

## Bridging Classrooms and Corporations

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Throughout this century, engineer-managers have emphasized the need for improved engineering curricula which would train students to be effective communicators, as well as competent engineers. And throughout this century, administrators and faculty in engineering schools have devised ways to meet this challenge from industry. Yet as we approach the close of this century, we find engineer-managers still calling for improved curricula to integrate communication and engineering instruction. In the January 1998 issue of the *Prism*, for example, Rodger Payne reiterated this oft-heard recommendation from industry to academe: “[I]ndustry representatives told [engineering deans] time and again that while engineering graduates are intelligent and possess technical skills, they need to be better prepared to communicate, work in teams, and contribute to problem solving—all on their first day on the job.”<sup>1</sup> It seems that the problem of how to integrate communication and engineering instruction is at least persistent, if not insoluble.

If engineer-managers are calling for stronger ties between industry and academe, this refrain is echoed by professional communicators. Writing in the February 1998 issue of *Technical Communication*, George Hayhoe called for the same type of collaboration that Payne recommended in an engineering context: “Technical communicators in the academy and industry need to explore a new model of education for the next millennium, one that fosters, promotes, and actively pursues learning—and learning to learn.”<sup>2</sup> It seems that at our current moment in educational history, we find a meeting of minds from engineering schools, professional communication programs, and industry on at least one issue: to effectively teach engineering and communication, schools and industry need to collaborate on ends and means.

This increasing interest in industry/academy collaboration positions teachers as mediators in the classroom, juggling needs and expectations from a number of parties: students, corporate partners, department faculty, potential employers, university research centers, etc. When considering this type of corporate/academic partnership for student projects, all parties involved need to carefully consider both the benefits and the limitations of such projects, as well as designing realistic outcomes for the students and the corporate partners. As a guiding principle in these considerations, it is helpful to keep David Lempert's advice in mind: “academic field sites should be places that can yield insight into particular social problems or research issues.”<sup>3</sup> In other words, industry sites for class projects should first and foremost yield experiences that are beneficial for student learning. This idea may seem obvious, but it can get lost in the enthusiasm and demands of the project partnership. In the blush of enthusiasm as the project is first considered, teachers are in a mediator position of negotiating expectations from both industry and academy viewpoints.

In this mediator position, teachers are in the middle of a number of competing expectations: students' expectation for a safe learning environment; a department's and university's expectation that teachers will teach a specified course content as set out in a catalog description; a business partner's expectation for a usable deliverable; a business partner's expectation that the collaboration may identify a pool of potential entry-level employees; a teacher's expectation that students will learn a reasonable amount of course content. Teachers can even find themselves in the midst of complicated fund-raising, civic, economic, and professional development programs while partnering with industry, as described by Lynda McCullough through case studies of Virginia Commonwealth University, University of Tennessee, and the University of Arizona.<sup>4</sup> In the midst of these complicated needs and expectations, teachers still find themselves instructing students in classrooms or at other sites. The fundamental act of teaching still occurs and teachers need to protect that activity by acting as students' advocate to industry partners, university administrators, chamber of commerce representatives, and others in the mix. Even if students become employees, they are not employees in the class environment, which must continue to be a place that is safe for learning.

An example of this complicated industry/academe partnership occurred in a technical editing class I taught in the spring of 1997, which was made up of four graduate and thirteen undergraduate students from approximately ten majors. The faculty from a center for professional communication at our university presented us with the opportunity to work with a senior writer at a large software development firm. We agreed to edit documentation for a beta version of downloadable data streaming software. The product in itself was complicated, consisting of an on-demand and online product and three forms of documentation: online HTML, printable RTF, and local HTML. We chose to edit the online HTML and printable RTF documents for the online product only because we could not access the on-demand product which required an NT server. We did not edit the local HTML version of the online product documentation since it used a frames format which complicated the editing. Right from the start we were faced with the necessity to redefine the project's scope to fit our class members' capabilities and our semester deadline.

To minimize the confusion of working with an ever-changing online beta version, I chose to freeze the documents on a particular day and that was the version we worked on as a class. We broke up into teams to copyedit the two versions of the document, edit them substantively, and compare the online HTML and printable RTF versions to ensure that they were appropriate for their electronic and print media. In addition, we appointed a team to act as historians for our project. The teams worked for ten weeks to develop an editing plan for the documentation. At the end of that time, two class members presented our findings to the corporate advisory board for the professional communication center. The site of this presentation was a large theater-style facility at a near-by manufacturing company, which was the home base for one of our corporate board members. After this presentation, all class members wrote post-project analyses. In turn, I wrote a summary post-project analysis, which I forwarded to the center for professional communication as a cover for the students' analyses.

In this particular project, our industry partner understood that he was providing an opportunity to extend our classroom experiences into a virtual corporate setting. Through this collaboration, we were able to feel some of the frustration at a changing product, anxiety of approaching

presentation deadlines, determination to deliver a professional editing plan and presentation, need to learn in order to complete a job—things that students cannot learn passively at their desks. And our partner was satisfied with whatever product we presented to him because he knew that he was participating in a learning activity with unpredictable outcomes, to some degree. If we came up with innovation and cost savings, great. But the important goal was for students to learn communication skills while also learning course content.

As in any experience, our class' partnership with the software developer resulted in some benefits as well as costs. On the plus side, students felt that their authentic work for a real client improved learning opportunities in our class. They also appreciated the chance for students from many majors to work together for a common end and to learn from each other. Many of them also felt that the presentation to the corporate board enhanced their classroom opportunities, although this presentation was also a source of concern for a number of students.

On the minus side, students felt that we had not maintained close communications with the board members, which resulted in mismatched expectations between board and class members. And because we had not clearly negotiated project goals before embarking on the partnership, we were not sure we were accomplishing what the board would consider a successful outcome. The class was working under constraints that are not common in industry. For example, I had a team of seventeen non-experts working on a project that would have been better completed with a small team of skilled editors. The size and composition of the class was cumbersome for completing a professional deliverable, but was also a rich learning environment. In addition, I saw my students less than three hours a week, unlike an industry setting where a manager can contact workers at least forty hours a week. Finally, our class was driven by the academic calendar of semesters, breaks, and finals; our project was driven by the board's need to meet the week after spring break. These conflicting calendars left our class taking a week off right before a major presentation. In my industry experience, a whole team does not go on vacation right before a major project deadline.

In summary, I would say that collaborations between industry and academe offer a rich source of learning experiences for students, teachers, and industry partners. These collaborations provide ample opportunities to integrate communication and team skills into engineering courses. And yet, in classrooms the focus must remain on learning and teaching. Projects are an exciting way to enhance the classroom experience, but assigning corporate projects places unconventional tensions on the faculty member who must mediate the complex relationships inherent in that assignment. Does the teacher represent corporate needs? Or student needs? Or both? How does the teacher negotiate this corporate/student tension while also planning and carrying out pedagogical requirements? Signing on for a corporate project places the teacher in the middle of these competing needs and it is sometimes difficult to decide whose needs get met. Students' need to learn and the teacher's need to teach should take precedence in planning and assigning a corporate project.

1. Payne, R. 1998. "Common goals." *ASEE Prism* 7.5:56.
2. Hayhoe, G. 1998. "The academe-industry partnership: What's in it for all of us?" *Technical Communication* 45.1:19-20.

3. Lempert, D. 1997. *Escape from the ivory tower*. San Francisco, CA: Jossey-Bass.
4. McCullough, L. 1998. "Progressive partnerships: Building stronger communities through cooperation and engineering education." *ASEE Prism* 7.5:30-33.

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