

Managing Industry-College Partnership Expectations for Students, Sponsors, and Faculty Members

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Abstract

Faculty and students from engineering/technology programs gain personal and professional benefits by participating in industry-sponsored activities. These activities may include: research projects, applied projects, site visits, semester-long or multi-semester projects, internships, co-op opportunities, or liaison with professional colleagues from the discipline. Projects may be funded or non-funded, depending on the type, scope, and desired outcomes of the projects. A motivating factor for students to participate in unfunded projects is assumed to be the experience gained and the academic credit received for their participation. While this mode of operation appears to be a “Win-Win” for the sponsor and for the student, it also has several negative incentive points, leading to a possible “Win-Lose” scenario for students and in turn for the organization. A Partnership Project Model is presented to benefit project participants and to serve as a resource for faculty members and project sponsors who are building strong Industry-University (I/U) partnerships.

Key Words

Win-Lose, Win-Win, Partnership, Projects, Internships

Industry-Sponsored Student Projects: Background Information

Pruitt and Schwartz (1999)⁷ describe boundary spanning as pulling organizations together to build reciprocally beneficial relationships, but suggest this type of relationship development is limited in the higher education arena (as cited in Peach, Cates, Jones, Lechleiter, & Ilg, 2011)⁵. This description could also be applied to college/industry partnerships and internships as these also pull together organizations in order to further expand and build stronger relationships with the community in the form of internships and projects within the community (Peach, et al., 2011)⁵.

In the context of internships, the term boundary spanning denotes an appropriate framework for this discussion. Since the university and the sponsoring organization each have published (and unpublished) policies, procedures, and guidelines, students who will be working in both domains simultaneously must be aware of both systems and must have support from their industry sponsor and from their assigned faculty members in order to succeed. Another term that is discussed in the Peach, et al. article is Work Related Programs (WRP).

“Within the context of work related programs in higher education these boundaries are recognisable within the institution as an entity interacting with both organisations, the educational institution and the employer, each organisation operates under its own authority. In this way boundary spanning activities link

one organisation to another in order to create mutually beneficial relationships” (Peach, et al., 2011, p. 95)⁵.

For the purposes of this paper, industry-sponsored student projects may include: applied research projects, site visits, semester-long or multi-semester projects, internships, co-op opportunities, or informal liaison with professional colleagues from the discipline. These projects may be funded or non-funded, depending on the type, scope, and desired outcomes of the projects. The motivating factors for students who participate in unfunded projects are assumed to be the *experiences* gained by the student and the *academic credit* received by each student for their participation.

Internship Best Practices

An article by Pertuzé, Calder, Greitzer, and Lucas (2010)⁶ entitled *Best Practices for Industry-University Collaboration* and a second article by Betts and Santoro (2011)¹ entitled *Somewhere between Markets and Hierarchies: Controlling Industry University Relationships for Success* present valuable information on establishing internships to support students, faculty, and sponsors in today’s competitive environments. The guidelines presented in both of these articles provide good templates for working with Industry-University (I/U) projects. Unfortunately, in both cases, the student’s perspective is addressed in very vague terms. The focus is placed on business performance and the ability to create timely solutions to current and future business challenges. “From a business standpoint, however, research outcome is of only incidental importance. What matters is not outcome but *impact* – how the new knowledge derived from collaboration with a university can contribute to a company’s performance” (Pertuzé et al., 2010, p. 83)⁶. The practical components of students’ economic viability, safety, and wellness are largely overlooked, even though they are key components of any successful internship program. Whether or not the activity is funded or non-funded would certainly impact a student’s economic well-being.

Within any internship project, industry sponsors’ benefits include receiving additional technical assistance on projects from students who are nearing the end of their undergraduate academic programs and have expertise in specific areas. While these technology or engineering students will not be fully prepared to complete complex engineering analyses or large-scale design projects in most cases - - - *especially during a single 15-week or 16-week semester* - - - these students will be able to bring new perspectives, current technical information, and high energy levels to the project, producing a win for the organization.

By managing these student activities effectively, project sponsors can obtain substantial technical assistance on projects that are otherwise beyond the capabilities of the organization to complete at that point in time. The limitations may be the result of competing time pressures, limited technical expertise in select disciplines, higher priority project requirements, or a number of other limiting factors. By assigning students to analyze, assess, define, and evaluate conditions related to these lower-priority tasks within the organization, a nice blend of value-added benefits present themselves to the team. Students gain experience on realistic work products in real-time and the project sponsor gains information on project activities that may benefit the organization at lower than standard costs. Additionally students working in an internship capacity can free up permanent employees, thus allowing them to refocus their efforts on tasks and project that have a much higher long-term benefit. So, for students, internship activities can also be beneficial.

Projects may be funded or non-funded, depending on the type, scope, and desired outcomes of the projects. The motivating factor for students who participate in unfunded projects is the resulting experiences gained and the academic credit received by each student for their participation. Overall, the student gains experience and the organization gains up-to-date expertise during the term of the internship. Maertz, Stoeberl, and Marks (2014)⁴ provide an excellent resource for university faculty, administrators, students, and industry sponsors who are developing or managing an internship program. In Table 1 (p. 127-128)⁴, these authors provide internship participants with a robust summary of potential benefits and costs for each stakeholder. Lipka (2010) added:

Getting real-world experience is in high demand across higher education. But the legality of unpaid work leaves colleges in an odd position. ... Debra Gelinas's students want college credit for their internships. Actually, they need it.

Companies often insist on credit so that interns might legally qualify as unpaid trainees. So eager students turn to Ms. Gelinas, director of experiential learning at Berklee College of Music, in Boston. ... Companies often see academic credit as substitute compensation that qualifies interns as legally unpaid trainees and keeps them on their college's liability insurance. Advertisements specify: "Candidates must be able to receive academic credit" (para. 1, 2, & 7)³.

Although the unpaid internship mode of operation appears to be a "Win-Win" for the sponsoring company; it also has several negative incentive points, leading to a possible "Win-Lose" scenario for students - - - and ultimately for the sponsoring organization itself. The internship *commitment* often requires the student to give up an income-producing opportunity in order to allocate the time needed to participate in the unfunded project.

Constraints for Student Participation in Industry-Sponsored Projects

Students generally recognize the benefits of participating in industry-sponsored projects but other factors must be considered before a Win-Win scenario can be realized. Project sponsors also benefit by mentoring talented newcomers to the discipline as they develop their own leadership and management skills in team-oriented settings. Faculty and students from engineering and technology programs gain personal and professional benefits by participating in various industry-sponsored activities, but personal or economic obligations may suffer.

A commitment by students to take on the responsibilities of a semester-long (*or longer duration*) project may require the student to give up an income-producing opportunity in order to allocate the time needed to participate in the project successfully. Students who are asked to participate in an unfunded industry-sponsored project in order to gain real-world experience must also consider what they are *giving up* in exchange for this commitment. Many students are taking classes at a university as one element from a much broader slate of individual responsibilities. These additional responsibilities may include: a) taking care of family responsibilities/expenses, b) working one or more jobs to produce income to offset the costs of education, transportation, and living expenses, c) participating in fitness or athletic programs, d) managing social and/or personal activities, and e) health care or health maintenance activities. All of these components require some investment in time and/or money in order for the student to remain solvent - - - all the while the student must also remain focused on his/her goal of completing a quality academic program.

From the perspective of the sponsoring organization, there are additional constraints for student internships which can result from economic or political factors in the local or regional geographic area. As noted by Carr (2009)²:

Some for-profit and nonprofit organizations that have continued their [internship] programs now are offering unpaid positions, when they traditionally offered paid opportunities, internship coordinators have observed. ‘We’re seeing an increase in the number of unpaid internships,’ said Joseph Protopapa, assistant director of cooperative education and internships at the University of Akron’ (p. 3)².

As companies scale back – *during times of reduced economic activity* – full-time employees begin to see their employment status affected. In many cases, before full-time employees begin to lose their jobs, part-time employees and interns are likely to be eliminated as well. This is detrimental to student real-world experiences in the workplace.

Zalewski (2005)⁸ observed “... layoffs have become permanent terminations in many cases, and this problem has extended beyond the blue collar workers to include highly trained, college-educated personnel” (p. 385)⁸. When companies downsize to meet these downward-trending economic challenges, the remaining full-time employees, part-time employees, and interns alike are expected to do more for the same (*or less*) money to account for the reductions in manpower. Over time, this condition creates a negative-reinforcement behavioral cycle. When the economy begins to recover, employees who were left with the responsibility to continue day-to-day activities may begin to seek employment elsewhere. This results in an even higher workload requirement for the remaining employees if production or development rates are not reduced proportionally. When permanent employees are being terminated based on changing economic conditions, it may be difficult or impossible – *politically* – for a firm to sustain or increase their participation in an internship program, even though it would be beneficial in the long run for the discipline, the industry, and society-at-large. “Although interns are a less expensive alternative to hiring or maintaining full-time staff employees, companies want to be sensitive to their remaining staff, said Marianne Crosley, director of Summer on the Cuyahoga, a summer internship program. ‘When organizations are freezing salaries or are laying off workers, it’s difficult for them to contemplate bringing in interns,’ Ms. Crosley said. ‘Even though it makes sense economically, they are worried about the perception to their remaining employees.’” (Carr, 2009, p. 3)²

Student Participation in *Funded* Industry-Sponsored Projects

Funded activities result in a Win-Win for all and provide motivating factor for participation in funded projects through experience gained, and academic credit for the student while providing disposable income. Students, faculty, and project sponsors who participate in funded projects generally see a “Win-Win” scenario as do the industry sponsors and faculty who collaborate to create and sustain the internship programs. By participating in an internship opportunity, students are able to gain relevant, timely, and real-world experiences in the industry while offsetting some of their income requirements. Students who participate in these internship assignments are often near the end of their academic program in a particular discipline - - - *one which is directly related to the specific type of career the students are pursuing* and are able to spend the time it takes to excel within the organization.

Students who participate in funded projects are often more highly motivated to perform consistently high-quality project activities compared to their unpaid counterparts. This attribute alone defines a primary difference between students who seek out funded projects compared to those students who may accept any type of internship or project activity merely to complete a course requirement. From the company's or sponsor's viewpoint, some of the internship benefits include: 1) access to students who have current information in the discipline and who are interested in building a portfolio of accomplishments to reinforce their competitive posture in the workplace, 2) reduced recruiting, evaluation, and assessment costs for newly-hired employees, and 3) creating improved incentives for higher-performing students to compete for the paid internship opportunities.

It is important to reiterate that students in this discussion are nearing the end of their academic program in a particular discipline and have expertise directly related to the specific type of career the students are pursuing. While these students should not be compensated at the wage rate of a newly graduated engineer or technologist, there exists a fairly broad middle ground where companies can obtain a high return on their investment dollars in these funded activities.

Constraints Students Face when Considering Participation in Industry-Sponsored Projects

Oftentimes, students (*including unpaid interns*) attempt to work part-time while completing their academic programs. These employment opportunities may limit the student's ability to generate adequate funds for economic support as they strive to build a lifestyle compatible with an early-career professional. Due to the multitude of constraints facing full-time undergraduate students, companies may only consider the student to be qualified for a minimum wage job, due to their scheduling constraints *that change every semester*, and based on the underlying assumption that once a student earns their degree, they will likely choose to leave their part-time discipline in order to pursue a longer term technical career as a salaried professional.

These constraints – along with the high volume of students seeking part-time employment near a college campus – often leave students working in very low or minimum wage jobs in the unskilled service industry such as retail sales or fast food restaurants. By offering students unpaid internships – *in an attempt to reduce costs to the sponsor* – the students must likewise commit to giving up their meager part-time income for the duration of the project. If a student leaves their part-time position to participate in an industry-sponsored project, the likelihood of them being able to return to their previous position, after the semester-long project has concluded, may be compromised.

Some students may attempt to retain their part-time jobs while working as unpaid interns, merely to *make ends meet*. This decision will obviously create additional pressures on the student to manage Work-Life-Academic issues with corresponding increases in fatigue, inattention, distraction, transportation expenses, and schedule restrictions during the traditional Monday through Friday work week. Funding internships could address many of these challenges. Funded internships should be designed to recognize this real-world constraint and to implement a funding model to replace the loss of a student's part-time income or to supplement other sources of income during the period of the internship.

Developing a *Win-Win Partnership Project Model* for Industry-Sponsored Projects

In order to define a *Win-Win Partnership Project Model* for Industry-Sponsored Internships and Work Related Program Projects, it is necessary to first define some of the key components that will need to be included in the model.

As Maertz, Stoeberl, and Marks (2014)⁴ stated:

... potential pitfalls stem from the fact that employers and interns do not have consistent or shared expectations regarding the internship. The benefits of internships for schools can be significant. These include filling an important modern need for experiential and vocational learning. For employers, hiring an intern for a full-time position after the assignment can lead to savings in the areas of recruitment and selection (p. 123)⁴.

In the business world, several factors must be considered before the employer or the sponsoring organization will recognize the win-win scenario as well. Several of these benefits have been identified in the various references used to support this paper, but the *Career Development International* article by Maertz, Stoeberl, and Marks (2014)⁴ identifies many of the key success factors in the internship model - - from the employers perspective.

Benefits for employers

Numerous articles address the potential benefits and costs for employers who utilize interns (e.g. Ames, 1986; Mihail, 2006; Pianko, 1995; Ryan and Krapels, 1997). Extra labor capacity and the opportunity to try out a potential future staffer are the most common reasons given by employers for using interns (*HR Focus*, 2005). Interns are often well-suited to help with value-added emergent or “back-burner” projects that would not otherwise be done, at far less labor cost while simultaneous [*sic*] allowing full-time employees to focus on more immediate priorities.

In addition to compensation efficiencies, hiring an intern for a full-time position after the assignment can lead to savings in the areas of recruitment and selection. There are typically very low recruiting costs associated with interns compared to other hires. Internships are also an extended “tryout”. (p. 130)⁴

Peach et al. (2011)⁵ also identify key success factors that companies use to determine the benefits of using interns within their respective organization. “In studies commissioned by the World Association for Cooperative Education employers reported benefits including: ability to hire students for project work, access to additional help or assistance, access to enthusiastic/motivated employees, flexibility and cost effectiveness of hiring, and ability to pre-screen employees.” (p.100)⁵. While these factors tend to favor the positive side of the trade-off “balance sheet”, there are negative factors that must also be considered. Managing interns within the organization requires a substantial investment in time, money, resources, and training by the employer and by the affected project personnel. This additional commitment is a cost that must be considered, but is not unlike the time and resource commitments needed to integrate a new employee into the organization. It has been shown that successful internships are much more likely to result if a dedicated project sponsor or champion is assigned from within the organization.

The value of champions have [*sic*] long been recognized, particularly in the area of industry-university [I/U] collaborations. For example, studies by both Gerwin

and colleagues (1993) and vanDierdonck, Debackere and Engelen (1990) found that champions are an important facilitating factor in I/U relationships because champions often provide needed control and governance. While the literature is pretty clear on the importance of champions, questions persist as to how champions go about accomplishing these activities (Betts & Santoro (2011p. 23)¹.

Using a best value approach to encourage students to participate in Industry-Sponsored Academic Projects, a proposed *Partnership Project Model* is presented. This model would consider the student as a journeyman level, part-time employee during the term of the project. The participating student would report to a designated project manager or internship coordinator within the sponsoring company. Internship students would not be eligible for benefits, under current labor laws due to the number of hours allowed under many university guidelines. These outside employment guidelines require students to work no more than 20 hours per week, while taking a full course load. A broad guideline for establishing internship rates of pay should allow the company to establish wage rates well above the minimum wage - - - based on the understanding that these emerging engineers and technologists have technical knowledge and skill levels that set them apart from the general population. Conversely, the internship wage rates should not be as high as a newly-graduated engineer or technologist for several reasons which will be discussed later in this paper.

A suggested (appropriate) internship funding model should set the engineering/technologist internship wage rate in the range of \$15.00 to \$17.50 per student hour *depending on the qualifications of the students required for a given project*. The proposed internship wage rate is approximately 60% to 75% of a newly-hired engineer/technologist. The internship funding model is based on the following assumptions:

- Weekly (20-hour) wages lost from *current* minimum wage jobs ~ \$160.00 (before taxes)
- Median (20-hour) salary for *entry level* engineer/technologist ~ \$475.00 (before taxes)
- Proposed (20-hour) salary for *student intern* ~ \$300.00 to \$350.00 (before taxes)

The advantage of using a percentage-based model for creating funded internship programs is that the proposed internship funding model is easily scalable for companies that may be located in different geographical areas or for industries where higher (*or lower*) salary rates for newly-hired engineering and technology professionals are the norm.

Conclusion: Benefits of Paid Internships or Funded Industry-Sponsored Projects

It may be possible for students to be considered as contract employees or consultants during the term of the project, thus minimizing the tax reporting requirements using an IRS Tax Form 1099 employee model. While current labor law requirements, tax advantages, and other constraints within the project funding model are well beyond the scope of this paper, the consultant/contract employee model is merely being mentioned as a possible consideration. Other considerations for student participation in industry-sponsored activities include managing the required clearance and insurance procedures. Again, these details are beyond the scope of this paper, but they must

be addressed before the final internship agreements can be approved by the university administration.

Throughout the internship project(s), the sponsoring company has a unique opportunity to assess each student's performance levels and observe their individual work ethic, knowledge level, motivation, team dynamics, attitude, behavior, communications skills, and a wide spectrum of work-related attributes. From the company's or sponsor's viewpoint, access to students who have current information in the discipline and are interested in building a portfolio of accomplishments to reinforce their competitive posture in the workplace is gained during these activities. By selecting the *best interns from the group*, hiring managers are able to: reduce training time needed to fully integrate newly hired engineers/technologists into the workforce, rapidly integrate new employees into productive teams within the organization, and reduce their recruiting costs while minimizing the risks of hiring new employees who may not deliver the promised levels of performance.

Hiring managers are able to take advantage of known employability attributes – *as demonstrated by students throughout their internship programs*. Sponsors are able to enhance their ability to screen potential future employees, thus minimizing risks and avoiding expensive recruiting and hiring operations. At the end of a successful internship, students would be able to compete for a full time starting position, resulting in a de-facto competitive pay raise as they enter the workforce.

On the student side, the benefits include enhanced work experiences and the ability to earn money for the time spent on the activity. The possibility of a funded project not only makes the organization more appealing to interns, but also motivates the student to become a productive member of the team rather than filling a position merely to obtain academic credit toward their chosen degree program.

The issue of paid (funded) versus unpaid (unfunded) internships will probably continue as long as there are mutual interests, personal agendas, and organizational policies that must be served within a capitalistic economic system. When student performance is weighed with the variable being whether or not the student was paid for the activity, organization should consider the production impact while creating policy that would support paid student activities.

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2015 ASEE Southeast Section Conference

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