

The TEAMS Leadership Institute: Encouraging Women to Take the Road Less Traveled

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Abstract

The TEAMS Leadership Institute is a program at Purdue University Calumet (PUC) that was designed to promote women into leadership roles in fields that are generally known to have an underrepresented female population. The mission of the institute is to aid current and future leaders in the fields of Technology, Engineering, Architecture/Construction, Mathematics and Sciences in overcoming gender-related issues common in business environments. The institute aims to do this by providing pertinent education and information, appropriate networking opportunities and experiences, and general support in aiding leaders as they develop essential skills that will support lifelong success.

The institute resulted from the efforts of various faculty members and administrative staff at PUC who hold a stake in the TEAMS fields. Their interest in gender equity prompted an official committee to be formed under the PUC Women's Studies program in 1996. The committee has evolved over several years conducting focus groups and coordinating various projects within the community. Eventually, their focus turned to the important subject of leadership, specifically of women in the TEAMS fields. The leadership institute was formed to provide a mechanism for undergraduate and graduate students to network with leaders in their fields. Components of the institute that currently support this effort include a web site for coordination and information dissemination, mentoring opportunities, and informal networking brunches.

It is the intention of this institute to not only encourage students from the TEAMS fields to become leaders, but also to encourage retention and recruitment of female students into these fields at PUC. As has been shown time and again, women are underrepresented in the TEAMS fields and Purdue University Calumet is no exception. A 1999 analysis revealed that only 29 percent of the PUC student body in the TEAMS fields were female.

This paper will begin with an overview of the TEAMS Leadership Institute including a discussion of its origin and support structures that were used at PUC to sustain and grow the program. A few of the challenges that arose due to the diversity of disciplines that are involved in the program will be discussed. In addition, future follow-on components and plans for the institute will be presented.

I. Origin of the TEAMS Leadership Institute

TEAMS is an acronym for **T**echnology, **E**ngineering, **A**rchitecture/Construction, **M**athematics, **S**cience and these are areas that are representative of various educational disciplines taught on the Purdue University Calumet (PUC) campus. The TEAMS Leadership Institute at PUC is a project that focuses on the issues surrounding gender imbalances found in these scientific and technically oriented professions. It is the outgrowth of a project that began under the auspices of PUC's Women's Studies Program called project STEM (Science, Technology, Engineering and Mathematics). Interest in this project began in 1994 when several faculty members along with the director of the Women's Studies Program attended a Project Kaleidoscope (PKAL) regional colloquium, "Women in Science and Mathematics," in Berea, Kentucky. When these faculty members returned from the PKAL conference they presented a report, including goals they had developed for project STEM, to upper-level administrators. These goals included building an inclusive, inviting learning community for women; gathering quantitative and qualitative data describing PUC women's experiences in STEM; and broadening the scope of the Women's Studies Program, which was traditionally focused on the humanities, to include gender issues in STEM. By clearly defining the project goals and effectively communicating them to administrators, support for the initiative was openly given in the form of funding for STEM activities as well as helping to establish networks on campus and in the regional community. This led to partnerships that made possible the realization of basic STEM goals.¹

It is significant for PUC that the origin of the TEAMS Leadership Institute is with the Women's Studies program. For many years the relationship between female STEM students and the Women's Studies program at PUC was typified by a mutual disinterest. There was little common ground between Women's Studies and STEM programs despite the fact that traditionally the STEM fields have been the university's central concern. PUC is one of several regional, commuter campuses that make up Purdue University, which is a land-grant institution founded to create educational opportunities for region-bound Midwesterners. Still dedicated to that tradition, PUC is a comprehensive university offering certificates, associate, baccalaureate, and master's degrees. Its mission privileges professional education and ties degree programs and curricula to the needs of the surrounding region. Though changing, this economy historically has been based on the steel industry and affiliated businesses. Consequently the STEM fields are particularly attractive to PUC's many students whose pursuit of post-secondary education is motivated by a desire for better employment and upward economic mobility. Therefore, although it makes sense for the Women's Studies program at such an institution to become involved with the STEM disciplines, this collaboration of faculty and administrators proved to be a significant undertaking at PUC and an official cross-functional committee was formed to carry out STEM goals.

As the STEM project developed from 1994 to 1997 both quantitative and qualitative data were collected to substantiate the suspicion that the situation described by national statistics existed on the PUC campus as well. An example of quantitative data that was collected to substantiate this suspicion showed that on the PUC campus women comprised 29 percent of the total enrollment in chemistry and physics, 35 percent in mathematics, computer science and statistics, 11 percent in construction technology, 16 percent in engineering, 6 percent in electrical engineering, 41

percent in information systems and computer programming, and 28 percent in manufacturing engineering technology and supervision.² Whereas this data could substantiate that there were issues regarding gender imbalance, it did not provide solutions. Therefore, qualitative information was then collected to identify special needs for women in STEM fields so that solutions could be developed to combat this inequity issue. One form of collecting this information was through the use of focus groups of students and alumnae. From focus group responses, recommendations were developed to help perpetuate growth and retention of women in the STEM areas. Among the recommendations were mentoring programs and outreach programs.

In addition to gathering data regarding gender inequities during the early years of project STEM, the committee also collaborated on the facilitation of a major project which focused on regional high-school students. This project was funded by a grant that amounted to \$46,000 for region-wide activities including \$7,000 for the university to host a program called the Workplace Gender Equity Project (WGEP). This was a one-day workshop to encourage high-school students to pursue education and careers in fields traditionally dominated by one gender (either male or female). The committee facilitated one WGEP workshop each fall for the two-year life of the grant.

These highlights are just some of the ongoing evolution of project STEM at PUC. As these activities were being carried out, there were also additional faculty learning activities and discussions going on amongst the committee members to look toward defining the project's future. By May 1998 the committee had completed their facilitation of the WGEP grant and was looking to focus on a specific project that was of particular interest to high-level administrators at PUC. This project was the development of a regional "Leadership Institute" for women in the STEM fields.

II. Challenges to be faced in development of a leadership institute

At this point, it is important to note some major challenges present in development of the STEM project that carried over to the leadership institute project. First is the most common challenge for any project, resources. Faculty and administrators as a normal part of their committee loads had always carried out the STEM project and all of its activities meaning there had been no faculty or administrator strictly assigned or dedicated to the project, its activities or data gathering processes. Also, there was no specific budget for the project. Therefore, as the committee considered development of a leadership institute, it was important to define what a leadership institute would consist of and what resources it would require. As institute activities developed, it became evident that funds needed to be secured to run the activities. These methods will be noted as the steps to creating the leadership institute are described in the next section of this paper.

Another major challenge to this project that may not be as prevalent on most projects was the diversity of the backgrounds of the participants involved. This created discussions over mixed agendas and miscommunications. No member appears completely comfortable with all activities or discussions, which may in itself be a mixed blessing. Whereas it does provide for highly

complemented diversification's, it also can result in feelings of confusion and isolation from the committee.

This project brought together for the first time faculty in the sciences, technologies, engineering, and mathematics as well as faculty in the Women's Studies program who are grounded mostly in the liberal arts and social sciences. Needless to say, faculty within the various scientific and technical areas provide for a wide range of diversity but tended to at least generally focus on the technicality of their respective fields and how to advance within their profession. On the other hand, faculty from Women's Studies generally tended to have an interest in feminism (which is why Women's Studies programs exist) which most of the STEM faculty found as a foreign concept. This led to interesting discussions and learning of different viewpoints for all participants.

III. Steps to Creating a Leadership Institute

Project STEM was developed as an umbrella committee to focus on all pertinent issues facing the university regarding the imbalance of women in the STEM fields. This is an all-encompassing approach which focuses on recruitment and retention of all ages as well as curriculum development and other various issues. Therefore, in order to focus on one monumental task, in the fall of 1998 a separate committee was formed (consisting of many of the original project STEM committee members) to address the issue of developing a leadership institute for women in STEM fields. The first issue to address was how to define a leadership institute. This involved both researching what was currently available to the regional community and what needs remained to be met. It was found that a range of various definitions existed as to what a "Leadership Institute for women in the STEM fields" meant. It was found that leadership institutes exist that focus on advancing female university faculty in the STEM fields into leadership (administrative) positions within universities. There are also leadership institutes that focus on female high school students to encourage them to go into the STEM fields. In addition, there are leadership institutes that address women and minority issues in all fields including the STEM areas. These were just some of the different examples of existing leadership institutes that were discovered during the committee members' research efforts.

The committee also focused its research on how these programs were funded and found that some were funded by grants, some by universities and some were unclear as to their funding sources. It became evident that the committee must concentrate on identifying the regional need for women in the STEM fields and develop the institute to satisfy those needs. To do this the committee reviewed the data collected in previous years paying particular attention to needs identified during focus groups with PUC students and alumnae. It was only after following a basic problem solving approach to this issue that the committee developed a proposal for action to be initiated during the 1999-2000 academic year.

The committee started by determining whom the leadership institute would be designed to serve. It was agreed that the data supported that PUC's curriculum provided students with viable technical and scientific knowledge so that they performed well after graduation. A survey of PUC's graduates confirmed the university's expectations. However, graduates did note that,

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although they may not have realized it as students, people skills, communication and teamwork all appear to be of equal importance to technical skills when functioning in the workplace. These attributes are all closely associated with the concept of leadership. In fact, today more than ever, the job is accomplished via teamwork and many major firms expect each person on the team to take on a leadership role when appropriate.³ The committee determined that this would therefore become the focus of the leadership institute; recent female PUC graduates in the scientific and technical areas who want to learn how to function as an effective team member and/or leader in the workplace. This focus would naturally include "future graduates" (students) and alumnae who had already become leaders in their field.

The next hurdle to overcome was determining what constituted an institute. Did an institute require an actual building or a dedicated department with a budget or was a committee operating under a legitimate university program sufficient? The committee determined that an institute must first have a stable form of communication with those it serves. With the technology available today this is very feasible even though no one building or department or even a single secretary would be available. This would simply require creating a user friendly web site. Second, the institute must have an identity so that when activities, functions or other communications are directed towards the intended audience, the communication would be recognized as such and not simply discarded. Finally, actual activities and functions that will achieve the institute's mission must be planned and carried out.

Through research, the committee members identified four activities for the institute that were in need of support and coordination during academic year 1999-2000. First, a web site and supporting documentation, identifying logo, etc. needed to be created. This was accomplished through the use of university resources in electronic publishing and a student senior project design team in computer technology. It was during the creation of the institute logo and its unique identity that the name TEAMS was adopted for the institute. Industry partners agreed that the term STEM was a bit ambiguous to the business community. By rearranging the letters and highlighting the 'A' (for PUC's disciplines in Architectural Engineering Technology and Construction Technology which were previously included under 'T' for Technology) a much more appropriate acronym for a leadership institute, TEAMS, was developed.

Second, an open house was held at the end of the fall 1999 semester at PUC in order to introduce the concept of the TEAMS leadership institute. At this Open House material explaining the mission of the TEAMS leadership institute was available, the web site was showcased (<http://www.calumet.purdue.edu/teams>), interactive functions and feedback sessions were held and the TEAMS committee members gave a short presentation to reinforce everything that was available for participants to view. Costs for this function were minimal (university room costs, catered snacks and audiovisual fees), however, without an available budget, it is important to note that these costs were funded through the university by working with upper-level administrators. The Open House successfully introduced the TEAMS leadership institute to current PUC students as well as the business community.

The third activity for the institute was to conduct a leadership workshop early in the spring 2000 semester on the PUC campus. The workshop was geared toward graduates interested in the

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concept of becoming a leader. This was a one-day workshop titled "The Inner Work of the Leader" which was to be led by the executive director of Trustee Leadership Development™. In order to fund this program, a reasonable fee of \$99 was requested from the local business participants with scholarship awards available for students in the TEAMS fields who were interested in attending. Unfortunately, the institute had not had enough time or exposure in the community to generate the required attendance quota, and the workshop was therefore rescheduled for a future date. The positive aspect of this workshop was that simply in advertising for it, additional exposure was given for the institute.

The fourth and final activity for the year was a Sunday Brunch. This was held at the end of the spring 2000 semester to provide an informal setting for networking of faculty, students and industry partners in the TEAMS fields. This function was conducted for the modest cost of \$16 per participant. Where as part of this funding was provided directly by the participants, faculty and industry partners were asked to contribute to the sponsorship of student attendees. The response to this request was overwhelming. Many individuals were willing to sponsor a student even though they themselves were unable to attend the program. This in itself is a form of success just by the show of support from the community. During the brunch the TEAMS committee chairperson was able to wrap up the first year's events and present plans for the following year. The brunch was highlighted with a keynote speaker - a female engineering manager from BP Amoco who talked about what "Leadership in the new Millennium" means.

IV. Looking Forward to a Bright Future

With the first year of successfully introducing the TEAMS Leadership Institute to the university and business communities complete, the TEAMS committee members began to concentrate on the future activities for the institute. The director of the Women's Studies Program had initiated a mini-grant proposal in response to a call for submission from the Indiana Space Grant Consortium. This mini-grant was requested to fund two major activities for the TEAMS Leadership Institute in 2000-2001: an on-line mentoring initiative and the end of year Sunday Brunch (which was determined, as a result from its previous success, to be an ongoing event). A mini-grant was awarded for \$2000. A major portion of this grant was used to hire a student to act as a web administrator. This administrator further developed the existing TEAMS web page to include a virtual mentoring program that is currently running with several pilot mentor/protégé pairs and will be available to PUC students, as protégés, and industry partners, as mentors, beginning early in spring 2001. More can be learned about this program as it develops by reviewing the web page at <http://www.calumet.purdue.edu/teams>.

Additional projects that are planned for future development include dissemination of information relating to gender equity in the TEAMS fields by coordinating a newsletter. This newsletter will be posted on the TEAMS web page and e-mailed to the current list of participants in the TEAMS database. It is anticipated that student support activities will be expanded by providing scholarship opportunities for students. If this does not seem feasible due to resource constraints, a database of current scholarship opportunities available in the TEAMS fields may be compiled and made available on the TEAMS web page. The mentor activities will continue to expand and efforts will be developed to easily track results and outcomes from the program on an on-going

basis. Other quantitative data pertaining to PUC will also be tracked for comparison on an on-going basis. These are just some of the efforts the TEAMS leadership institute currently has plans to focus on. Of course, with the dynamic nature of the institute, it is hard to say just what needs may arise in the community leading to a change in the focus of institute activities.

V. Conclusion

Of all of the data available on gender imbalances in the scientific and technically oriented fields, none is a better measure of how well PUC is faring than to compare it to itself and follow this statistic over time. For instance, PUC could compare itself against a new report by the Commission on the Advancement of Women and Minorities in Science, Engineering, and Technology Development. This report shows that women make up only 19 percent of the science, engineering, and technology workforce.⁴ As of fall 1999, PUC's statistics showed that 29 percent of the PUC student body in the TEAMS fields were female. This could lead to the conclusion that PUC is doing well in its efforts to improve gender imbalances in the TEAMS fields. However, without thoroughly scrutinizing the origin of the statistics it is difficult to ascertain if they are truly comparable. A better statistical comparison for PUC is that overall 56 percent of PUC's student body are female. Using this statistic as comparison to the 29 percent, it is obvious that PUC still has work to do to in order to balance its female students in the TEAMS fields.

Another interesting point to note was made in a survey of economic data published by the Independent Women's Forum and by the American Enterprises Institute. It stated:

"The authors take issue with the methodology of the 1995 Glass Ceiling Commission Report. That report reported that only 5% of senior managers at Fortune 2000 industrial and service companies are women. The authors of "Women's Figures" note that, typically, senior positions in corporations are held by people with MBAs and 25 years' experience. But the Commission compared men in that group to women across the overall work force. Given that far fewer women than men took MBAs 25 years ago, it would be wrong to expect 50% of the CEO force to be women."

Whereas this direct quote may not be completely appropriate to a discussion on the TEAMS fields, it does bring to light the important concept that we can not expect to eliminate an imbalance in gender equity in any profession overnight. We also would be incorrect to assume that any improvement in this imbalance over time is the result of any one solitary effort.

As for the TEAMS Leadership Institute, it is still in its early stages of development, but strong roots have been planted giving it potential for stability and growth even though it is administered though limited resources. Also, it is structured so as to be capable of responding to changes as needed in the dynamic environment in which it exists. This means that the activities and programs themselves may change from year to year to support the needs of the community but the institute itself will retain its established identity and, however slowly or unconsciously, make its mark and help to establish a more equitable society.

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