THE BUILDING OF THE TOP NATIONAL MID-SIZE SWE STUDENT SECTION

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Abstract

The Society of Women Engineers (SWE) Student Section, established in 1976 at Arizona State University (ASU), struggled for most of its history. The strength of the organization fluctuated greatly with the strength of the student leaders that would come and go. During the last several years, however, the Section has developed a strong management system using industrial engineering principles, strong student involvement, and played a proactive role in the recruitment and retention of women in the Fulton School of Engineering. After SWE student officers attended the Student Awards Banquet at the SWE National Conference in the fall of 2002, they vowed to be named the top Mid-size SWE Student Section for 2003.

The Section created a management team of 25 women who led many recruitment and retention events. Over the past two years, there have been modifications to the Leadership Team based on the Section needs and now there are approximately 30 officers (executive board, five committees, and representative positions). The Section realized their goal in October 2003 by winning five national awards including top mid-size section in the nation! The authors will describe how and why the Section grew in members, its activities, and how its management system came to be. They will also discuss how the organization is developing leaders, increasing interest in engineering, and helping to retain women engineering students in the Fulton School of Engineering.

Key Words: Recruitment and Retention of Women Engineering Students, Society of Women Engineers, Student Leadership, Student Outreach by Students, Women in Engineering

I. Introduction

The Society of Women Engineers (SWE) Student Section at Arizona State University (ASU) was established in the fall of 1976. In 1976, 1,317 (3.4%) of the 38, 790 Bachelor's degrees in engineering in the nation went to women.[1] That year, 568 (3.5%) women earned Master's degrees in engineering out of the 16, 045 total.[1] And, 55 brave women (1.9%) were among the 2,838 students who earned Ph.D.'s in engineering that year.[1] In the Ira A. Fulton School of Engineering, then known as the College of Engineering and Applied Sciences, 129 total women (8.5%) were enrolled in the School of Engineering as undergraduates and 32 (4.9%) were enrolled as graduate students that same fall.[2]

Established in 1957, the School of Engineering hired its first woman faculty member in the fall of 1974. The local professional Phoenix Section took note of this, contacted the faculty woman, and told her that she was to help establish a student SWE Section at ASU. She gladly took on that task with the help of the professional SWE section. Meetings were held for interested women students, a structure was formed, and by the fall of 1976, ASU had applied for and received a charter for their student SWE section. The woman faculty member became the student SWE Section Advisor and a SWE professional member became the student SWE Counselor.

Although the ASU SWE Section had been formed with relative ease, the Section struggled for most of its history. The strength of the organization fluctuated greatly with the strength of the student leaders that would come and go. At times the organization's members would mainly be from one or two department or mainly be upperclassmen. Then six major events occurred: 1) the SWE Advisor became an Associate Dean, 2) space was secured for women in engineering, 3) space was secured for the MEP, 4) the minority engineering groups formed a coalition, 5) SWE joined the minority coalition, and 6) SWE strengthened their management system and involvement of members.

SWE Advisor becomes an Associate Dean and space is secured for women in engineering

In 1993, the SWE Advisor became the first woman in the Dean's Office of ASU engineering as an Associate Dean of Student Affairs. Part of her job was to establish a "Women In applied Sciences and Engineering" (WISE) Program and to strengthen the Minority Engineering Program (MEP) for engineering and computer science students. As part of that development, space was secured for a WISE Center and additional space for the WISE administration, and also for an MEP Center and MEP staff offices. The permanent presence of a WISE staff and WISE Center was very helpful to SWE in two important ways. First, students who worked in the WISE Office oftentimes were also SWE leaders which enabled a more stable succession planning of SWE activities from year to year. This also assisted with improved coordination in the WISE Office. Secondly, a small corner of the WISE Center provided desk and computer space for the SWE officers to function more effectively.

The MEP Program is given space and their organization is strengthened

In the summer of 1993, the MEP was also given a suite of four offices for the administration of the program and a student room for the program across the hall. Soon the student room was named the CEMS ("seams") center for the Coalition of Engineering Minority Societies. Thus the AISES (American Indian Science and Engineering Society), NSBE (National Society of Black Engineers), and SHPE (Society of Hispanic Professional Engineers) organizations began to work together to provide support and stability for the minority engineering students.[3] Symbolically, the three organizations were three distinct pieces of cloth, which were sewn together. Because of the seams holding the fabric together, the three organizations became one entity.

SWE and CEMS begin to work together

In the fall of 1994, SWE did not hold their Evening with Industry fall event since they doubted their abilities to attract enough industry sponsors. Each year CEMS held a Spring Award Banquet attended by the students and industry partners. For the fall of 1995, SWE invited CEMS to join them in their Evening with Industry. The event was a success and CEMS in turn invited SWE to join them in their Annual Spring Banquet. Thus began a tradition of the four organizations: AISES, NSBE, SHPE, and SWE working together and in turn strengthening each of the organizations. By 1998 the consolidated efforts of the CEMS and the Society of Women Engineers (CEMS+SWE=CEMSWE) were formalized. CEMSWE was created. With combined efforts, each society forms an alliance that motivates, prepares and educates all students that fall under this coalition.

CEMSWE and CEDAR partner

CEMSWE is a unique model that streamlines the efforts of four student societies while maintaining individual cultural identities and programs. This partnership has yielded several successful on-going programs targeted at serving all populations represented in the coalition. These programs include:

- CEMSWE Spring, Fall and Mid-year Leadership Retreats
- Diversity Evening with Industry (DEWI)
- CEMSWE Annual Awards Banquet
- Workshops and Study Sessions
- Recruitment Activities sponsored by Intel[4]
- Additional combined funding ventures with Hewlett Packard, Pinnacle West, and Boeing
- Collaborations with the Center for Engineering Diversity and Retention (CEDAR) and the Center for Outreach and Recruitment (COR)

These efforts[5] are managed by a CEMSWE Program Coordinator and the CEDAR Director. CEDAR staff holds weekly meetings with the CEMSWE Presidents to ensure success for all four organizations. CEMSWE has joint funding, recruitment, retention, community service, and leadership activities. In addition, each of the four organizations has two representatives on the CEMSWE special Coalition Student Events Committee (CSEC), which plans and organizes the Diversity Evening with Industry in the fall and the End of the Year banquet in spring, as well as three joint leadership retreats.

In the spring of 2002, WISE and MEP began discussions about better collaborations, overlapping services and funding limitations. The CEDAR was created in July 2002 in an effort to better serve the underrepresented students in the Fulton School of Engineering at ASU. Previously, MEP and the WISE Program both offered retention and recruitment programs. As the programs evolved, it became more apparent that the two programs were overlapping in the services that they provided. In an effort to become more effective, the programs were consolidated in summer 2002. Now, the division designates recruitment and retention efforts between two separate offices. CEDAR was created to work with the retention of underrepresented students once they are accepted to the university. The Center for Outreach and Recruitment was created to work with programs for K-12 populations. Please note that in this paper, "engineering students" refers

to all Fulton School of Engineering students, including engineering, computer science, and construction management majors. CEMSWE now operates out of CEDAR.

During the last several years, along with a stronger CEMSWE organization, the SWE Student Section itself developed a strong management system using industrial engineering principles, strong student involvement, and an active role in the recruitment and retention of women in the Fulton School of Engineering. These industrial engineering principles are ones that usually present in all successful efforts of broad Statistical Process Control programs. These elements are: 1) Management leadership, 2) A team approach, 3) Education of employees (participants) at all levels, 4) Emphasis on continuous improvement, and 5) A mechanism of recognizing success.[6] These elements are the foundation of ASU SWE's success.

II. The ASU Section Becomes Serious

Every organization experiences different stages in the course of time. Some of these stages are noteworthy and others do not contain any particularly extraordinary events. However, an evolution occurs when an entity is gradually enhanced over time, yielding an improved condition. The ASU SWE Student section has experienced, and continues to experience a transformation that is responsible for an increased state of complexity and achievement, resulting in national recognition as the 2003 Outstanding Student Section for a medium-sized section.

Major restructure of SWE officers: management leadership and a team approach in the Leadership Team

The major restructure of the SWE officers began in the 2001-2002 academic year. The executive board decided that there was too much work for only a handful of officers, and that a larger group of officers would be more effective in handling the workload of all the SWE projects. In order research how other SWE student sections organized their volunteer resources, the current President and Vice President performed a benchmarking analysis using the internet in the spring of 2002. The most useful website encountered was the University of Michigan (http://www.rmgin.umich.edu/soc/swe/) which had an incredible list of officers. The President and VP used the Michigan officer model to create their own list, realizing that this new structure would accomplish two goals; that breaking down officer roles into more reasonable divisions would allow for the work to be completed with greater ease, and that by offering more officer positions, a greater number of leaders would be developed in SWE, therefore extending a sense of ownership to a greater number of people. By the end of spring 2002, officers were elected to fill all but one or two of the 20+ officer positions of the newly remodeled "Leadership Team," or as it is affectionately called, the "L-Team."

Officer profiles and reports established

In order to provide a Leadership Team Orientation, the newly elected executive board for the 2002-2003 academic year held an Orientation meeting before the end of the spring 2002 semester. Each officer was asked to compete an officer profile, describing past SWE experience, and academic class load, part-time jobs, and other commitments to student organizations for the upcoming school year so that the executive board could assess availability for SWE projects.

Another new initiative was officer reports, which were submitted at the beginning, middle, and end of each semester to report goals, progress and obstacles in achieving success as an officer. The goals version of this report was completed before the summer of 2002.

Summer planning meetings and development of a prospectus: continuous improvement and education of all participants

One activity that greatly assisted in the overall organization of SWE in the 2002-2003 year was the summer planning meetings, which had never previously occurred on a regular, routine basis although the new officers had been elected in the spring for several years to ensure continuity. Over the summer of 2002, the executive board met on a bi-monthly basis to prepare for the 2002-2003 year. A plan was devised to incorporate the changes of the new SWE officer structure, and a Prospectus (30 pages) was written to communicate the goals, activities, budgets, and schedules for the upcoming year. This prospectus was presented to the ASU SWE Counselor, ASU SWE Academic Advisor, and the Associate Director of Student Outreach and Retention Programs. A new consideration for this next academic year was the synthesis of the previously distinct entities of WISE and MEP, the supporting offices of SWE and SHPE/NSBE/AISES respectively, that would now be sharing office, personnel, and support services in addition to a combined student center. It was unclear how the transition would effect the individual organizations, but in the end resulted in overall improvement in the utilization of resources, among other benefits. [4, 5]

The 2002-2003 SWE President was also the Engineering Living and Learning Community Student coordinator and responsible for four floors of engineering freshmen students living in a residence hall. This was very advantageous as a role model to freshman women to get them involved in SWE. Other SWE leaders who were Resident Assistants in the residence hall helped in this way as well. These leaders would go door to door to advertise engineering programs including those of SWE.

SWE National Conference attendance sparks interest to become outstanding section: mechanism for recognizing success

An influential component to what the SWE officers learned in 2002-2003 came as a result of attending the SWE National Conference for the first time since, at the earliest, 1998. Previously offered in the summer, the national conference was not well attended by students due to summer school, work/internships, and overall lack of proximity to campus and involvement with SWE during the summer months. Since the conference was moved into the month of October, it allowed more students to attend. The ASU SWE student section budgeted to sponsor 7 members to attend the 2002 National Conference. The experience was overwhelming in the sense that an entire "SWE world" existed that they had not previously known about. The sheer number of attendees, approximately 3,000, surprised the ASU students. Many business meetings were conducted at the national conference in additional to numerous seminars and awards ceremony. The catalyst that led to the SWE officers' application for the Outstanding Student Section (OSS) was the student awards ceremony. The ASU SWE students were not familiar with the awards that were offered, and how to go about applying for them. However, during the presentation of the awards, the 7 attendees from ASU realized that ASU SWE would be a strong competitor in many of the awards available for students. They realized that the descriptions of the award

recipients paled in comparison to what ASU SWE was doing in their section. It was at that

moment, the women of ASU SWE vowed to document everything that happened in order to enter a strong application for the OSS award, among others.

The excitement of attending a national SWE Conference now gave new meaning to the point system that had been in place for several years. SWE students would earn points for attending SWE meetings and acting in leadership roles. Those students with the most points were given the opportunity to travel to a regional or national SWE conference. Usually most of the expenses were covered by the student section. The SWE student section could apply for travel funding from the Dean's Office and then repay the money at the rate of $8/hour by doing volunteer work to help in recruiting events held by the School of Engineering, including helping with the ASU booth at the SWE National Career Fair to recruit graduate students.

III. The Torch is Passed

The emphasis of the 2003-2004 year was planning and improvement. Summer planning meetings were increased to once per week. From the feedback on the Outstanding Student Section Award 2002-2003, goals were developed that met each of the four strategic SWE objectives: Education and Outreach, Inclusive Organization, Knowledge Source, Professional Leadership, Value and Benefit. These goals were then approached with a four-step process as follows:

1. PLAN
    a. Budget
    b. Project/Goals
    c. Calendar
2. DEVELOPMENT
    a. Responsibility
    b. Communication
3. ACTION
    a. Project Development
4. EVALUATION
    a. Follow-through/Assessments
    b. Recognition – awards banquet/member

Since ASU SWE was preparing to host the SWE regional conference, the Executive Board met with SWE-Phoenix (SWE-PHX) during the summer and developed a fundraising for the SWE section yearly activities as well as our upcoming conference. With a strong planning foundation and a trained leadership team, the activities of 2002-2003 were expanded. In the end ASU SWE hosted a successful leadership conference, added several new events, and was inducted into the ASU Student Organization's Hall of Fame with two awards.

New SWE events

Several new events were added in 2003-2004. The Cardinals' Games Fundraiser was a new endeavor to increase our collaborations with other engineering organizations and to fundraise for our organization. The cardinal's game fundraiser included serving water at Cardinal's football games. Volunteers earned $8 per hour for SWE, and worked at Cardinal's home games. SWE coordinated this fundraiser with the Biomedical Engineering Society and Tau Beta Pi.

The first Intel Women's luncheon was an event proposed and coordinated in 2003 by a SWE member who was also an officer of the Material's Science Engineering Society. The event included a panel of women engineers from Intel, and female engineering students from SWE and the Material's Science Engineering Society. Female engineering students had the opportunity to ask questions about the field of engineering and obtain advice from working female engineers. The program was a benefit to the society as an opportunity to network with industry and an opportunity to collaborate with another engineering organization.

The Industry Tour program was initially created in preparation for industry tours to be offered during the regional conference ASU hosted in March of 2004. However, in addition to several industry tours held during the conference, the Industry Relations officer also coordinated Industry tours during the fall semester. These tours included a tour of an APS power plant, where students had the opportunity to meet engineers and gain knowledge on the electrical and power engineering field. These tours also gave SWE industry exposure.

To further enhance diversity, SWE hosted a, **"**Love an Engineer" Happy Hour during National Engineers week. It began as a fundraiser where SWE sold "Love an Engineer" shirts. Then, SWE hosted a **"**Love an Engineer Happy Hour**"** and invited all of the professional engineering organizations. SWE successfully sold over 100 shirts and at least seven engineering organizations were represented at the happy hour. The event fostered collaborations between engineering organizations and helped build awareness of SWE in the university community. This was the first time any engineering organization hosted a multi-organizational social.

The Girl Scout Badge was a new addition to SWE's third annual Girl Scout Engineering Awareness Day (Gear Day). SWE officers researched, got approval and purchased an engineering and science badge for girl scouts to earn at our Annual GEAR Day.

The leadership team is expanded

ASU-SWE expanded the leadership team to include an Alumni Officer and Graduate Student Committee. This expansion included rewriting of the officer training handbook, development of officer roles and election reform. The goal of the Alumni officer is to maintain a database of ASU SWE engineering alumni, and create annual programs for SWE members to network with engineering alumni. The Alumni database was also created to serve as a potential fundraising and networking tool. The Graduate Student Committee was created to enhance the participation of graduate students in SWE.

The 2003-2004 SWE student section president was again the Engineering Living and Learning community Student Coordinator and served as a role model to entering freshmen engineering women and encouraged them to join SWE.

IV. A Stellar Event: the *Sonora Region Conference*

The Fulton SWE student section had the opportunity to host the Sonora Region Conference this past spring. The conference drew over 200 students and professionals from Arizona, New Mexico, Utah, Southern California, and Southern Nevada. In addition, over $20K in corporate sponsorship was raised. Amazingly enough these achievements were the result of the efforts of ten students and one SWE-PHX section member.

The decision to bid for the conference originally arose in the fall of 2001. Unfortunately, the bid for the 2003 was given to California Polytechnic Institute San Luis Obispo. Over the course of the next year as the Fulton student section continued to grow, the executive board decided to make a bid for the 2004 conference. This bid was accepted in October 2002 at the National Conference in Detroit. Though the event was almost a year and a half away, preliminary planning began later that month.

Over the course of the next few semesters the conference planning committee, which consisted of a chair, nine directors, and a deputy director from the SWE-PHX section, held regular weekly planning meetings of about 1.5 hours each. During these meetings the committee members organized the professional development, networking, and social activities for the conference. In addition, the council members put in hours on their own in preparation for the Conference. The committee members also worked to prepare sponsorship materials for industry representatives, and registration materials for attendees. The efforts of the committee served a dual purpose in that the Fulton SWE student section was able to host the most successful Sonora Region conference in its history, and the members were able to gain valuable skills during the planning. In particular, they learned many lessons in leadership and mentorship as they were guided by their deputy director.

Through the many triumphs and pitfalls of planning the conference, several lessons were learned. Many of the challenges that were encountered resulted from the committee not staying on schedule. The committee could have avoided this by holding members more accountable for their responsibilities. Another challenge was dealing with last minute registration and or changes in registration. The committee was not prepared to handle the last minute surge of registration that occurred, and as a result the seating was limited at many of the workshops. The committee could have avoided these last minute headaches by planning for all possible outcomes and creating backup plans for such occurrences.

V. Continuing the Charge

When the SWE section was again turned over after another fabulous year, the new president wanted to continue the successes of the section for a third year. After winning Outstanding Student Section, hosting the most successful regional conference in the history of the region, and implementing several new events, the section was challenged to work harder than ever and

maintain ASU SWE's momentum. Much of the success from the previous year was due to the close friendship and cohesiveness of the executive board and committee directors. The new president hoped to continue the closeness of these officer positions to ensure strong communication and dedication. The new president also hoped to expand the SWE section to a new level. The emphasis on continuous improvement continued. New officer positions, especially the graduate student committee, opened up a new pool of members that ASU SWE had not worked to recruit in the past. Innovative events were also a large goal, such as expanding the already established outreach events to reach a greater number of budding engineers. SWE also wanted to increase the academic focus of the section and become a resource for its members.

During the 2004-2005 school year, several events were continued from the previous year such as social events, general meetings with industry speakers, and fundraisers like working the concession stands at the ASU football games. However, ASU SWE has also grown by making changes to the structure of the section and implementing new events.

SWE structure strengthened

Several changes have been made to the ASU-SWE student section for the 2004-2005 year. A major change in the leadership structure includes the addition of a graduate student committee with a director, programs officer, and communications officer. The purpose of this committee is to increase the graduate student involvement in SWE and so far they have done an excellent job of organizing graduate events and keeping graduate students informed of all SWE events. Hopefully they will become an even larger force within ASU-SWE next year.

In addition to the graduate committee, an Alumni Officer has been added to the leadership team. This officer is working on starting new programs within SWE geared specifically to alumni. She has high goals of putting an alumni section on the website, as well as creating an alumni network to have increased contact between ASU-SWE alumni. This position helps to benefit our current members as well as the alumni of ASU-SWE. Soon, an alumni networking event will be held in which past ASU-SWE members can meet with each other and current students can make key contacts.

More new SWE events implemented

ASU-SWE has participated in numerous new and innovative events. This year, SWE has implemented a new event entitled "Lunch with the Professors". This event was held just before registration for the spring semester, and at least one professor from each discipline was present at the event. This luncheon allowed students to ask questions of professors regarding their concentration, major changes, and research opportunities in each department. Lunch with the Professors is a result of ASU-SWE's goal to focus on academic and research opportunities.

Also aligned with the goal of increasing academic support, ASU-SWE plans to implement a technical paper competition in the spring. SWE members will present their presentations to judges and receive feedback before submitting their work to the region. This will increase the number of students that apply for the regional and national technical paper competitions. It will

support the students who apply, the ASU-SWE section, and Arizona State University on the whole.

The annual outreach programs have grown substantially this year. Middle School Day included girls from three different middle schools and was industry sponsored. The girls were brought on Arizona State's campus and participated in experiments and design projects. In the spring, Girl Scout Engineering Awareness and Recruitment (GEAR) Day will now be a two-day event, with the first day entitled GEAR Day 2.0, when Cadet and Senior Girl Scouts will be learning difficult engineering skills such as CAD/CAM modeling from SWE professional members. The second day these Cadets and seniors will help mentor the younger, Junior Girl Scouts at the Arizona Science Center. GEAR Day and GEAR Day 2.0 is being advertised in the local Girl Scout neighborhood newsletter, so hopefully numerous girls from around the city will attend.

SWE is also continuing to plan and participate in events with CEMSWE. Many events, including a salsa dancing night with all four organizations, builds a sense of kinship between members of NSBE, SHPE, AISES, and SWE. In the spring semester a multi-cultural workshop will be held to introduce members to speaking Spanish and Navajo. The two largest CEMSWE events, Diversity Evening with Industry (DEWI) and the CEMSWE awards banquet, feature the strengths and differences of each organization and present the successes of our students to industry representatives. These events help to increase our industry funding and create valuable network connections for students.

Reasons for success

Many of the ideas and planning for joint events are accomplished in bi-weekly presidents meetings. The presidents of each organization meet to exchange ideas and ask for advice in dealing with difficult issues. Brainstorming with one another at these meetings allows the organizations to work closely together and bring new events to the organizations every year.

ASU-SWE's success is a direct result of its organization, structure, and communication. The large number of officers gives active members responsibility, and increases their participation in the organization. The Executive Board (E-board) is composed of the President, Vice-President, Secretary, Treasurer and Past President. There are five major committees: Involvement, Graduate, Outreach, Industry Relations, and Public Relations. The Involvement Committee includes five officers, each have their own committee: Director, University Relations, Social Activities, Membership, and Fundraising. The Graduate Committee has a Director, Programs Officer, and a Communications Officer. The Outreach Committee has four officers: Director, High School Relations, Community Relations, and Girl Scout Liaison. Industry Relations is run by a director and an Alumni Officer. The Public Relations Committee is composed of the Director, Newsletter Editor, Historian, Publication Chair, and Webmaster. Each of these officers in turn has their own committee to help them do their duties. The two SWE Representation Positions are the Fulton School of Engineering Student Council Representative, and the CSEC Representative. The Officer's Positions' Descriptions are detailed in a document and more information on the Committees can be found on ASU SWE's website: http://www.eas.asu.edu/~swe/

ASU-SWE is able to accomplish a vast amount in a short time because everyone is in charge of one specific detail. This is a true team approach. The newsletter, website, scrapbook, fundraising, each outreach event, recruitment fairs, etc. are each a responsibility of a separate officer. The reporting structure of the leadership team is such that these officers often communicate with each other through committee meetings and leadership team meetings. The committee directors are responsible for coordinating all the events and activities within their committee. They report to the executive board, who ensures the committee directors work together and their events mesh with the goals of ASU-SWE. With so many officers, communication must constantly be emphasized. Delegation makes the section strong because a large group can easily handle our volume and frequency of events.

VI. Primary Lessons Learned

The successful elements of a broad Statistical Process Control program: 1) Management leadership, 2) A team approach, 3) Education of employees (participants) at all levels, 4) Emphasis on continuous improvement, and 5) A mechanism of recognizing success[6] are also the foundation elements of ASU SWE's success. In addition to these basics, the ASU SWE Section has learned that there are three important team characteristics that must be present for success and continuous improvement:

- Communication is more important than anything else in an organization.

It is essential to carrying out events and ensuring that everything needing to be done gets done. In ASU-SWE, communication has improved through the structure of committees. The officers report to directors, who then report to the executive board. There are always a few people that know every detail of what is going on with an event. Group email lists and the myASU website also make communication much easier.

- Tied in with communication is working cohesively with a group.

Several officers may have clashing personalities in SWE, but careful planning and mutual respect keep setbacks from happening as a result of disagreements. It is also important to give officers recognition for their efforts. This can be as simple as "Of the Month" awards for officers and members and bringing cookies to executive board/committee meetings. Even a personal email after someone has accomplished something goes a long way. It is just as important to give praise as it is to talk to someone when they are not fulfilling their responsibilities. Positive incentives increase participation and enthusiasm.

- Spread the responsibilities and increase the diversity.

An advantage of our increased number of officers is spreading out the responsibilities between many people. Officers then feel less overwhelmed with the myriad of tasks that must be completed when running an organization (in addition to their engineering coursework).
It also gets members more involved because they are valued for their participation and named an officer, while only having to put in a little extra effort. A large number of people also increases the number of innovative ideas present for an organization. A diverse range of perspectives and experiences allows us to consistently add new events and depth to the organization.

VII. What Next?

The ASU SWE Section has not rested on its laurels since winning the national top mid-size SWE student section award. In fact, the award has spurred the group to believe that they can do even better and has given them the courage to apply for other awards. During this past year (2003-2004), the Fulton SWE Section was the only student organization to win two awards from the ASU Student Organization Resource Center (SORC): best website and best annual program (Middle School Day). This year it also won a diversity award from the ASU Intergroup Relations Center. In addition, last year, this SWE Section received a Community Action Grant from the School of Engineering for GEAR (Girl Scout) Day.

For the past several years, a free membership to SWE has been given by CEDAR to the entering freshmen women in engineering who attend the Freshman Women Bridge program just before the beginning of school each fall. This gesture, plus a concerted effort to invite new engineering freshmen women who live on the four engineering floors in a 15-floor freshmen residence hall to attend the opening Fall SWE Breakfast, help to ensure a strong new freshman class each fall. Due to the organizational structure, the new attendees and members are encouraged to sign up for a committee. Thus, starting as freshman, the new members are involved and being trained to Take on more responsibility each year.

There was some confusion during the 2003-2004 academic year for ASU SWE on whether they would compete the next year again as a medium section or as a large section with over 100 student members. After the surge of interest in SWE led by the seven SWE members who had attended the SWE 2002 conference, more students than usual joined ASU SWE the next fall, including the freshmen with free memberships, bringing the total to over 100 members for the first time. However, as they learned later, the number of SWE members on June 1 of the previous year determines the size of the chapter for competition purposes on May of each year. Therefore, for the 2003-2004 competition ASU SWE was still a medium-size Section. For the second year in a row, they won the competition for largest increase of membership for mediumsize sections. For the 2004-2005 academic year, they will compete as a large-size section.

VIII. Conclusion and Summary

Although the ASU SWE Section was charted in the fall of 1976, its strength had been up and down for most of its years. In the 2001-2002 academic year, a strong executive board began strengthening the organization. The catalyst that led to the SWE officers' application for the Outstanding Student Section (OSS) in 2002-2003 was the student awards ceremony at the National SWE Conference in the fall of 2002.

Following engineering principles ASU SWE has become a strong, stable section. The management (executive board) leadership has shown the way for a strong section. The section uses a team approach. By having many officers, committee leaders, and committees, the membership has been divided into many small teams enabling much to be done without an unreasonable time expectation on any one person. The leadership has been careful to provide good training to the members at all levels. Documentation has been extremely important for the

processes and execution of them for a successful organization. There has been a natural expectation and desire for continuous improvement since the students realize that the competition nationally becomes tougher every year as many chapters are also trying to improve. The ASU SWE point system for participation, for which there are many opportunities, is a mechanism for recognizing success. The members earn points to be eligible to attend the regional and the national SWE conferences. They attend these conferences with great expectations and have not been disappointed.

ASU SWE continues to be led by a strong Leadership Team with an emphasis on a team approach. The student participants are educated at all levels and encouraged to participate as freshman. Continuous improvement is a given for each new Leadership Team. The challenge now is to become the top large-size SWE Outstanding Student Section.

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Biographical Information

HEATHER R. STORACE

Heather is a recent graduate of the Ira A. Fulton School of Engineering who received a Bachelor of Science in Industrial Engineering. Heather was President of the ASU SWE Section in 2002-2003. She is currently employed with Honeywell International in Tempe, Arizona where she is working as a Product Quality Engineer in the Engines, Systems, and Services business. Heather continues her involvement in SWE as a professional member on the Student Transition Team, and special interest national committee.

PAMELA B. MAASS
Pamela Maass is a recent graduate of the Ira A. Fulton School of Engineering who received a Bachelor of Science in Industrial Engineering. Pamela served for four years on the SWE leadership team as President, Vice President, Secretary, Special Events Committee Representative and Newsletter editor. She is currently pursuing a Masters of Science in Civil Engineering and is an active SWE member and Co-founder/Vice President of Engineers without Borders.

KESA A. BLACK
Kesa A. Black is a graduating senior in Chemical Engineering and has been an active participant in the ASU SWE Section since the fall 2001. She served as secretary during her sophomore and then as chair of the Sonora Region planning committee the following year. In addition to her activities with SWE she also served as the President of the Ira A. Fulton School of Engineering Student Council. For her involvement in these organizations, she was recognized as the 2003 Engineering Student of the Year by the Phoenix area National Engineers Week Committee.

ANNE K. RANES
Anne is currently a senior in mechanical engineering in the Ira A. Fulton School of Engineering at Arizona State University. She is also a member of the Barrett Honors College. She will be graduating in May, 2005 and plans on pursuing her Ph.D. in biomechanical engineering beginning in Fall, 2006. She has been involved in the Society of Women Engineers since her freshman year and is the current president of the ASU-SWE section.

MARY R. ANDERSON-ROWLAND
Mary R. Anderson-Rowland has been the ASU SWE Section advisor since 1976. She was the Associate Dean of Student Affairs in the Fulton School of Engineering at ASU from 1993-2004. She was named the SHPE Educator of the year 2005 and was selected for the National Engineering Award in 2003, the highest honor given by the AAES. In 2002 she was named the Distinguished Engineering Educator by the Society of Women Engineers. She has received several other diversity support awards. An ASEE Fellow, she is a frequent speaker on the career opportunities in engineering, especially for women and minority students.

DANA C. NEWELL
Ms. Newell is currently the Associate Director for Student Outreach and Retention Programs in the Ira A. Fulton School of Engineering at Arizona State University. She holds an M.A. in Higher Education, Student Services and a B.A. in Applied Mathematics from the University of Arizona. Ms. Newell is currently seeking her Ph.D. in Education Policy as well. In her four year tenure at ASU, she has won many awards including Outstanding Supervisor of the Year and Outstanding Program for the WISE Program from the ASU Commission on the Status of Women.