CROSSING FRONTIERS IN TECHNICAL EDUCATION - WHOSE BENEFIT?

Reflections on an Unorthodox International Exchange

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Abstract

In the new reality of a global world economy, it is more and more important to expose the engineering students to international experiences. For small teaching institutions without a research program it is a challenge to run exchange programs. With budget reductions encountered by state institutions in USA and Europe as well, to maintain such a program brings lately additional problems. Unusual solutions have to be found.

The paper will present the steps taken by two engineering technology colleges in order to have an exchange program. Oregon Institute of Technology, with campuses in Klamath Falls and Portland and Hogeschool Enschede in the Netherlands established students and faculty exchanges starting in 1991. Over a period of five years, this small program proved to bring different benefits for all parties involved: students, faculty and local industry.

1. Introduction

We all know and we hear over and over again the same refrain: we live in a global market economy. Since the collapse of communism, borders became more permeable and we should acknowledge that there is no border for competition. High technology is especially global and shared. We are aware that if one of our students is hired by a company like Motorola or AT&T, he/she will produce a cellular phone which could be used in Seattle, but maybe in Tokyo, Moscow or Nairobi. Our graduates could be hired by INTEL, but this could mean some work at a factory in Ireland or Germany. If the graduate becomes a marketing manager, the very survival of the business will depend on his/her understanding of these different markets and cultures. We are already paying the price of overlooking the competition and if there is no American build VCR in American homes, we will like to believe that in the future we will still compete with other products: like software, telecommunications, computers, and so many others.

In this new reality of the globalization of technology and markets, it is very important to provide our students with some kind of international experiences. Research institutions in general have a tradition in international exchanges, at least by having an international student body.

For smaller technology colleges, designed initially to provide training for local industry needs, international education is a new concept. The exchange programs established at the state level are usually more appropriate for liberal arts students who get credit for studying foreign languages and cultures. Our engineering technology students are more pragmatic and don’t commit to programs which could delay their

graduation and future employment. This is valid for both American and European students. Also, in the last years, budget reductions encountered by state institutions in USA and Europe as well, made more difficult to implement and maintain exchange programs.

2. *A Solution for International Exchange*

With all the budgetary and promotional difficulties mentioned, what should we do for international education? Oh, yes, we have a course in international marketing, but it is still theory and not direct experience. We have to be creative and just start something. Start small and asses the results.

The following are some reflections about the experiences we had with the exchange program established between our institutions, Oregon Institute of Technology in Oregon and Hogeschool Enschede in Enschede, the Netherlands.

Oregon Institute of Technology is a four year college, granting bachelor degrees in different technologies. Hogeschool Enschede is a very similar institution, also with a four year program. In 1990, the author met Professor Witteveen in Portland, during a meeting about microelectronics programs. Soon enough, the two parties found out that professionally, they spoke the same language, in spite of their different accents in English. In a couple of months, Professor Witteveen called OIT and asked if he could send two students from Enschede to complete their senior project at OIT. After a hesitant yes everything started. We had to jump through many logistical hoops: visas, accommodations, etc., but we had students from the Netherlands since.

Table 1 shows the evolution of the student exchange program.

Year	Students exchanged	Activity	Campus
1991	Two Hogeschool Enschede students	Senior Project	Klamath Falls
1992	Two Hogeschool Enschede students	Senior Project	Klamath Falls
1993	Two Hogeschool Enschede students	Senior Project	Klamath Falls
1993/94	One Hogeschool Eindhoven student	Internship	Portland
1994	One Hogeschool Enschede sstudent	Internship	Portland
1995/96	One Hogeschool Eindhoven student One Hogeschool Enschede student	Internship	Portland

table 1

The students spent 6 months in USA. In this time they registered for regular OIT courses. In order to obtain a student visa, they had to have a regular full time load at OIT. This presented a very heavy financial burden for students. Nevertheless, in the end all students admitted that this big cost was worthwhile.

The first group completed the senior project in Klamath Falls, on the main campus, living a regular campus life. We had to compress the senior project for them to 6 months opposed to 9 months for our regular students.

In the spring of 1993, we received a letter from Eindhoven. One of Hogeschool Eindhoven students, Joris Smits, found out about the small American college in rural Oregon and he was willing to have his American experience. He did not need to complete his senior project like the students before him, instead he

would have liked an internship to fulfill his practical stage requirements. At that time, we desperately needed a network technician for our four laboratories. Could Joris be our network technician, our UNIX administrator, our equipment technician? Some of this questions were answered with yes some with maybe, some with "I will learn". Nevertheless, this is how we started the internship program at Metro Campus in Portland. Students are taking classes in Portland, but also work as computer/electronics technicians in our laboratories. All of them spend between one week and three weeks traveling in United States.

Last year, the author spent part of her sabbatical leave at Hogeschool Enschede. Along with an interesting professional experience, she met our former and our future Dutch exchange students. Talking to them and from our own observations, we concluded that the American experience was of tremendous benefit for all of them,

3. *Whose Benefit?*

The benefit of international exchanges for students could be evaluated on two planes:
. professional and
• human

On the professional plan, the students are exposed to similar technologies, but a different approach, a different style. They grow to be more flexible, to adapt easier in this ever changing world of technology. If they were using DOS 5, they had to use DOS 6 and Windows or UNIX. If they had more training in software they got more hardware experience. They learned how to network computers, how to use Novell.

Going into some anecdotal details, one can show the direct result of the "American experience":

- One of the first exchange students, came to OIT with the desire to learn microwave technology. In 1991, we had a "Microwave Option" for the senior project. He followed this path and together with his partner, they were able to design and build a prototype of a microwave circuit. This experience brought him the first job. He worked for the Rotterdam Police Department, designing and building antenna systems for their telecommunication needs.

- An Industrial Psychology course taken at OIT by another student, inspired her to continue the Management program in Enschede. She is now a manager for a Swedish telephone company. She often travels to Sweden making good use of the English improved during her stay in USA.

- The first student who did his practical training in Portland could bring another example. The young man had never worked with networks. In the period with us, he learned Novell and UNIX. In addition he did an excellent job for us, helping the students in both DOS and UNIX environments and managing the labs. He is now a network manager for the Ministry of Justice in Den Haag.

A definite professional benefit for our American students interacting with these exchange students was assessed as well. The presence of the Dutch students as laboratory monitors is a breeze of fresh air for our students . Some of them have had industry experience in the Netherlands or another European country . We always witness animated discussions in the lab, library or the student lounge and notice the camaraderie and the hospitality displayed by OIT students toward the guests.

In the end, the human experience is maybe more important. The quick course in a different culture is an asset the students will use the whole life. They got home more mature, without any doubt, And to this contributed not only the bright and happy experience, like the Grand Canyon, but many times the hurtles, the problems they had to solve every day. They were survival lessons, sometimes. For instance: How to survive without a car in the American automobile culture? How to ride a bike between cars?. The majority, they flew on a airplane for the first time. Some of them, who lived all their life at home, learned how to cook. One student was wrongly accused of sexual harassment. He learned to be more cautious in a foreign country. And also, a very good benefit is improving their English language skills, so important for their future career.
The human interaction was very good for our students too. Some of them learned for the first time that high technology is up to date in a small country in Europe . One of the exchange students, got very involved with OIT Students Association and was elected in office for the short time he was with us. The students who were in Klamath Falls on the main campus, participated in the International Student Club. They met every week. They had a Dutch coffee hour. Twice a year they cooked Dutch food for the club.

And, last, but not least it is a good experience for us, the faculty. We learned how to help them to relate their Dutch experience to what we do and learn in USA. We used them in the classroom to energize our sometimes tired night students.

The last beneficiary of this activity is the industry. The companies which will hire these graduates, they will get people with international experience.

4. Plans for the Future. Conclusion.

The OIT/HE exchange is still a beginning, since some important links are missing. Only one OIT student investigated the possibility of going to the Netherlands. The big barrier is the language. The plan is to place the American students in Dutch enterprises for summer internships.

It is also difficult for the Dutch faculty to come for more than very short visits, since they don't get sabbatical leave. A direct one to one faculty exchange could be the solution.

In spite of the size of the program, the exchange of students, faculty and ideas proved to have a very favorable impact on all parties involved.

Biographical Information

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