Student Chapters – An Adjunct to Engineering Education

Tonya L. Emerson, Russell S. Mills
California State University, Chico

Abstract

New engineering graduates are expected to possess an ever-expanding array of skills. Yet, classroom synthesis is not conducive to many of these proficiencies. Student professional societies can help cultivate valuable interpersonal, professional and technical skills through a variety of extracurricular activities.

The success of a student chapter can be as valuable as the curriculum in defining the quality of an engineering department. This success can be framed by the ability to: foster retention by building student camaraderie; develop leadership skills; and expand individual awareness of societal responsibility and personal empowerment. Chapter activities may enhance engineering principles, can involve students in complex projects requiring teamwork – from conceptualization to fruition, and provide interaction with professional contacts. These objectives can be realized through multiple means, including intercollegiate competitions, public outreach, and community service.

Building a thriving student chapter requires both investment and risk. Faculty advisors can use multiple techniques to help foster success, including identifying and encouraging strong student leaders and constructing a cooperative cohort of student peers. The faculty and student participants must also mitigate factors such as limited resources, personality conflicts, and the potential for undesirable behavior by some students.

These lessons are illustrated by two representative undertakings at CSU, Chico. During the 2002 fall semester, over 60% of the civil engineering majors voluntarily developed, funded, coordinated and conducted a celebration of the 150th anniversary of ASCE, centered around 1000 visitors from public schools. Also, over seven years, CSU, Chico has participated in the steel bridge competition, with varying degrees of success – from disqualification at the regional qualifier to a national title.

Introduction

Membership in student professional clubs is an integral part of many engineering students’ university experience. Through these clubs, students are presented with multiple opportunities to work in teams, improve communication skills, acquire leadership abilities and build strong

Tell me and I will listen;
Show me and I will watch;
Let me experience and I will learn.
Lao-Tze, 550 B.C.
camaraderie with their classmates. The fact that student chapters continue to thrive on college campuses, regardless of the cultural changes each decade brings, provides a strong indicator of the value and importance of these clubs.

The enduring quality of these clubs speaks to their usefulness and success. In this case, the number of awards the club has received does not solely define success. Rather, success is reflected holistically, by the quality of the learning experience that is provided through club membership.

In this paper, we endeavor to describe:

- why student chapters are important to student success;
- additional benefits brought to a university by a thriving student chapter;
- the role of faculty in developing and nurturing the student chapter;
- tips and techniques for faculty to assist students in creating successful events;
- those things that can hinder student chapter achievements; and
- methods to overcome potential pitfalls.

Two fundamentally different student-chapter events are offered as illustrations of chapter activities. These events have proven to be successful vehicles in creating opportunities for students to experience a wide range of benefits associated with student chapter membership. Firstly, the American Society of Civil Engineers (ASCE) and the American Institute of Steel Construction (AISC) jointly sponsor the Student Steel Bridge Competition, an intercollegiate design-build-construct engineering competition. CSU, Chico has consistently assembled dedicated bridge teams that have shown strong performances at the regional and national levels. Secondly, “Minds in Motion” was an ambitious outreach event in honor of the 150\(^{th}\) anniversary of ASCE. In its debut year, the event brought 1000 visitors to the CSU, Chico campus to experience the fun of engineering, and resulted in the participation of over 60\% of the entire CSU, Chico civil engineering student population as volunteers.

CSU, Chico

A short description of CSU, Chico will help provide context to subsequent topics. The campus is located in the center of the rural, north-central region of California. The university, with its 16,000 students, provides a residential atmosphere, with most students living within a mile of the campus, yet some students commute, up to 70 miles each way, from surrounding communities. CSU, Chico is generally viewed as a liberal studies university although, in addition to the three traditional liberal arts and sciences colleges, there are four professional colleges.
As part of the College of Engineering, Computer Science and Technology, the civil engineering program provides studies leading to an undergraduate degree for approximately 210 majors. Approximately half of the CE majors are “native” students, having begun their university education at CSU, Chico. The remaining students are primarily transfers from California community colleges and other four-year colleges, with a few re-entry, out-of-state, and international students rounding out the population.

Besides civil engineering, the university provides four other baccalaureate engineering degrees, in computer, electrical/electronic, mechanical and mechatronic engineering. Participation in student clubs is voluntary for all engineering majors.

Student Perspectives on Student Clubs

A survey was used near the end of the fall 2002 semester to gage student views on student clubs. The sample consists of 213 engineering students, split nearly equally between civil and mechanical or mechatronic majors. Due to commonalities in these groups, both in the courses they are required to take and the character of their extracurricular activities, all are included in the survey results. Class levels throughout the curriculum were targeted, with approximately one-third of the respondents classified as first-year through sophomore students and two-thirds distributed equally between juniors and seniors. This unbalanced proportion primarily derives from the significant number of transfer students in the engineering programs at CSU, Chico.

Students were asked whether they participated in student clubs. For those who did, they also provided additional information as to the depth of their involvement and were asked to consider whether these activities helped to enrich their college experience. For students who had not participated in student clubs, they were asked why they had not taken advantage of these opportunities and what might possibly have encouraged them to become more involved.

The survey results indicate that, overall, 41% of the targeted students participate in student clubs. Not surprisingly, students become more involved as they reach the junior and senior levels. For example, only 20% of engineering first-year students participate, while nearly 65% of graduating seniors fit these extracurricular activities into their schedules, sometimes with heavy emphasis. Of those participating, regardless of class level, nearly all recognize that these activities provide valuable enrichments to their education. Additional student perspectives on why they did or did not join and what they viewed as the benefits to student club membership will be included throughout this paper.
Importance of Student Chapters to Engineering Education

The abilities required to work in teams, communicate effectively, and to successfully lead a group are important skills that define both outstanding students and highly desirable employees. The demand for these supplemental skills grows yearly. Additionally, increasing responsibility is being placed on university engineering programs to provide students with exposure to global issues and to address the impacts of engineers on society. These trends are illustrated by recent enhancements to ABET accreditation requirements for undergraduate engineering education.

Numerous students listed the development of interpersonal and professional skills as a benefit to club membership. One student put it succinctly in saying, “All the club experiences have helped me develop leadership, communication and professional skills, as well as handling all the responsibilities that go along with an officer position.”

Student survey responses also recognized the access to industry provided by participation in student chapters. This access comes in a wide variety of forms including:

- admittance to local, regional, and national professional meetings and conferences;
- direct industry contact in the form of club fundraising efforts, speakers at student meetings, and industry judges at student competitions;
- industry recruitment efforts through student chapters;
- professional chapter mentoring of student sections; and
- industry involvement in student outreach efforts.

One student commented, “Club membership is a great way to make the transition into the working field.” This student further noted that in addition to providing opportunities to work in teams and apply the skills they are learning in the classroom, club membership provides networking opportunities. For many students, this is an unexpected benefit to club membership.

An effective university education extends beyond the classroom and encourages cooperative activities between students. Fully 70% of those students who indicated club membership listed the opportunity to meet people in their major as a benefit to clubs. Participation of first- and second-year students gives them direct access to mentoring and advice from upper-division students. The mentoring may be an organized effort of the student chapter or an unofficial by-product of the coming-together of student members. Lower-division students who form mentoring relationships with upper-division students within their majors receive varied benefits.
contributing to academic success, which may not be available through other means. Maintaining low attrition rates is always a concern for university departments. Utilization of the established student network created by student chapters is an efficient tool to increase student mentoring.

Successful student chapters can also bring local, regional, or even national recognition to a department and university. Student chapters with strong outreach and service activities improve community relations and can increase program interest from local secondary students as they apply to colleges. Regional and national awards can also increase potential student interest in a program. In addition, student performances at competitions, whether local, regional or national, can generate employer interest and improve a school’s academic reputation.

Finally, it is ultimately industry that is demanding that graduates possess a broader range of abilities. Members of student chapters are presented with multiple opportunities to develop these traits. While student club membership is not a requirement, nor can the benefits of membership be precisely measured, student clubs provide a valuable tool to help universities create graduates with the types of skills industry now requires. In these times of limited budgets with higher faculty demands, a strong student chapter that helps create solid, well-rounded graduates is an asset to any university department. Successful student chapters are simply a value-added bonus to an undergraduate education.

**Creating a Successful Student Chapter – The Role of the Faculty**

Consistent and enthusiastic faculty support is key to developing a strong student chapter. Surveyed students indicated a perceived lack of faculty involvement as a reason for not joining student clubs. Students who believe the faculty and the department support them in their activities are more likely to feel their efforts are worthwhile and appreciated. To maintain the perception of support, it is important that the faculty advisor, who inadvertently takes on the role of representing the department’s backing, creates a solid impression with the students that their actions and efforts are important.

The first and most basic step to developing this impression is to attend the clubs meetings and functions. It is the authors’ experience that students resent faculty advisors who “can’t be bothered” to attend officer and club meetings, regardless of the reason for their absence. Although the advisor may hardly speak at these meetings, her presence lends an air of legitimacy and importance to the proceedings.

The role of the faculty advisor is as a mentor to the students, not as a leader – a very important distinction. As discussed by Richard Scranton, associate dean at Northeastern University, the advisor is not the answer person, but rather the question person\(^3\). Student mentoring involves creating an environment where the student leaders arrive at appropriate solutions on his or her own. Scranton advocates never starting a sentence with “Here’s what you should do.” Rather the advisor should ask questions like: “Why?” “Why not?” “Have we missed anything?” “What are our goals here?” “What about…?” “What are your thoughts?” If students are faced with a problem, require that they determine a number of possible solutions and then discuss those solutions with them. Ask questions about each possible direction of action and help the students arrive at the best possible choice while guiding them away from critical errors. This method of
mentoring helps students to develop their own, independent problem-solving skills and helps them transition from followers to leaders.

The faculty advisor should not feel alone in his or her responsibility in supporting a student chapter. As student clubs typically participate in a number of varied activities, there are many opportunities for additional faculty to become involved in those areas they find most interesting. At CSU, Chico, we are fortunate to have many faculty who are involved with our student chapters. In the case of ASCE, the official faculty advisor attends officer and club meetings, supports club events, and advises the overall club functions. Additional faculty act as advisors for specific activities, including the steel bridge competition and the ASCE 150th anniversary outreach event. This arrangement reinforces the students’ perception of departmental support while reducing the advising load on any single faculty member.

While the above arrangement may not be feasible at all universities, there are many ways for additional faculty members to support the student chapter. In his advice to faculty advisors, Scranton encourages the attendance of numerous faculty members at student meetings. Consider a department with 10 faculty members and a student chapter that meets once per month for a maximum of 5 meetings a semester: if each faculty member attended just one meeting each semester this would result in two faculty members at every meeting. Imagine the perception of support if each faculty member attended two meetings! As the perceived lack of faculty support was a key issue for many students not joining student clubs in our student survey, this offers a simple, low-effort measure to increase student chapter membership.

Creating a Successful Student Chapter – Techniques for Creating Successful Events

All faculty who become involved with student chapters are faced with the challenges of effectively guiding students toward success. These challenges may include identifying potential leaders, encouraging students to take on leadership roles, motivating students, generating funds for the activity, and procuring department and college support. The difficulty of finding those students who are excited about projects and willing to work hard to make them happen is made easier by simply attending student functions and seeing who is involved and interested.

In observing the students, two very distinct personalities may emerge. The first is the dreamer – the person who comes up with exciting and unique ideas. This person is generally very excited about making things happen but has little experience in how to actually bring their ideas to life. The second personality is the doer. They may rarely have acute ideas, but they are organized and dedicated and know how to get things done. An inexperienced advisor may get caught up in the enthusiasm of the dreamer only to experience frustration later when no progress towards the goal is achieved. Conversely, the doer initially needs a lot of attention and guidance to develop an idea. However, once a goal is identified, the doer can accomplish the tasks with little intervention by the advisor. An ideal leader possesses facets of both personality types. Equally, the teaming of a dreamer and a doer provides an exciting and potentially fruitful combination.

Motivation of leaders and members is a key element to a successful student chapter. Whether the advisor is looking to motivate officers of the student chapter or leaders of a student activity, it is imperative that the students feel they are working toward goals they have set. Help students to
define their objectives by focusing on what they hope to achieve through their actions, both short and long term. Identify the benefits that will result with the completion of their efforts. Frequently, refer back to the objectives, indicating the current state of completion. In all this, the advisor should always supply positive reinforcement. Treat student leaders as achievers and many will strive to live up to that image.

Motivating club members to become involved in club activities is similar to delivering a sales pitch. An organized and professional presentation that describes the benefit of participating and generates enthusiasm will result in more genuine interest than an impromptu plea for participants. Furthermore, ambitious projects can be intimidating. If team leaders can identify specific tasks and jobs that need be completed, volunteers can choose a task that fits their skills and time constraints. By helping team leaders understand their role as a salesperson, the faculty advisor has a unique opportunity to guide team leaders on effective methods for motivating other students to get involved. As with team leaders, participating club members should be appreciated for their actions.

Successful events also require money. Development of a long-term student chapter fundraising plan will provide a more sustainable income than last minute efforts for each event. Developing corporate partnerships for the student chapter is a valuable resource in this plan, both for fundraising and increased industry contacts for students. Again, the ability of the student leaders to present an organized and professional presence is ideal for requesting funds from corporate outreach divisions. If a student chapter has defined their goals and objectives for the school year, they can identify those areas were financial support will be required. Letters to industry should identify these areas and offer the companies specific choices toward what they would like to donate. For example, a company could sponsor a student to a national conference, support an outreach event, support a student competition, or provide an undesignated donation. Letters should also indicate what benefits the companies can expect to receive as a partner of the student club, e.g., better access to members for announcing job openings, opportunities to speak at student meetings, etc. Timely replies and thank you letters will help insure continued support. Developing strong industry relationships in support of a student chapter is a slow process. However, the professional growth experienced by those students charged with the task of industry relations and the benefit of a strong financial statement outweighs the effort.

Since many student chapter projects have a strong educational component, there are frequently on-campus revenue sources available. These funds may be intended either generally for student organizations or specifically for instructionally related activities, depending on the source. Since universities tend to be highly bureaucratic, a well-organized proposal submitted through proper channels and by stated deadlines is essential, and should be supplemented with personal contacts with the reviewing committees by student chapter leaders and the faculty advisor.

Although students are very capable at developing a draft proposal, the faculty advisor must usually play a strong background role in ensuring that funding criteria are met. Regardless of whether a funding proposal is initially successful or not, like other revenue sources the focus should be on the long-term. This is where the faculty advisor can also make a difference, by networking with other faculty serving on review committees and by promoting the good reputation of the student chapter throughout the university. In time, this source of funding may
become very reliable as university constituencies begin to appreciate the return on their
investment. This trust must be nurtured, particularly with respect to the appropriate use and
monitoring of funds and by demonstration of a good showing in student club endeavors.

Identification and Mitigation of Trouble Areas

To increase the potential for successful student events, a faculty advisor needs also be aware of
those things that can hinder student efforts. Undesirable student behavior and personality
conflicts both are major contributors to, in the least, extreme student frustration and, at worst, the
failure of student efforts. A common behavioral problem is student follow-through. In the best
case, the lack of student responsibility results in a small task not being completed. In the worst
case, a student’s unreliability results in unreasonable workloads for other team members to
achieve the team’s goals. This scenario will occur regardless of the best-laid plan. However,
there are preemptive strategies that can be implemented to reduce the occurrence of these
incidences. One possible suggestion is an early meeting during the team’s planning sessions to
discuss the issues of commitment and follow-through. As a group, offer suggestions on how the
team should handle these issues, recommend contingencies, and develop a team policy. By
addressing the importance of student reliability early, most students will have greater respect for
their personal commitments to the team and an improved understanding of what it means to work
in a group.

An advisor may also be faced with severe personality conflicts between student members. Group
dynamics is an essential part of any team experience and needs to be learned by students if they
are to work effectively in professional practice. Whether prior to any conflict or when conflict
occurs, it is important to treat the students like adults and to help them find the root of the
conflict. One preventative method, especially for minor conflicts, involves exposing the students
to personality tests like the Myers-Briggs personality indicators. Myers-Briggs offers
suggestions for dealing with polar types and gives the students a much greater insight into their
own and their teammates’ behaviors.

As discussed in the above section, successful events require funding. This is one of the most
difficult areas for many clubs to overcome. The authors have found that a key contributor to tight
funds is the shortsighted vision of most club fundraising efforts. Clubs that are successful
fundraisers typically have one or more officer positions responsible for nurturing industry
support. These officers begin fundraising efforts for all of the club projects early in the academic
year, with continuing follow-up contact. This differs greatly from the sporadic efforts of
individual teams.

The advisor is also an important resource for other fundraising options. As always, students can
hold fundraiser events. The advisor's experience with past successes and failures is invaluable to
the students – for instance, bake sales and car washes consume valuable time, have little
educational benefit, and rarely generate significant profit. More successful efforts include selling
‘stock’ in student projects to alumni; the ASCE student chapter’s snack bar; which they operate
out of their student office, selling sodas, candy, chips and frozen items; and the ASME student
chapter’s coffee cart where they sell hot coffee and tea each morning outside the engineering
building.
When planning ambitious club activities that will utilize campus facilities, it is important to recognize that various university offices will have oversight for some aspects of the event. Campus police, the university safety office, and facility management personnel may each insist on involvement, yet may have surprisingly limited understanding and empathy for educational activities. Since many extracurricular student events are scheduled for weekends, potential difficulties may be compounded by an “overtime” mentality possessed by some non-instructional staff. While, there is very little that a student chapter or faculty advisor can do to change this mentality, sincere thank you letters to the staff of these offices, which are copied to the higher administration levels, greatly enhance relations with these groups for future events.

Binge drinking by students is a significant threat to student well-being and club activities, particularly on student trips. Faculty advisors are strongly encouraged to investigate the policies of their individual campuses pertaining to the consumption of alcohol by students, to learn what can be done to discourage destructive behavior, and to take reasonable measures to limit substance abuse. This is an unpleasant reality that should not be viewed simply as youthful exuberance.

Case Studies

Case studies provide an effective means for illustration and elaboration of important points related to student professional societies. Consequently, relevant descriptions of CSU, Chico’s participation in two successful events follow: the Student Steel Bridge Competition and the Minds in Motion outreach event.

Student Steel Bridge Competition

CSU, Chico has participated in the steel bridge competition over seven years. The first attempt resulted in disqualification following catastrophic collapse at the regional competition. However, over the next six attempts Chico has won the regional event each year and, consequently, qualified for the national contest. CSU, Chico won the national title in 2000. The group responsible for Chico’s participation in the bridge contest is the Structural Engineering Association of Central California (SEAOCC) student chapter, a division of our student chapter of ASCE.

Although winning a competition is a rewarding experience, this was not the primary objective. Instead, success is achieved simply through a strong effort. Ultimately, the greatest accomplishment is the knowledge and experience gained by the participants – students, faculty and support staff, alike. With this aspect in mind, the steel bridge provides an informative case study.
As a technical event, the steel bridge competition requires specific knowledge and ability. As such, it is extremely important to identify and motivate students having the prerequisite expertise to serve as leaders in the endeavor. Dreamers may play an important role in brainstorming a successful bridge entry, however a qualified doer is essential to knowing what is beneficial and feasible, and what is not.

As an event with a specific focus, structural engineering, not all student club members will have interest in participating. With smaller numbers of student participants, the faculty advisor may find himself in a different position than with other, non-technical events. Instead, in order to enhance student participation and consistency, the faculty advisor may also be called upon as a teacher, by providing enhancements to students’ education specific to the undertaking. Nevertheless, it is essential that ownership of the activity resides with the students. Disproportionate faculty involvement will produce an unreasonable workload for the advisor and will also discourage independent-minded students looking for responsibility and alternative educational activities.

Due to the complexity of the event, participation must be viewed as a learning experience. The efforts in any particular year must build upon the attempts in previous years. This memory can be provided by recruiting a mix of students at various educational levels, so that returning participants may mentor new ones. The faculty advisor is also invaluable in providing continuity.

Although good engineering is the first step in developing a bridge concept, the final performance is evaluated by physical measurements of structural performance under loading. Consequently, full-scale testing of a prototype is essential both to the primary goal of student learning and to the secondary objective of a competitive entry. CSU, Chico acquired the prerequisite testing equipment over several years, beginning with a year when we hosted the regional competition. Some portion of the fundraising for the regional conference was used to augment existing laboratory facilities with equipment applicable to testing of the steel bridge entries. This equipment, including electronic instrumentation and automated data acquisition, is now readily available to our students for physical testing of bridge concepts. These developments have not only enhanced participation in the bridge contest but have also provided improvements to the structures laboratory applicable to a variety of activities, including student coursework.

After six trips to national competitions in all corners of the country and with teams ranging in size from three to twenty students, several lessons were learned about extended travel with students. Two considerations are predominant: for liability and insurance purposes, ensure that the students are recognized as undertaking official, university-related travel; and provide for every student an important job for which they accept primary responsibility.

We have discovered that the best way to validate student travel is by using a “field trip” model. This is accomplished by enrolling each participating student in a one-credit independent study and by then following normal campus procedures for class-related trips. This includes registering student drivers, if applicable, as “voluntary” university employees and securing all necessary campus approvals. The university also requires that students submit a liability waiver when public air transport is used.
When traveling, there are two advantages to taking only students who have a specific responsibility. First, the more students helping with travel and event logistics the better the trip will go. Secondly, students with little to do will find other activities to fill their time, often with little benefit to the undertaking and, occasionally, to the detriment of the other students’ participation in the event.

**Minds in Motion**

As a second example of a successful student event, the CSU, Chico ASCE Student Chapter organized and hosted an ambitious outreach event in honor of the 150th Anniversary of ASCE. The student’s driving goals for the event were two-fold. First, they wanted to excite children about engineering, specifically civil engineering. Second, they wanted to create an event to showcase the civil engineering students and department in an effort to generate pride in the department and create campus and community awareness about civil engineering.

The basic plan for the event, aptly named “Minds in Motion,” was as follows:

- Create a day for all grade-levels full of hands-on activities and informational booths.
- Run competitions for 1st, 3rd, 5th, 7th, and 11th graders concurrently with the day’s activities.
- Visit classrooms two weeks prior to the event to lead hands-on engineering activities and to provide competitors with rules prior to the event to allow participants a chance to design, test and re-design their solutions.
- Provide every participant with an educational civil engineering souvenir appropriate to his or her grade level.
- Develop the event as an annual affair to allow for easy repetition in following years.

The first step in making this happen was finding an event coordinator. A student member of ASCE envisioned the event, so it was an obvious choice to offer her the leadership position. Within the first few weeks of planning, it became apparent the position would require a significant time commitment and the above student, while a fantastic idea person, had little experience in making large events happen. A second student with outstanding organization and motivation skills was invited to act as a co-coordinator. This combination provided an effective synthesis of the doer and dreamer personality types discussed earlier.

The coordinators first task was to brainstorm an outline for the basic format of the event that was presented to the officers’ board of the ASCE student chapter and to the department faculty. It was imperative to gain the committed support of both parties before moving forward.
The student coordinators immediately recognized their need for numerous volunteers and the challenge of acquiring them. The timing of the event further compounded the difficulty of this task. The idea was conceived in March of 2002 and the event was planned for September 27th of the same year, just five weeks after the students returned to school for the fall semester. Therefore, an initial list of volunteers was needed prior to the summer break. Specific job descriptions and estimates of the number of persons required for each job were developed prior to introducing the event to the general student population. To help generate interest, PowerPoint presentations explaining the ASCE 150th Anniversary, the basic idea for Minds in Motion, the goals and benefits of this event, and the breakdown of positions required were presented by the student coordinators in civil engineering courses during the spring semester. At this time, general volunteer lists were distributed in each class. Throughout the summer, progress emails went out to all those on the list just to remind them about the event. In addition, two summer meetings were held for those volunteers who had indicated interest in leadership roles and needed to start early on their tasks, e.g., leading a grade-level competition, doing fundraising, etc. During the first week of fall semester, enthusiastic classroom presentations were again made and volunteer lists with signups for specific tasks were distributed. By September 1st, 85% of all the slots were filled.

To keep the volunteers interested and on track, specific meetings for each job area were held to help each group develop their plans for completing their assigned tasks. In addition, two large general meetings where held in the fall to generate additional interest and keep the whole group focused. As the day of the event approached, the final meeting brought together more than 80 volunteers. The current of energy developed by this many volunteers coming together was unbeatable for keeping the group excited. Other math, science and engineering student clubs were invited to host hands-on booths to provide variety for the participating school children. In addition, progress reports were made to the local ASCE professional chapter and its members were invited to work hands-on booths and to act as judges in the competitions. In all, over 200 volunteers turned out on the day of the event. The key to this result was the professional manner in which the event was presented, the organization of the meetings, the specific definition of the tasks that needed completed, and the enthusiasm of the leaders.

It was important to the student organizers that participants developed a positive impression of CSU, Chico and of engineering activities, so organization was the key. On the day of the event,
all volunteers were required to check in at a specific volunteer's table where they received preprinted nametags, a plan showing booth locations to guide them in their setup, written instructions of their duties, and written answers to anticipated questions from participants. Close to 80% of the 200 volunteers purchased, at cost, and wore special event T-shirts printed with the 150th Anniversary logo, which let the K-12 participants know whom they could approach with questions.

Starting at 9:00 a.m. on the day of the event, volunteer greeters were stationed at the bus drop-off locations to meet the buses and direct participants to the designated check-in/information booth where they received a student bookstore bag with a CSU, Chico pencil, a checklist and map of all the booths they could visit, and a list of competition times and locations. After participating in a booth’s activities, each participant received an initialed check-off on their booth checklist. Children who visited 15 or more booths were instructed to stop by the Careers Path table to receive their choice of an ASCE activity book or book cover developed by the ASCE Committee on Career Guidance. High school students also received the Career Paths in Civil Engineer brochure created by the ASCE Committee on Career Development, while junior high students received the Careers in Civil Engineering tri-fold developed by the Committee on Career Guidance. Following the competitions, the day’s final event was the awards ceremony and prize raffle. Many of the competition awards, raffle prizes, and giveaways were collected through donations from local and national businesses, the CSU, Chico College of Engineering, Computer Science, and Technology, and ASCE national headquarters. The remaining items were purchased through funds raised by the student volunteers.

The Minds in Motion event brought 1000 visitors to the CSU, Chico campus. Of the 200 volunteers, 120 were members of the civil engineering department. The hard work of the students generated enough community interest and student involvement to create what was called the best-organized and most educational event for children to be offered at CSU, Chico. The students easily met their goals of exciting youngsters about engineering and generating pride among the civil engineering students.

Conclusion

Student membership in engineering clubs has and will continue to be an integral part of the undergraduate education experience. Of surveyed graduating seniors who had participated in clubs, fully 96% feel their college experience was enhanced by club participation and 85% of all club members would recommend club participation to other students. Of further interest, 56% of non-members feel they missed out by not joining student clubs. By assisting our students in creating successful chapters of professional societies we are ensuring the success of this important element to any undergraduate education.
In organizing student chapter activities it is essential to recognize that the focus is by and for the students. The students must be empowered to take up responsibility, to attempt the undertaking, and to learn from their successes and failures. Outcome consistency will be variable, however a club atmosphere of cooperation and contribution must be constant. This can only be realized through the participation of dedicated faculty who understand how to effectively persuade without resorting to undue control.

A successful student chapter will participate in a variety of activities. Excessive focus on only one or two types of events will not afford students with the full educational potential of club membership. Although engineering is a technical profession, it is also one of service. Student chapters should not focus on “engineering” to the exclusion of community and society. This is where participation in extra-curricular student organizations has tremendous potential for value added to a student’s education.

References


[3]. Scranton, R., *A Vibrant Student Chapter*, presented at the American Society of Civil Engineers Faculty Advisor Training Workshop, Washington DC, 2002


TONYA L. EMERSON, Ph.D., P.E., Assistant Professor of Civil Engineering
Dr. Emerson is enjoying her 2nd year at CSU, Chico, where she is the advisor to SWE and Minds in Motion. She completed her Ph.D. at UC, Davis in Structural Mechanics, where she completed the year-long Program of College Teaching. Her M.S. in Structural Engineering is from Stanford University and her B.S. in Architectural Engineering is from Cal Poly, San Luis Obispo. Dr. Emerson is the 2002 recipient of ASEE’s Glen L. Martin Best Paper Award and is a 2002 ExCEED graduate.

RUSSELL S. MILLS, Ph.D., P.E., Professor of Civil Engineering
Dr. Mills has been teaching at CSU, Chico for over 20 years. His graduate degrees are in Structural Engineering from Stanford University, with his B.S.C.E. from CSU, Chico. He has worked extensively with students in extracurricular activities, including 12 years advising engineering student chapters. He was designated Professor of the Year by the ASCE student chapter in 1994 and was the CSU, Chico Outstanding Teacher for 2000-2001.