

The Continuing Globalization Efforts of the Purdue Aviation Technology Department – The China Experience

Ronald Sterkenburg, David L. Stanley, James E. Lampe

Purdue University

Abstract - A number of universities are seeking ways to increase their study abroad offerings. The Purdue University Aviation Technology Department began this process a few years back, and a plan was established for increasing student participation in various study abroad opportunities. A portion of the plan was to visit peer institutions in Europe, Asia, South America and North America, and establish relationships with educational institutions that match our curriculum or a part thereof. Last year, several universities in Europe were visited. This year a team of two faculty members, one industry representative and one student visited China. This paper will discuss the visitation of two aviation universities in China. The Purdue University and United Airlines partnership¹ enabled a meeting, and travel with the United representative in China and use of various resources of their office. In this paper the unique experiences encountered, and the future plans for cooperation with the Civil Aviation University of China and the Civil Aviation Management Institute of China are discussed. Six different options are being considered in part or collectively: (1) offer course work at Purdue University for Chinese and Purdue students (2) offer course work at the Civil Aviation University of China (CAUC) for Chinese and Purdue students (3) develop joint research and design projects between CAUC and Purdue University (4) develop a study abroad trip of two weeks or three weeks in which Purdue students accompanied by faculty will research an aviation related research project in China (5) pursue joint Purdue University and CAUC faculty research opportunities (6) develop a by semester or by year study abroad program. Meetings with the university presidents of both institutions and faculty members of both universities were very successful and they seemed eagerly interested to establish a relationship with Purdue University.

I Introduction

“Going Global” is a popular term in both academia and industry today. What does that mean? Traditionally it has meant offering international study opportunities for students and faculty exchange. While this is still true, developing a program that is “global” entails much more than that. The feedback from the Aviation Technology Industrial Advisory Committee (ATIAC) indicates that they place a high value on the ability to operate immediately in the global marketplace. This includes an understanding of the world aerospace market, cultural differences, international rules and regulations, foreign government processes, foreign business practices, and foreign language. The ATIAC realized that while providing a comprehensive education in all those areas is not feasible, students should have exposure to actual conditions and understand that these are all factors that must be taken into account to be successful in the international

business arena. The Global Initiative Committee concluded that relationships and exchange programs with Universities abroad needed to be established to provide students with sufficient knowledge to function in other than a domestic arena. It was determined to visit educational institutions in major aviation centers around the world. To date, teams of students, faculty and industry representatives visited Australia, the Netherlands, France, England, Germany and China. Future trips to Canada and South America are scheduled..

Why China? The People's Republic of China (PRC) is quickly becoming one of the emerging markets in the aviation world and while airline travel has diminished in North America, it certainly remains robust in the PRC. The Civil Aviation Administration of China (CAAC) now ranks sixth in the world in terms of the number of passengers transported². With a population of over one billion people and large distances between major cities, air transportation seems to be the logical solution. The aircraft manufacturing industry and air transportation sector are underdeveloped and there is a unique opportunity for western companies to manufacture and sell their products in China. Almost every major player in the aviation industry has an office and a joint venture operation in China. Labor rates are relatively cheap and there is a large skilled workforce. The aviation industry and air transportation sector have been state owned and controlled, but there appears to be a shift in this policy with more air routes opening up. At this time there are several Chinese air carriers, but all are essentially owned and controlled by the CAAC.

Joint venture

When foreign investors invest in public air transport enterprises, the Chinese party must hold the controlling interest. The proportion of investment held by any one foreign investor (including its affiliates) may not exceed 25%. When a foreign interest invests in aircraft maintenance (with the obligation to undertake business in the international maintenance market) or aviation oil projects, the Chinese party shall hold the controlling interest³. The joint venture arrangement represents a barrier for western companies to invest money in China. Our industry partner, United Airlines, committed to a two-year quality assurance training program for senior Chinese airline managers, regulatory personnel and mechanics in a joint venture arrangement with the Civil Aviation University of China (CAUC). It was this arrangement that enabled the university to establish contacts with CAUC and CAMIC.

II Global Initiative Committee

In May 2000, a group of Purdue University Aviation Technology faculty and a number of industrial representatives met as the Global Initiative Committee. This group initially consisted of five faculty members and two industrial partner members representing the manufacturing and service components of the air transport industry. The group began by discussing and defining what globalization meant and what traits and skills students should acquire. The industrial members are affiliated with companies that are global in scope. Discussion centered about what they look for in an employee, in order to consider a prospect for duty outside of the United States. After several meetings, a series of major areas and sub-topics were identified as the issues that students needed to have some degree of knowledge and/or awareness of.⁴ Table 1 displays these areas and sub-topics.

Table 1: Desired Student Skill Areas and Associated Traits

Business Relationships	Technical	Education – Business & Cultural	Regulatory
<ul style="list-style-type: none"> ▪ Develop a global mindset ▪ Understand global business drivers ▪ Placement of graduates into global companies 	<ul style="list-style-type: none"> ▪ Understand the “values” of aviation 	<ul style="list-style-type: none"> ▪ Transfer knowledge of diversity issues ▪ Increase sensitivity, concern, and issue awareness ▪ On and Off-campus opportunities for diverse cultural immersion ▪ Prepare students and faculty to interact globally ▪ Integrate electronic commerce, communication, and training 	<ul style="list-style-type: none"> ▪ Understand and compare the education and certification systems for North America, Canada, and Europe.

III Visitation team

When the globalization initiative was started, members determined a need to visit the foreign universities, and meet the students and faculty members to be able to evaluate if they are a good match for our university and students. Personal contact is very important to develop meaningful relationships.

A team was formed of four members to travel to China that included an industry representative from United Airlines, a graduate student, and two faculty members of the Purdue University Aviation Department. The industry advisory committee had offered their help in establishing contacts with companies in foreign countries in which they operate. The industry representative is in charge of an office in Beijing and travels to China frequently to conduct aviation management training⁵. He already had a working relationship with the universities that we were interested in, and without his help it would have been more difficult to establish the desired contacts. Furthermore, he was a great source of information and was able to explain acceptable business practices and cultural differences, due to his experience in international travel. It was learned that Chinese don't share opinions as readily as Americans, and it is considered rude to be assertive in the class room⁶. The Chinese staff members of his office in Beijing were very helpful in making travel arrangements and they proved to be excellent translators. The student member had just graduated with a graduate degree, and her presence was instrumental, due to her excellent knowledge of Chinese history and culture (She was born in Hong Kong and lives and works in Hong Kong at the present time). She is a graduate of the Aviation Technology program, and she could compare the programs of the two Chinese universities with the AT program. She also provided important feedback about what students would and would not like, having been a student recently. Although speaking a different dialect of Chinese, she was nonetheless able to communicate with the local population, which was very helpful. The task of the faculty members was to evaluate the curriculum and technical programs, and prepare a visitation report using the input of the other two members.

IV Cultural experiences

One of the main objectives of the globalization effort was to increase the cultural awareness of our students. It was decided that a dry run of all possible cultural experiences be estimated to successfully organize a planned three week's study trip to China. Research for transportation, hotel accommodation, historic sites, tourist attractions, and a budget was conducted. The downtown area of Beijing, the capital of China, appeared to be very westernized. It was as if one had arrived in Houston, Indianapolis or Montreal. Tall new buildings dominated the skyline and all the large fast food chains were well represented. It was anticipated to be a strict Soviet style communist environment with police and military at every corner of the street, but on the contrary the atmosphere was relaxed, and the people were very friendly and helpful, and it felt much safer in Beijing than in Chicago or Detroit. A visit to the Great Wall, Temple of Heaven, Forbidden City, Summer Palace, Tiananmen Square and several other sites was accomplished. All team members agreed that the visit to the great wall was by far the best experience. The taxi driver drove to a section of the Wall that was not typically visited by tourists. A bit of a steep climb of 3 hours, but it was worth it. Another unique experience was the visit to Chinese markets, nothing on these markets reminded one of a communist system, prices were established by bargaining and everything was for sale. Many of the products were imitations of famous western brands, such as Rolex and Gucci.

V Translators and English

Fortunately the Chinese faculty members and students had a good command of the English language, and on several occasions on campus and in town young people who wanted to practice their English stopped us. However, the meetings with the presidents of both universities were conducted through the use of translators. The use of translators was new to all and definitely more difficult. Humor, for example, often doesn't cross the cultural divide very well, and many technical terms may not translate at all. During the meetings with the presidents of the universities all had the feeling that the presidents could understand what was being discussed, but preferred to use a translator. Students often had a good knowledge of grammar and spelling, but communication was nonetheless difficult. They expressed that they did not have the opportunity to practice their English language skills. Many times they could write down what they wanted to say, but pronunciation was difficult.

VI University visitations

The Civil Aviation University of China (CAUC) was founded in 1951, and is the primary training ground for Chinese Air traffic controllers, flight attendants, engineers, and mechanics. They offer bachelor and master degree programs, and the total student body is 10,000 with a total staff of over 1,000. CAUC is located in Tianjin about 50 miles north of Beijing. Tianjin is an industrial town and appears to be a less than attractive site for students. It was perceived that if the use of the CAUC facilities was likely, a daily commute from Beijing might be necessary. A meeting with a group of faculty members was held, and the intention to develop an exchange program was discussed with the dialogue focusing on potential coursework and curriculum. In the afternoon a tour of the facility was completed, and it was found that most of their equipment is dated and of primarily Russian design. CAUC owns 19 aircraft for maintenance training, but it

didn't appear that they were used for instructional purposes. The equipment had the appearance of an aircraft "bone yard". However, while the facilities and equipment at the old campus are generally dated, several western companies have donated state of the art simulators, which are unique for an aviation college. Due to the joint venture system Rolls Royce has opened a modern engine training facility on the CAUC campus. The new CAUC campus is very modern and well equipped with modern computers and classrooms⁸. At this time all freshmen and sophomores study at the new campus, while the juniors and seniors are still at the old campus.

The Civil Aviation Management Institute of China (CAMIC) was founded in 1982. This institution is not a traditional university with semester long courses and degree programs. They offer four programs: social science, economic management, engineering management and foreign languages generally aimed at middle and upper management working in the Chinese aviation industry. Given that this is the only institution that offers these courses in the PRC, eventually everyone working in the Chinese aviation industry will be trained by CAMIC. The facility of CAMIC is very modern and conveniently located in Beijing, but they have no aviation laboratories, and the training provided is purely classroom oriented. The meeting with the president and faculty was very friendly and they offered classroom space, in the event the three-week field trip would be taught at this location. It appears that cooperation with CAMIC will be limited to using their facility. The demographic make-up of the student body at the CAMIC is very different from Purdue, and it will be difficult to arrange courses with them due to the nature of the curriculum and schedule.⁸

VII Future plans for cooperation with CAUC

On departure from CAUC, it was agreed to stay in contact and develop a strategy for future cooperation. Some degree of confidence was evident having met the faculty, and there was a sense of comfort that future contact via E-mail would be easier. Following discussions with other faculty at Purdue University, six options have been developed for cooperation:

1. Course work at Purdue University for CAUC students and faculty would be desirable. Short courses during a maymester or summer semester are preferred.
2. Course work at CAUC for Purdue students would be available. Purdue University faculty will teach classes at CAUC. Course duration will be three or four weeks. Cultural experiences will be integrated in the course. Course will typically be offered in a maymester or summer semester. CAUC will provide classroom space, and the course will be open for their students.
3. Combined Purdue and CAUC coursework would entail: CAUC and Purdue students will study two weeks in the US and then move to China to complete another two weeks. The course intended for this approach will be the powerplant trend analysis, and conditioning monitoring course. The resources of both universities complement each other for this course.
4. Develop joint coursework in which students of both countries will work together to develop a project. A course in international aviation law and regulation would meet this definition. The aviation laws of the US and China are substantial different and the students can learn about one other's system. A proposed project could involve a comparison of US and Chinese regulatory systems. Students would not have to travel, but

would use E-mail and teleconferencing to establish communications. Such an undertaking would have its challenges, particularly given the language and cultural barriers. Option 4 presents few barriers to implementation and requires little additional funding. Many similar programs are already in place in other universities.

5. Faculty research opportunities are available. Faculty members will have the opportunity to work with fellow faculty members in China on research projects. This type of initiative will also provide opportunities for graduate student participation.
6. Study abroad program: A traditional program in which students study a semester abroad. Students will pay tuition at their respective universities. These programs require a one for one student exchange between the universities involved, which makes it necessary to develop study abroad agreements.

VIII Funding

Funding is important for coursework in China. There will be additional fees for students for airfare and housing. CAUC could provide dormitories during the summer, but the visiting team felt that these accommodations were not suitable. The expected student's fee will be \$1800 for airfare, approximately \$50 dollars a day for hotel, and an additional \$20 dollars a day for food and beverages. The Aviation Department is interested in supporting the globalization efforts and Study Abroad program through scholarship awards, faculty and staff members are in the process of writing funding proposals to solicit funding for international travel.

IX Conclusion

The trip to China proved to be successful. We met interesting people and established good contacts. At this juncture, it is important to follow-up, work cooperatively with the faculty we met, and develop an interesting study abroad experience for our students. The students will be able to choose from several options to participate in the China experience. Funding is very important and we will start out slowly to build confidence and experience. Option 4 will be tried first, followed by a three-week field trip next summer.

Bibliography

1. Eiff, G., Lopp, D., Leasure, M., Sterkenburg, R. (2001) *The Unique Challenges and Advantages of Developing an Interacting Partnership Between an Aeronautical Technology Program and Major Air Carriers. Proceedings of the International Conference on Engineering Education.*
2. *China's aviation board ranks sixth in the world in passenger transportation.* (2002, January 19). Retrieved December 30, 2002, from <http://www.etr-china.com/et2000/doc/news/et/010206/02-09.htm>
3. *Foreign Investment in China's Aviation Industry.* (2002, July 19). Retrieved December 30, 2002, from <http://www.chinalgalchange.com/Archiv02/C0212004.html>
4. Thompson, R. E., Sterkenburg, R. (2001) *Going Global – A Methodology for Shaping Students for the Global Workplace. Proceedings of ASEE/IEEE Frontiers in Education Conference.*

5. *Leeds, J. (2000) United airlines trains Chinese in quality fleet operations. Aviation week & space technology, January 2000*
6. *Klinck, M. (2000) sharing management know-how with the Chinese. United Services Takeoff magazine 13-15.*
7. *Civil Aviation University of China brochure*
8. *Civil Aviation Management Institute of China brochure*