



Seattle

122nd ASEE Annual
Conference & Exposition

June 14 - 17, 2015
Seattle, WA

Making Value for Society

Paper ID #14053

Developing Industry Partnerships for Student Engagement in China

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Developing Industry Partnerships for Student Engagement in China

Abstract

The University of Dayton (UD) opened a campus in Suzhou, China in August 2012. One of the objectives of the University of Dayton China Institute (UDCI) is to develop partnerships with industry that will both benefit the companies and provide rich educational experiences for students studying in China.

Partnerships between UDCI and companies in China are multifaceted, and varied among the companies. The standard Memorandum of Understanding (MOU) essentially says that both UDCI and the partner company will endeavor to form collaborations for such items as student recruiting, research, innovation center projects, continuing education, professional development, and degree courses. Development of industry collaborations is not a one-size-fits-all endeavor, but rather a mutually-beneficial partnership that helps the company and also provides opportunities for students to become learners with an ability to excel in a global workplace.

The University of Dayton

The University of Dayton (UD)¹ was founded by the Society of Mary (the Marianists) in 1850. It has evolved from a boarding school for boys into a top-tier national, private university and one of the 10 best Catholic universities in the nation. The University of Dayton has over 7300 full-time undergraduate students, over 3000 graduate students, and 508 full-time faculty.

The University of Dayton School of Engineering has 1827 undergraduate students, 68 full-time faculty, and over 100,000sf of laboratory space. The School has undergraduate programs in Chemical Engineering, Civil and Environmental Engineering, Computer Engineering, Electrical Engineering, Mechanical and Aerospace Engineering, Engineering Technology (electronic & Computer, Global Manufacturing Systems, Industrial, and Mechanical), and graduate engineering programs in Aerospace, Chemical, Civil, Electrical, Materials, and Mechanical Engineering as well as graduate programs in Electro-Optics, Engineering Management, and Management Science.

The University of Dayton China Institute

The University of Dayton China Institute was established in August, 2012 in Suzhou, China. During the first several months, UDCI worked to design, renovate, and occupy the 6300 m² (67,000 ft²) 5-story building, with a total seating capacity of over 400. The facility has eighteen seminar and meeting rooms with seating capacities ranging from 8 to 90, twelve laboratories for teaching and research, a conference center for exhibits and receptions, and an innovation center and team rooms for collaborative participant interaction. All of the meeting rooms and classrooms have installed projectors, and the larger rooms also have sound systems. A

videoconference room is available for meetings, and many offices are available for use by staff, faculty, and seminar organizers.

At the onset, a strategic plan² was developed to guide UDCI's direction and growth, with a mission encompassing areas of research, facilities and programs for UD students to study in China, developing partnerships with industry, continuing and professional development opportunities for industry, providing R&D expertise to companies through sponsored research, contracts, and student projects, and recruiting, both bringing students to UD, and assisting companies to cultivate talent for employment.

The Memorandum of Understanding

The Memorandum of Understanding³ (MOU) between UDCI and its industry partners establishes a foundation from which relationships can grow. This non-binding agreement indicates the roles and responsibility of each entity. The details and activities of each relationship are different, and are continually negotiated to affect the greatest impact and benefit to both parties. The MOU begins with a statement indicating that both parties will, to the best of their efforts, *affect the visits and collaborations from one to the other by teachers, engineers, scientists, students, and administrators for the purpose of student recruiting, research, innovation center projects, continuing education, and professional development.* This statement is the overarching goal for establishing a partnership. The nature of the relationship is different between UDCI and each of its industry partners.

Additional responsibilities outlined for UDCI include providing faculty and practicing professionals to teach classes for continuing education, credit programs, and professional development. UDCI will also make research facilities available for industry partners, as well as allow industry partners to use the facilities including classroom, seminar rooms, videoconference room, and laboratory facilities. In return, as an industry partner, companies will be required to designate two professionals (as delegate and an alternate) to serve on the UDCI advisory board, and the company allows the use of its logo in both the UDCI building lobby, and in literature that identifies industry partners.

Initially, partner companies came from the strong industrial ties already in existence with the University of Dayton. Companies in the UD database, especially those in the Suzhou and Shanghai areas, were initially approached to establish relationships. Six companies signed partnership agreements at the opening ceremony, and in the years that followed, many more were added, bringing the current partnership total to nearly twenty. At the beginning, partnerships were established with US companies who also had facilities or divisions in China. However, as the partnerships have continued to grow, companies who were not currently affiliated with UD were also courted.

In the Chinese culture, it is important to develop a strong relationship prior to entering into an agreement. The Chinese refer to "Guanxi," or the "connection" that is developed between

parties⁴. Taking the time to build a relationship between the parties may be time consuming, but necessary in developing a lasting relationship. Multiple visits between UDCI and the prospective partner company are necessary to instill confidence of a long-term relationship.

Breadth of Partnership Activities

The breadth of partnership activities is as varied as the companies themselves. Table 1 shows the diversity of activities among UDCI partner companies.

Table 1. Breadth of UDCI Partnership Activities

Company	Facilities for meetings or training, including videoconference	Continuing education and professional development courses	Assistance with recruiting full-time talent	Student interns for projects	Facility tours and presentations for students	Laboratories, faculty, and students for research and development	Student projects through the UDCI Innovation Center	Energy audits for manufacturing facilities	Industrial Advisory Board Attendee
Crown Equipment China					X				X
CSA Group									X
Delphi Electronics (Suzhou)	X	X					X		X
Emerson Climate Technologies (Suzhou)		X							
Henny Penny (Suzhou)									X
Johnson & Johnson Medical (Suzhou)		X							
Lilly Suzhou Pharmaceutical		X	X	X	X	X	X		X
LMW Textile Machinery (Suzhou)	X			X			X		
Makino (China)		X							X
Marian (Suzhou)	X	X			X			X	X
Snow Beer								X	

Several companies have used UDCI facilities for corporate retreats and company meetings. UDCI can provide support for meetings, as requested by the companies, for such items as snacks and meals. Typically, there is no charge to the company for use of UDCI facilities, and any real costs are passed along to the company, usually at below current market value.

Professional development courses are currently the most active area of interaction between UDCI and partner companies. University of Dayton faculty initially developed a catalog of over fifty courses that are available for partner employees. Courses and topic areas may be delivered as a public course for multiple companies, or may be customized to meet the needs of a specific company. Customization provides the opportunity to design a tailored training program that

supports the organization most effectively, while still getting the benefits of UDCI faculty and industry experts. UDCI faculty work closely with customers to develop a professional development program based on the needs of each organization. Public courses are offered at the UDCI facility in the Suzhou Industrial Park, while custom courses may be offered either at UDCI or the customer site.

Initially, it was thought that courses would be delivered primarily in English. The initial partner companies were US-based, and their working language at all facilities is English. However, since the majority of employees seeking continuing and professional development courses are Chinese, it was decided after delivery of a few of the initial courses that the employees would be better served by content in their native language. Initially, UD faculty traveled to UDCI to teach courses, but with the need to deliver content in Chinese, the paradigm had to shift. In some cases, UD expert faculty are still called upon to deliver content, but in this instance, technical professionals from China are also hired to translate both the verbal and visual (PowerPoint, drawings, etc.) information, provide supplemental explanations, and provide feedback to the faculty regarding the understanding of content. In addition to UD faculty, there are two other pools that UDCI draws from to find experts to deliver courses. These include faculty from several local universities where UDCI has established education partners, and industry consultants who have become experts in their field.

Professional development courses are available in several key areas of specialization, including: Manufacturing & Automation; Electronics & Instrumentation; Mechanical Design & Analysis; Energy & Environment; Management & Supervision; Mathematics, Economy, & Finance; Science; and Communication. Courses are designed for durations of one to ten days, depending on the breadth of topics and depth of the course, but for each company-specific course, the topics are clearly articulated and agreed upon between UDCI staff and the company training manager prior to delivery.

In addition to professional development courses, several other areas for UDCI-industry collaboration help to serve the needs of industry partners. To date, one industry-sponsored lab has been constructed in the UDCI building. The lab was renovated to company specification, and the company provided all of the equipment. Currently, only company employees are working in the lab, but eventually, as more students come to UDCI to do research, they will be able to work in research programs.

Student projects are an outstanding example of the success that a collaborative environment can provide. At the University of Dayton, the Innovation Center supports industry-sponsored projects for undergraduate and graduate students in the School of Engineering. Annually, the Innovation Center coordinates about one-hundred projects; projects that benefit industry partners while providing a rich educational experience for School of Engineering students. In the past two years, several projects have been completed in Dayton, OH for clients in China. In addition to the demands of managing and executing a senior engineering project, students selected for these teams have the added challenge of working with clients twelve time zones and a distance half-

way across the world. In most cases, students interact with the client through email and IP-based videoconference. Some projects have Chinese students who can assist with the translation, but other projects have utilized students with no experience speaking Chinese. In one project, students traveled to China at the beginning of the semester to assess client needs by interviewing workers, and on two projects, students did the bulk of the research, modeling, analysis, and prototyping at UD, but then traveled to the company location in Suzhou, China, to implement the solution. In the case of students traveling to China, all expenses were covered by the industry partner.

Finding the right talent for employment at industry partners in China is especially challenging. During UDCI's first year, a company information session and career fair was organized to bring together some of UDCI's industry and education partners. About 150 students from five different educational institutions traveled to UDCI. Six companies did presentations for the students on such topics as: Using internships to prepare for full-time employment; A company perspective on continuing professional development; What companies look for in a resume; and Preparing for an interview. The companies were able to get in front of prospective employees and share information useful to the students, as well as spending some time talking specifically about the company. Students were also able to mingle with companies in a career-fair type environment.

UDCI partners who have a physical presence in the Dayton or nearby areas have also taken advantage of the UDCI partnership to recruit students in Dayton. Company representatives travel to Dayton to make company presentations, and participate in recruiting efforts. Often, they are able to speak to specific populations of students who are eligible to work in China during summer breaks and following graduation.

The University of Dayton Industrial Assessment Center (UD-IAC) is one of 24 IACs funded by the U.S. Department of Energy. Since 1981, the UD-IAC has helped over 900 small and mid-sized companies by conducting energy assessments⁵. This model is being duplicated at the University of Dayton China Institute. Faculty and students have traveled to China to do 3-day workshops on energy efficient manufacturing. These workshops, funded by local government, were free to area industry. The workshops included two days of instruction at UDCI, followed by an example one-day audit at a local company. The audit was observed by workshop participants so they have an understanding of the scope of an assessment. This workshop has been conducted about once per year, and UDCI is currently working to establish an Industrial Assessment Center to help companies in the Suzhou area improve their energy efficiency.

An important interaction with partner companies is for UDCI to solicit input through annual industrial advisory committee meetings, and through less formal interactions throughout the year. Discussion at meetings helps to guide the industrial and technical activities of UDCI, and provides fodder for continued growth in this area. Conversations have included additional course offerings, procedures and ideas for increasing the number of student projects, establishing additional sponsored research labs, guidance on equipment purchases, and enhancing company recruitment activities.

Conclusions

The success of the University of Dayton China Institute will be defined in several areas. Among these are the number and strength of industrial partnerships. As with any evolving relationships, developing connections is the first step in developing industry partnerships. In China especially, fostering connections is the only way to set the foundation for a lasting relationship. Additionally, current partnerships must be continually cultivated to expand the breadth of the relationships. And finally, in developing and maintaining relationships, one size does not fit all – multifaceted activities provide for more diverse partnerships and opportunities.

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