More than Advice: Increasing Industry Advisory Board Member Involvement

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Abstract

Many engineering programs only involve their advisory board members in scheduled meetings, with a result that their participation and impact on these programs are limited. The objective of this paper is to examine one program’s approach to increasing and leveraging members’ impact beyond these meetings and into other areas of the curriculum and beyond. A basic premise underlying this program’s approach was that offering more ways for industry advisory board members to become involved would in fact lead to increased involvement. Specific practices reviewed in this paper include advisory board member participation in courses and laboratories, capstone courses, accreditation, student organizations, student competitive teams, and faculty development. Through this examination of the program’s efforts, other engineering educators will be able to build upon their successes and avoid some of their difficulties while involving their industry advisory board members in other ways.

Introduction

Engineering programs from all disciplines rely on their industry advisory board (IAB) members to help ground curricula in the current and future needs of the profession. This “real world” advice can be invaluable to balancing theory versus application in the classroom, help programs stay abreast of technological and other trending factors in the workplace, and assist instructors to prepare “work ready” graduates. In addition, accreditation guidelines require industry advisory boards to be active within programs, emphasizing their importance.

The need for increasing engineering educational relevance through industry involvement is well recognized. Industry advisory boards are an important component in an engineering program’s assessment and continual improvement function, providing a feedback loop on how the university’s graduates perform in professional situations. Described as “critical friends,” these members can offer frank advice from outside the university system directly to the program preparing the future workforce. In a seminal study of engineering program IABs, Genheimer and Shehab stated that they are “almost universal” and explored how they operate, their composition, and their effectiveness.

These advisory boards are often comprised of program alumni, who are able to bring their own experiences from both the classroom and the office into these meetings. Other members often include professionals from allied disciplines to round out the board and provide both breadth and depth to the collective knowledge of the group. The board comes together one or more times
during the academic year to advise the program on the state and direction of the profession and industry as well as act as a sounding board for new initiatives under consideration.

While useful, the author views these meetings as only a starting point for advisory board member involvement. The program examined in this paper explored various ways for IAB members to engage with the intent that increased opportunities for involvement would directly lead to the desired increased involvement, and this has in fact proven to be the case. This paper describes several different approaches that the construction management program at Ball State University has successfully used in increasing IAB member participation outside of meetings and other standard board activities. This increased participation and integration can benefit all participants, including programs, students, faculty, and board members.

Curricular involvement

Perhaps the most common and simplest way to increase advisory board member involvement in a program is to put them directly in the classroom. The member is ostensibly an expert or provides a unique perspective on some aspect of industry, which is why they are on the advisory board already. Having them in as a guest speaker on a relevant topic can reinforce the importance of the topic to students and provide the view of what is actually being done in industry. This allows for a direct impact on the students and also fosters collaboration with the faculty member setting up the presentation. In the author’s program, IAB members are frequent guest speakers in the classroom and can provide perspectives that might not otherwise be available to students. For example, during coverage of labor relations in the construction project management course, one class period is devoted to provide the union perspective. An IAB member who represents organized labor and the contractors that are signatory with them provides this perspective, and then the next period is given to an IAB member who is a representative of a state-wide merit shop organization. The students actually get three perspectives this way: a background and non-biased perspective from the textbook and faculty member and then two distinctly biased and opposing views from different advisory board members.

Another option is to have an IAB member take on a fictional role for a particular exercise, which gives the students an added sense of realism. For example, the board member might act as an owner’s representative for a preconstruction meeting on a hypothetical construction project or as a designer during a simulated progress meeting. In the author’s experience, having a new person in the classroom, particularly an industry professional, changes the dynamic in the room and the students have an enhanced sense of seriousness during the exercise. This can also be combined with the member providing their own perspectives and “war stories” about real meetings, etc. in an abbreviated guest speakership.
At times, a single class period might not be enough to allow for the exercise or activity that the faculty and IAB member desire to present. In cases such as these, a single day lab or workshop might be an appropriate solution. For example, an IAB member expressed concern that the author’s program did not provide enough experience with building layout, so a meeting was held with the program director, faculty member, and advisory board member to map out a one-day voluntary workshop focusing on this skill. The IAB member also volunteered to bring in the latest surveying equipment that his organization used, exposing students to the latest technology in the field.

Advisory board members can also be utilized as adjunct faculty members, teaching courses related to their professional specialization. While this is a much greater commitment of time and effort, this type of collaboration blurs the line between industry and university and offers a more comprehensive integration. With administrative assistance, courses can often be adapted to best fit the advisory board member’s schedule, such as being offered in evenings or in a shortened time (single credit hour versus standard three credits, five weeks versus full semester, etc.). Although the subjects were not described as IAB members, Varma5 offered several case studies of how industry professionals can be successful as part-time, “clinical” instructors. An advisory board member from the author’s program also was on the board of a neighboring institution, and taught a class on leadership there that was very successful and enrollment had to be capped. The opposite process has also been suggested by Colwell, Nakayama, and Jenks6, who described recruiting IAB members from existing adjunct instructors with positions in industry. Hampton & Macedo7 have also offered a model for courses jointly developed and offered by faculty and IAB members. Another model8 provides for a partnership with a specific company who provides personnel to serve as adjunct faculty and even space for classes to be taught directly on their premises.

Involving industry in the senior engineering capstone course has been noted as an important component by others9,10,11,12. The author’s program has also had success involving industry professionals, including IAB members, in the senior capstone course. This class, where all of the other material learned throughout the student’s college career is pulled together in a realistic simulation, is a wonderful place for programs to partner with industry. In the author’s program, students self-form teams that are then required to find and partner with one or more professionals who mentor the team throughout the course. A mentoring agreement is prepared, outlining the expectations of student team and the mentor, how they will communicate, schedule/timeline (including turnaround time), etc.

Students and especially student teams are a regular feature of the IAB meetings, and facilitate recruiting mentors from the board. Typically, at each meeting there is some form of student presentation, such as one from a new course or a team that just returned from participating in a competition. Industry advisory board members have been eager to participate as mentors and
many volunteer every year. Members are recruited directly by students or volunteer to faculty members, who then make their information available to students.

These mentors serve as a “reality check” for the student teams, reinforcing lessons learned in the classroom and offering direct industry advice on suggested student solutions. For example, student teams developing a site logistics plan for a construction project might be cautioned on how contractors balance access and risk, considering how oversize loads will interrupt traffic and come into the site, how much of the site will be fenced, what kind of security plan will be enforced, etc. Mentor professionals may examine quantity takeoffs, review progress billings, or evaluate oral presentations, providing frank feedback while simultaneously seeing how student teams work and approach solving problems together. Students also learn the real value of scheduling and completing assignments in enough time to receive feedback, particularly with IAB members’ busy schedules. Mentors are also present at interim and final presentations with faculty, offering advice and input on both the product as well as the process.

Advisory board members who are not able to commit to mentoring a team throughout an entire semester may also offer to be a co-mentor along with another IAB member. This offers a chance to participate while sharing availability, and also offers students an extra industry perspective. Even IAB members who do not mentor at all are invited to participate in the final presentations, and the last advisory board meeting is typically held on campus to accommodate this involvement. They function as judges and evaluators, critiquing the final assignments and offering helpful encouragement and advice to seniors about to enter the workforce. Additionally, some students have received interview offers and opportunities through this increased involvement.

Programs that are accredited by one or more agencies have specific requirements for industry advisory board involvement. While this is most typically focused on the regular functions of the board, such as regular meetings, recording of minutes, and so on, there are also other activities for IAB member participation. Most accrediting agencies involve industry members directly in campus visits and offer training or other preparation for these events. Interested IAB members can participate in these programs and even participate in the review of other institution’s programs, bringing fresh perspectives and a wealth of information back to their home department. Programs who are preparing themselves for an accreditation site visit often have increased board participation and at times even do a mock visit to help them to prepare and inform the advisory board more fully about the program and the process.

Curricular involvement opportunities have been one of the most fruitful for the Ball State University construction management program. In a normal progression of involvement, the IAB member is a guest speaker in a class or for a student organization, and then moves on to greater involvement with the program’s curriculum. The capstone course is a particularly rich venue for
involvement, with IAB members being sought as mentors by student teams well in advance of the semester’s start and mentors typically want to be involved every year afterwards.

Extracurricular involvement

Industry advisory board members may also be integrated into the extracurricular activities of the program. Student organizations related to the professional area or discipline provide for many opportunities to integrate IAB members outside the classroom. These organizations often schedule meetings in evenings and other times more convenient to IAB members’ schedules, and offer a less formal environment that some prefer. The author’s program has had particular success with recent graduates coming in to present to student organizations, with students able to better identify with someone who was in the same seat as they were just a semester or two previously. This also engenders frank discussions about the relevancy of coursework, internships, job search preparation, and other topics that inform students, faculty, and board members. Inviting faculty to these meetings can provide additional networking and development opportunities for all involved.13

These student organizations might also be interested in arranging field trips for members to visit offices, factories, or job sites through IAB members. This provides an opportunity for students to see a glimpse of industry in its natural state, and the advisory members can point out the challenges and solutions that have been developed and implemented or are currently underway. In the author’s program, these have been particularly meaningful when both a more experienced IAB member and a recent graduate are involved, providing different perspectives on the same topic. It has also been beneficial to involve IAB members from different organizations that are collaborating on the same project, such as a designer and a contractor on a construction project, who can speak on ambiguity and teamwork, noted as areas that were surprising challenges to engineering graduates.14

There has been an enormous surge in the popularity of student competitions in many disciplines, especially those in applied disciplines such as engineering and technology.15 These competitions typically pit student teams from different schools against one another in some sort of realistic scenario, with bragging rights and other rewards going to the victors. Jones and Kollwitz16 found that industry involvement during the preparation for these competitions was a critical component from the students’ perspectives. Industry representatives can provide expert technical advice, applications and case studies from their experience, and support the teams’ participation financially as they prepare for these competitions.17

The author’s program has successfully utilized all of these extracurricular approaches. Since they are typically not as demanding on an IAB member’s time, these extracurricular opportunities for involvement have proven to be gateways for increased involvement. Timing and scheduling have
proven to be factors to consider carefully, and flexibility on the part of the program is often necessitated. As with other approaches, offering varying opportunities and different scheduling options has proven most successful.

Faculty development

Industry has a vested interest in preparing students to enter the workforce, and therefore has an interest in preparing those who are teaching them. Advisory board members are often welcoming to faculty who have an interest in their own development, and can offer additional opportunities for growth. This can vary from providing case studies that can be adapted by a faculty member for their research or classrooms, to demonstrating how new technologies are being used. For example, the author’s program has gained access to internal training programs on scheduling and other technical components through industry advisory board members, and has also gained access to real and practice studies and simulation in areas that faculty do not have personal professional experience with, such as building information modeling (BIM).

Advisory board members are often overlooked as potential collaborators in various scholarly pursuits. For example, programs that build strong or unique collaborations with industry in internship offerings or other immersive or experiential opportunities might consider presenting or publishing their approaches. Appropriate venues such as the American Society for Engineering Education are welcoming to ideas such as these, as evidenced by the College-Industry Partnership track. As the author can attest, collaborating with an IAB member on a scholarly paper can be a productive, novel, and even fun experience. It also helps to broaden the body of knowledge in this type of collaboration, assisting other programs strengthen their relationships.

Conclusion

Industry boards can and certainly do offer valuable advice to university programs, providing current, “real world” input on a variety of subjects. However, many advisory boards are underutilized, and their members could become integrated into many other program components, ranging from the curriculum to extracurricular activities to faculty development. This paper provided some examples of industry advisory board member involvement that have been successfully implemented by the Ball State University construction management program, in the hope of providing ideas and stimulating dialog with other programs considering increasing the involvement of their board members.


