

**Mississippi State University
Enhancing Student Leadership Skills**

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Abstract

The James Worth Bagley College of Engineering at Mississippi State University (MSU) has examined the shift in the engineering education paradigm and reacted by embracing change and looking for new opportunities. The strategic planning process began in 1996 with an *Engineering Leadership for the 21st Century* initiative. As a part of Leadership 21, with a generous grant from the Robert Hearin Foundation of Jackson, Mississippi, five enhancements were developed for undergraduate students: 1) improve communication skills, 2) expand the integration of computers in the educational process, 3) develop cross-discipline leadership-teamwork skills, 4) improve entrepreneurial thinking and 5) expand global awareness. Four of the programs have been endowed and special facilities have been created to enhance student access and opportunities.

A number of special programs have been developed to achieve the enhancements. The programs are designed to complement engineering students' technical education through a variety of workshops, seminars, and activities to build communication, leadership and teamwork skills. In addition, a select group of students is participating in special activities serving as the College's Ambassadors for internal and external constituents. The College also supports a semester long congressional fellowship program in Washington, D.C. for engineering students.

The paper will discuss the development, implementation and results of the programs to date.

Introduction

Effective engineers must possess both solid technical and communication skills to thrive and succeed in today's business world. Working in teams of engineers and across disciplines requires practicing effective communication techniques and employing leadership skills. The engineering workplace is closely tied to the global economy and engineers must feel comfortable interacting in an international atmosphere. In addition, an understanding of laws and policy is valuable for engineers to comprehend and appreciate the legal system in the United States.

With the knowledge of the numerous changes occurring in the engineering profession, the administrative team in the Bagley College of Engineering made a substantial financial and human resources commitment to assist undergraduate and graduate students to become better leaders and communicators. This paper will address three key skills: Communication, leadership and life-long learning skills.

Communication Skills

Public speaking is a skill that takes time and practice. To assist engineering students at MSU, the Bagley College of Engineering took the lead to establish a local student Toastmasters International club. While the club is open to all students, the majority of members are engineering students. All three club advisors are engineering administrative staff members who support and promote the club to other engineering students. Toastmaster members often introduce guest speakers to large audiences and serve on the platform at public ceremonies and gatherings.

Each semester the Bagley College sponsors speakers and activities to enhance students' communication skills. Past topics have included such areas as effective communication skills for engineers, personality type preference inventories and effective writing techniques through the engineering curriculum.

The College has also dedicated facilities and equipment to assist students in becoming better communicators. The Communication Suite is a dedicated room with the technical resources for students to videotape speeches and presentations, practice PowerPoint presentations and other group projects. In addition, the Enhancements Suite is situated next to the Communication Suite. This large room serves as a hub for the leadership and entrepreneurship programs as the coordinators for both also have offices within the suite. Each engineering club and honorary organization has a mailbox in the suite, which has improved the effective dissemination of information to all groups within the College. A large meeting room provides the student leaders with a place to hold meetings, post activities and provides the opportunity to connect with engineering faculty and staff as the suite is within the Dean's administrative offices. The increased interaction has also prompted additional involvement and efforts to collaborate with other engineering student groups. The Enhancements Suite is a highly visible area and reinforces the commitment the Bagley College has made to undergraduate and graduate students.

Leadership Skills

While many models exist to identify and assist leaders on college campuses, the ideology in the Bagley College is to create opportunities for students who wish to self-identify as leaders and to assist students who have been chosen to lead their peers through groups and organizations. The general student population is afforded the opportunity to take advantage of the knowledge of leaders through the College's Sims Leadership Lecture series. Topics in the past have included "Leading with Integrity and Professionalism" and "Principles of Leadership" among others and have been led by outstanding alumni and engineering faculty members.

Another thrust of the leadership program has been the creation of the Presidents' Round Table (PRT) as a forum to bring the student leaders together each month to discuss common topics of interest. Past topics have included budgets/finance, membership (recruiting, retaining and involving members), marketing, and team building. It has been a terrific avenue for student leaders to meet other student leaders outside their discipline of engineering, to collaborate on programs and activities as well as to celebrate student and group achievements. Experts in the field and professionals on campus serve as speakers and information specialists.

One special group, Engineering Ambassadors, assists the College with internal and external constituents. This group of about forty engineering students meets on a regular basis with the development officers of the College and provides special opportunities for students to interact with alumni and friends of the Bagley College of Engineering. Special topics, including many aspects of leadership, are explored through speakers, programs and activities with this cadre of student leaders.

Life-long Learning Skills

While the undergraduate and graduate curriculum is demanding and extensive, many skills acquired during the educational experience will last a lifetime. The skills students acquire through the leadership program will assist them both professionally and personally. The goal is to stretch the student to be competent and comfortable in most settings. Some of the programs require a commitment of one hour, one evening, one day, six weeks, or one or two semesters. All are designed to develop a new skill, personal insight or international perspective.

Time management and identification of values are important skills for all engineers. The Bagley College invested in offering such programs to all students, faculty and staff members in both paper and Personal Data Assistants (PDA) formats. Support for time management programs is strong and an area to expand in the future.

Feeling comfortable in business and social situations is key for engineering professionals. To assist students, a Professional Protocol seminar was presented to student groups. A social evening was planned and presented for a limit of 25 students who were invited to the Dean's home. Before each portion of the social event (introductions, shaking hands, nametags, polite conversation, formal reception, "simulated" formal dinner and thanking the hosts), proper etiquette was shared and students then practiced that portion of a social evening. "Hands-on" learning and a relaxed environment (plus a handout) provided students with knowledge and practice that will serve them well throughout life.

Reading for personal edification is a rare luxury for students beyond the required reading of engineering courses. However, knowledgeable professionals have a grasp of many disciplines and are well read. A book group, 4th on 4th, was created to provide a forum for a small group of students to expand their literary base and to interact with the Dean of the Bagley College. The College selects a book related to some aspect of leadership and purchases ten copies of the book. Students read the book and gather for a book discussion with the Dean on the 4th Thursday of the month around a conference table on the 4th floor of the chemical engineering building (hence, 4th

on 4th). These informal discussions have produced ideas for other leadership topics and activities as well as provided a forum for genuine interaction between students and their dean. Some of the titles have included: The Power of Focus, Now, Discover Your Strengths, Gung Ho!, Who Moved My Cheese? and Fish.

The informal setting of book group spawned another leadership program, Life Lessons. This one-hour gathering each month allows students to hear of lessons in living from some of the illustrious alumni, administrative faculty and friends of the College. It also allows students to ask seasoned professionals questions about balancing professional and personal lives and establishing and living personal values. Life Lessons is held on campus, but in a comfortable living room type setting.

Another program with life changing impact is the Dorman Blaine Congressional Fellows Program that has existed for several years. Coordinated through the Dean's office, two students are selected to serve as fellows in the U.S. Senate and House of Representatives in the offices of the two senators and one congressman from Mississippi. Through the generosity of an alumnus, Mr. Blaine, this endowed program offers a first-hand look at how legislation becomes law and the day-to-day activities in the office of an elected official. In addition, living and working in the nation's capital is a unique and special experience for MSU engineering students.

The Fred and Sara Jean Burke Study Abroad program is a unique six-week program for students to study at the University of Bristol in Bristol, England, and travel independently after the four-week course of study. This joint program, with Clemson University's College of Engineering, has afforded MSU students the opportunity to meet other engineers and to develop friendships with American students and other students abroad. One special aspect of the program is the opportunity to live with local families while studying in Bristol. Through the generosity of the Burke family, small monetary fellowships are available to a limited number of students. The Bagley College of Engineering also participates in the Global Engineering Education Exchange (GE³) and several students have studied abroad through that program. Lessons learned about oneself, one's culture and country, and the cultures and customs of others often make a lasting impression.

Results to Date

While leadership activities have been created and implemented for years, a purposeful plan was not developed until July 2001 with the establishment of the Bill Sims Leadership Lecture Series. A coordinator of student programs was hired at that time to create leadership programs and showcase opportunities for student involvement. As a member of the Dean's administrative team in the Bagley College of Engineering, the coordinator serves as the magnet and the lightning rod for student leadership development and enhancement. By utilizing the internal strengths and resources of the College, many programs have been developed with limited monetary resources. The generosity of several alumni who endowed programs and a substantial grant from the Robert Hearin Foundation of Jackson, Mississippi have provided some additional and necessary funding for the programs to succeed.

One of the primary goals of the leadership program is to affect the campus culture of student-initiated life-long learning and to positively impact the pejorative stereotype that engineers cannot communicate effectively or become good leaders. All of the activities are voluntary and no course credit is given for participation. Attendance and participation have not been problems. Careful planning and student input are keys to the program's success. Students realize the activities are relevant to their growth as individuals and that these skills will serve them well in their professional engineering careers and personal lives. Care is taken to create programs that are interesting, involve active learning principles and are led by high-energy, motivational speakers and experts in the given field or topic. Refreshments and door prizes often provide additional incentives!

Strong support by the engineering faculty and effective marketing efforts have been two keys to the leadership program's achievements to date. Engineering faculty members encourage students in their courses and their advisees to participate in activities and programs. Students who have participated in activities usually bring along a friend to the next event or tell their peers to check out the myriad activities available. E-mail lists and colorful posters also help spread the news about programs and opportunities.

The engineering student culture at MSU is one of involvement and action. Examples of this culture were evident during National Engineers Week 2003. Hundreds of the 2200 undergraduate students participated in one or more of the numerous activities. Students participated in a Habitat for Humanity project, held a variety of contests and team building events as well as gathering "points" during competitions for the hotly contested "Best Major Award" traveling plaque. In addition, students came out in full force and packed a 170-seat auditorium on two occasions during e-week. The first was to learn from a nationally known motivational speaker and the second was to hear the remarks of an outstanding alumnus during the closing awards ceremony.

The success of the programs can be assessed through additional requests for programs, ideas for new programs initiated by students, active participation by students and requests for additional information/resources. In addition, a variety of assessment tools are being investigated to assist with gathering quantitative and qualitative data. The skills and leadership knowledge acquired by some of the participants have directly assisted them with career interests/interviews, endeavors and achievements. Future plans include expanding the quantity of programs offered and increasing the numbers of students who participate while maintaining quality and meeting student needs. The synergy created by the active involvement of students, faculty members, administrative staff and alumni has provided a firm foundation to enhance the engineering education and to augment leadership development skills for all associated with the James Worth Bagley College of Engineering.

Biographical Information

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