating, D. A.; Deloatch, E. M. “Don’t Overlook Industry.” *ASEE Prism*, 17 (3), 2007, 80.

4. Tau Beta Pi Association, Inc. "Tau Beta Pi Engineering Futures Program." 13 Jan. 2007. <<http://www.tbp.org/pages/About/Programs/EF/EF.cfm>>.
5. Wormley, D. N. "Where Are Today's da Vinci's?" **ASEE Prism**, 16 (6), 2007, 41-42.
6. Turns, J.; Eliot, M.; Neal, R.; Linse, A. "Investigating the Teaching Concerns of Engineering Educators." **J. Engr. Education**, 96 (4), 2007, 295-308.