Partnerships Between Preprofessional Student Groups and Your Unit

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Abstract: Student pre-professional groups cover broad ranges across engineering colleges: Society of Women Engineers (SWE), Engineers without Borders (EWB), National Society of Black Engineers (NSBE), Women in Science and Engineering (WISE), Tau Beta Pi ($\tau\beta\pi$), and American Institute of Chemical Engineers (AIChE) (as an example of each branch of engineering). These groups serve as student support programs for a variety of different purposes that help your unit (department/college): mentoring, scholarship, service, and learning about the student's future profession. Each of these student groups have their own separate missions, activities, leaders, and needs. For example, each group has a regional or national conference for students or a need to travel in their service role. Inevitably, each group will be visiting the department head or Dean to ask for financial support for their travel and other activities. While the department head and Dean are happy to help where they can, they might also ask "What do these student groups do for our department and college?" Can we find a way to build a better partnership between the student groups and the department/college to meet all of our needs? Can we help them? Can they help us? Can we help them help themselves?

What is the relationship between the unit and these student groups? The student groups need our financial support and advice, and we need their activities, accomplishments, and labor. Thus, building a partnership benefits both sides. Is the unit looking for content for their website and newsletters? Are prospective students looking at the website to see student activities that will entice them to apply and enroll? Do the student groups need good advising and financial resources to help them travel? Are the alumni willing to provide donations to help the students and student groups? Can we publicize their activities to help our recruiting? Can the students help the unit's advancement campaign? These mutual needs and capabilities provide the basis for a building a strong partnership.

The partnership between these student groups and the unit to improve these support programs for the mutual benefits of both groups will be discussed. Partnerships between the units and the students can lead to:

- Vigorous student groups,
- Additional mentoring and recruiting avenues,
- Improved and more frequent publicity for the units,
- Opportunities for students to get involved,
- Student leadership opportunities,
- Mentoring to increase student abstract submissions to conferences (and the subsequent presentations),
- Connections with the university fundraising arm for more marketing and advancement opportunities for the student groups and units,
- Improved student/alumni relations, and
- Opportunities for faculty to know the students and their skills which leads to more successful recommendation letters for the students.

Start looking at student groups as partners to support the unit's mission. This partnership actively promotes the students and their groups while helping the department or college.

Introduction: The importance of student participation in students groups has been demonstrated by studies. For universities, students rank "student life as one of the top three reasons for choosing a university.[1] Student organizations also provide community, leadership skills, and entries for a resume.[2] By being in these groups, students also report growth in self efficacy and academic engagement.[3] These groups can include preprofessional groups within the discipline (AIChE, ASCE, ASME etc.), honorary organizations (TβΠ, ΩΣΕ, etc.), service (Engineers Without Borders), and cultural/affinity groups (NSBE, SWE, WISE, SHPE, etc.). Most departments have at least one and often two of these groups within their department (discipline specific preprofessional and honorary). Depending on your department and the number of programs/degrees it offers, you might have, for example, two preprofessional and two honorary groups. The service and cultural/affinity groups are usually operated at a level across the college or above level, but they will also include students from your units/majors.

What do these groups do? What are their goals? Often the students don't know. They just join the group to be with their peers and see what will happen. While a well established group might be self-sustaining, most of these groups do need an advisor to help guide them.[4] Generically, the advisors job is to guide them to meet the goals of the group (e.g., to learn about the profession of chemical engineering, to honor strong academic performance and perform service back to the community, or to provide a place for different cultural or affinity students to be with their peers). However, it is often the advisor that directly or indirectly has a significant effect on the group's goals and missions.[5] The advisor is there to help them grow as a group and meet their mission. The advisor is often viewed as the key to an active student group.[6]

Typically, while associated with a department, the administrative home for these groups is in the student affairs office. The student affairs offices provide the structure for the groups by offering office space, access to resources (e.g., a web presence and access to banking functions or university fleet services), official requirements such as officer lists and membership lists, and a host for their message boards and pictures.

As any group advisor knows, these groups are always looking for support – usually in the form of funds. Funding is required to support travel to regional and national conferences, plant trips, service projects, and design competitions (ChemE Car, Concrete Canoe, etc.) These groups, because of their association with the department, often start with requests at the department level.

A strong student group is often the goal for every department, but the departments are not always sure why. What does this group do to help the department? What does it cost us to support this group? What should we get out of this arrangement? What is the arrangement between the department and the group?

Can this relationship be clarified? Can it be defined? Can both sides find a way to work together to their mutual benefit? This paper will explore the approach of building a partnership between the student group (or groups) and the department. Both sides have needs that other side can meet. They both also have resources that the other side can use to grow. Hence, there is a

basis for building a partnership. A case study will be examined, needs and resources for both groups are presented, examples of the partnership will be presented along with lessons learned, and future actions and potential concerns will be discussed.

Case Study/Motivation: The student group in this work is an American Institute of Chemical Engineering (AIChE) student chapter at a small intermountain west land grant state institution. The national body for this group is also AIChE and the student chapter is a member of the Rocky Mountain region of AIChE. AIChE is the professional organization for most chemical engineering bachelor's students and most chemical engineering faculty.   This chapter has been around for 10+ years and typically has 30-50 members. This is less than 25% of the enrolled chemical engineering students in this program. The chapter serves as the pre-professional society for the students in this program. Chemical engineering is the only degree offered by this department; as such there are no other pre-professional student groups in the department. The author is the chapter advisor for this group and has been for seven years.

The motivation for this work started when the chapter grew to the point that they wanted to attend the national convention. To assist in fundraising for this trip, the chapter officers approached the department (and other potential sources such as college and university student government) to contribute a portion of the cost. While they were asking for financial assistance, I realized that they did not have a good answer when asked the question of "How does this conference help/benefit you as students, the student chapter, and the department?" While the department was willing to contribute resources (usually from un-restricted alumni donations to the department that have numerous other uses), I focused on how the students and the chapter could better answer that question and justify receipt of these limited resources. As noted in the literature, the worst source of funding is the academic unit [5] and by extension the college.

Results: To start the process, a conversation was initiated with the chapter officers about their goals for the chapter. To no surprise, they indicated activities that required financial resources (trips to regional and national conferences, ChemE car, plant trips, etc.). When asked what fundraising they were doing, the answer was that trips were financed with some resources from the department (college etc.) and the rest from their pockets. As advisor, at this point, I started considering the sustainability of this funding and how to get resources to maximize student participation in these activities

The first conclusion was that while the department (college etc.) were willing to contribute what they could, the chapter needed to provide some value to the department in exchange. At this point, I started considering the chapter from the perspective of a resource. What did they have to offer to the department and what did the department have to offer them? Thus, the idea of a partnership. This is not a new concept as Berry advocates for creating a partnership between a group and the department for recruiting.[7] However, the partnership can be broader than this.

Department Needs: In general and in broad areas, the department needed the chapter to be representative of the students in the department. They department needed results to show what it's students were doing and accomplishing. For example, the department needs content for it's newsletter, the website, and for social media, especially where potential students get their

media.[8] All of this contributes to indirect recruiting, alumni outreach, and general department visibility across the college and university. The department also needs direct recruiting to attract and retain future students. Indirectly, through their accomplishments and publication of them, the students can demonstrate a vibrant department, which can attract recruits. The students can also go out to regional high schools and perform direct recruiting.[9] There is an ability for the high school students to more directly connect with similarly aged students than the older faculty can. The students can also participate in and lead outreach activities. Does the chapter have a fun experiment that they can host during the local high school science night or for the local scout troop? Don't forget to partner with SWE or WISE and contribute to their outreach activities. Summer high school camps are a combination of outreach and recruiting. Have your students participate in them. The key is to take activities that may have traditionally been done by faculty and move them down to the student level. In this way, the faculty is at most supervising the event instead of leading it. This can free up faculty for other tasks. Finally, the department always needs names of eligible and appropriate students to nominate for awards and scholarships. How does the department stay aware of its students and their accomplishments?

Student Needs: The student chapter is always looking for content for their meetings. This includes industrial speakers, alumni, and students having completed internships, coops, and undergraduate research projects, for example. They need alumni and industrial contacts for the above meetings, plant trips, and fundraising. Perhaps they want to do a service project in town, but as students from out of town, they don't have local contacts. As mentioned above, they are always looking for funds. Finally, they need some continuity at the institution to help the chapter thrive. Others have concluded that a large role of the faculty advisor is to provide this continuity.[4, 8, 10] This might include the advisor as a knowledge base (although they should develop their own internal knowledge repository) and someone with access to the funds (typically controlled through the university with a need for the advisor to sign off on transactions).

What Students Have: The students, individually and collectively, have time. They also have significant energy and passion. Again, the sheer number of students, at least compared to faculty, allows them to spread the load. This is really an ideal example of crowd-sourcing. As students, they also connect back in time to alumni (through the shared student experiences of having the same professors for the same courses in the same classrooms)[11] and they connect forward in time to potential students (who might view them as their future selves).

What Departments Have: From the student perspective, the department has significant availability of funds (the department may not share this opinion). These funds may be part of the department regular disbursement from the college/university, or they may be endowed funds or gifts to support students and student activities (if these funds are used for the chapter activities, make sure that they are acknowledged in the publicity write-up and thank you notes are sent[5]). The department also has connections with industry (through the alumni) that might provide a speaker or host a plant trip. The department's connection with the university foundation is also important. This provides the student chapter access to professional fund raisers. Finally, the

department, typically through the advisor, offers a collective memory and experience for the chapter.

Actions: Completed/Planned: For our department, a final document (oral/written communication) is required for the internships/research experiences that receive credit. To help the students obtain more content for their meetings, I started requiring the students taking the internship and undergraduate research courses to perform the required presentation for this work at a chapter meeting. This provides a formal situation for the presentation; however, the student audience can be viewed as friendly. This approach then allows younger students to see future opportunities while learning from the internship/research experience. Not every faculty specifies the chapter meeting for the document, but involving several faculty can quickly fill the meeting slots.

For the current ABET cycle, we have revised our Program Constituencies to note that students (as a constituency) are represented by the student chapter president and one other representative from the student chapter, chosen by the chapter. This group of students as constituents then has defined actions for the department through the ABET process.[5, 11, 12] This may include periodic meetings with the advisory board, participation in review of program educational objectives, and other actions of the department's choosing as formalized in the ABET self study. If the department has two or more similar student organizations, members of each organization should be included. Through the ABET process, this is a strong way to formalize the importance of these student chapters. This approach also allows for the student officers to meet and interact with advisory board members. This provides more "facetime" for the chapter as well as time to locate and recruit speakers for future meetings.

Another partnership idea evolved out of observations of my daughters as they selected colleges. At several school, the SWE chapter had partnered with the College to write individual letters to the incoming women to both welcome them to the university and to match them up with an upper-class women to serve as a mentor.[10] This had a strong positive effect on my daughter towards these institutions. As a result, I used my connections with the SWE officers and the college recruiting coordinator to build a similar partnership here. A similar program here has been initiated with positive results.

To help provide continuity for the chapter, we worked through several iterations of a knowledge repository.[6] My first attempt (admittedly not very modern) was to have the chapter officers archive all information and documents (contact information for speakers, plans for events, invoices, university required documents, etc.) for the chapter's activities in a three ring binder. This was a good initial start but was not technologically up to the challenge. The students decided on their own to migrate the document storage to a Google drive. Subsequently, as officers and advisor changed, the last approach was developed in consideration of the permanence issues and access to the Google drive. The current iteration involves document storage in a Canvas webpage (similar to a course webpage). I am the "instructor" for the course and I change the "student" participants yearly as new officers are elected.

The university recently re-organized all student organizations based on a risk assessment model into three categories based on risk and mission. The student chapter was defined as level 2 based on "Level 2 Student Organizations is the designation given to a Student Organization that has demonstrated its purpose to be both aligned with to the mission and culture of the University and the benefit of the members internal to the organization."[13] In addition, the group needs to designate a full-time faculty/staff member as an advisor (who then undergoes training). This further serves to connect the partnership between the unit and the student group. Based on the above definition that the chapter purpose is aligned with the mission and culture of the university, I (and other advisors) were able to convince the university that Level 2 organizations should be allowed to use the university foundation for fundraising and fund maintenance. This idea was subsequently adopted. We are in the process of setting up the account. The next step is to redesign webpages and social media to solicit and accept electronic donations. One important aspect of using the foundation is the ability to receive donations via credit card.

The chapter and the department also partnered on two new department programs. Our university requires all students to take the FE exam as a graduation requirement. The student chapter recognized the desire for their members to receive information about and study suggestions for the FE exam. Therefore, the chapter sponsored an FE exam information night and recruited a faculty member (a PE) to lead the discussion. Our department is also strongly interested in broad student participation in undergraduate research. Students in the chapter were interested in learning more about what research opportunities existed in the department and how to make this information more broadly available. The chapter developed the concept of an Undergraduate Research Dinner. The department providing funding for food for the event. Faculty provided short research synopsis that were shown on screens during the event. The attending students entered there tree top interests/faculty to perform research with. Dinner was then divided into "three courses" and the students switched tables accordingly throughout the event. The event was a success with 30 students attending and 8 faculty participating. I subsequently nominated the chapter for university wide Recognized Student Organization (RSO) award for Best New RSO event of the year. The chapter won the award.

As chapter advisor, I have spent significant amount of time nominating students for awards. Some awards are associated with the chapter and/or the national organization, however, my knowledge of the students has also led to a large number of related nominations of awards and scholarships.[8] Depending on your department/college/university, there may be a number of scholarships or awards that specify demonstrated leadership. Knowing the chapter officers and their leadership accomplishments puts me in a strong position to nominate chapter members for these awards. In addition, there are the standard officer of the year, event of the year, organization of the year awards typically handed out through student affairs at every university. Our university has awards to recognize several different levels of women in the STEM fields. I nominate every female officer in the chapter for these awards every year. Lastly, don't forget the awards through the national organization. AICHE allows every chapter to nominate a freshman and sophomore for awards (they all "win" the recognition of the certificate and reduced conference registration rate). As advisor, ask the chapter president to tell you who to nominate.

In addition, there are also significant number of other specialized awards available at the national level through AIChE for example.

If you are the department chair, don't forget to nominate your chapter advisor for awards.[10, 14] These can again include college/university wide awards as well as national awards through the society. Plan in advance and work with the chapter officers to gather the information needed for the award nomination.

Discussion:

He goal of this work is to provide specific examples and literature references to build a case for developing a partnership between the academic unit and the associated student group(s). The examples above demonstrate some aspects of how we examined the existing program/student group relationship and make changes to build more of a partnership. There are a number of examples in the literature where aspects of this discussion have been mentioned by others, some in commentaries on student groups and others in research articles examining, for example, how students view their student groups. However, the goal here is to focus on building the proposed partnership using examples and supported, where possible, using literature work.

Additional concerns associated with funding should also be considered. For example, should the students be expected to raise funds to cover the advisors travel expenses for the regional conference? Should the advisor be expected to cover them? Since the advisor is working with the chapter to advance the department, should the department cover these costs? The chapter advisor and department chair should consider this issue in advance, perhaps as part of yearly job description and work load discussions.[10] As related to job description, successful chapter advising can be a significant time commitment for the faculty[14] and should be recognized as part of their workload.[10] Somerton clearly states that there is a disconnect between the value that student organizations bring to the department and the value that departments place on the contribution of the faculty advisors.[5] Similarly, Rihana Abdallah advocates for changing how advising fits into the university work model and elevating the perceived value by revising promotion and tenure criteria.[15]

Be careful to not "over-partner". Remember, these are student groups that you are working/partnering with. They are not your employees. It can be easy for a department or unit to become highly involved with a cultural/affinity group such as SWE, NSBE, and SHPE, because they can be effective tools to aid in recruiting for the department/college. Remember they are independent organizations. They are not extensions of your unit and you should not attempt to control them.[4]

If you are the department head/dean, don't forget about appropriate acknowledgement and rewards for the chapter advisors. If the chapter advisor is doing their job well, it is resulting in positive outcomes for the unit. If the work is meeting goals, make sure the faculty advisor is being rewarded appropriately. Performance evaluations, access to discretionary funding, and summer salary are a few of many options.[5, 10, 14]

Be sure to balance all of the requests. A strong partnership between the department and the pre-professional chapter and honorary society are natural and straightforward. However, if the pre-professional society does significant recruiting work while the honorary provides just the publicity for a service project, provide resources accordingly. For SWE, TβΠ, and EWB (for example), these groups typically are college wide across all of the engineering disciplines. Thus, they may be asking multiple departments as well as the college for resources. In this case, it may be more efficient for the groups to submit one request through the college which would allow individual unit directors to provide a collaborative response.

Finally, don't forget to serve as the connection between the student group and the university foundation. This is a major role for the advisor as most students are unaware of the foundation and it role in the university. Use the resources and tools from the foundation to help raise resources for the group. Work with the foundation and the department to set up a "giving" page on the department website. The foundation's ability to accept credit cards may lower the barrier to alumni and others providing donations. Clearly state on the webpage what the donations will be used for. When performing fundraising, plan ahead and allocate funds between "use this money directly" and "put into an endowment account" to build up principle for future yearly disbursements.

Conclusions: Build a partnership between your student groups and your department. A strong student group can provide numerous examples of activities and accomplishments that can be featured on your webpage or through social media (undergraduate research dinner, chapter activities, and student and chapter awards). This positive publicity can results in increased recruiting, retention, and alumni relations. Improved alumni relations can feed back into more resources (funding and people) to make your student chapter more vibrant. Advisor knowledge of the students involved and their accomplishments is used to provide information to the marketing staff in your unit. In addition, this knowledge allows the department to make strong recommendations for department, college, and university wide honors and awards. The chapter advisor plays a critical role in this partnership; make sure they are rewarded and recognized for their efforts. Remember, it is a partnership and thus each group benefits from the other without one controlling the other.

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