Internationalizing the Curriculum: Developing Travel Courses for Global Awareness

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Abstract. In most colleges and universities, study abroad focuses on students and curriculum in business, foreign language studies and the natural sciences. In today’s global economy, it is necessary for engineering and technology students to also have significant international experiences. In addition to exposing students to the broad issues of globalization, study abroad is both a career hedge against outsourcing and a response to internationalization requirements of accrediting bodies such as ABET. This paper will discuss the issues involved in developing and offering international experience courses; determining curricula and content; developing the computing and technology components of the courses; and developing the field experience including the logistics of travel. The paper will describe two courses: an undergraduate course on Computer and Network Security with travel to London and Paris and a graduate course on offshore outsourcing with travel to India.

Index Terms. Globalization, international experiences, study abroad

INTRODUCTION

Numerous articles over the years have demonstrated the value of international experiences for students in many fields including engineering, nursing, business, language studies, and computing [6, 9, 11, 12, 16, 18, 24, and 25]. A recent study by Institute for the International Education of Students (IES) [9], categorized satisfaction factors into 4 categories: personal development, academic commitment, intercultural development and career development. They concluded that the impact of study abroad experiences “positively and unequivocally influences the career path, world-view, and self confidence” of students who participate. There were 3400 respondents covering IES experiences from 1950 through 1999.

In response to instructional requirements of ABET, which accredits programs in computing and Association to Advance Collegiate Schools of Business (AACSB) which accredits business programs, student concerns and job market considerations, it became apparent that it was necessary to build international field experiences into our IT curriculum. Potential opportunities come in different forms including short-term travel abroad, short-term study abroad and long-term study abroad [12]. Many institutions are expanding study abroad options as the push for globalization awareness becomes part of both university and specific discipline missions.

Accrediting bodies, such as ABET and AACSB are requiring globalization to be part of the curriculum. One of the 10 general accrediting criteria for ABET information systems accreditation includes global issues [2]:

“An ability to analyze the local and global impact of computing on individuals, organizations and society;”

The AACSB standards document [1] states that for accreditation:

The school must determine the specific ways globalization and information systems are included in the curriculum, and the particular pedagogies used. Curricula without these two areas of learning would not normally be considered current and relevant.

Topics typically found in general management degree programs include:

• Global, environmental, political, economic, legal, and regulatory context for business.

The job market and the need to understand the global economy including management issues related to domestic and, more specifically, offshore outsourcing motivated the development of international experiences for our students. As more and more American companies develop an overseas IT presence, being able to operate in this environment takes on greater significance. IBM alone has increased its presence in India to more than 40,000 employees – more than 10% of their world-wide employee base [15]!

Lastly, courses addressing global IT issues have become a recruiting tool in our efforts to improve our declining enrollment – the opportunity for travel has proven a very positive topic at university open house events. These trips are exciting for both students and faculty.

SPECIALIZING THE IT INTERNATIONAL EXPERIENCE

Pace University, like many other institutions, have a study abroad office which provides several services to the general population. Options include programs run by the institution
(currently Pace does not have any), programs with which the University is affiliated or have exchange agreements with, and programs which are approved by the university for transfer credit. None of these are specifically related to CS or IT although students may be able to fashion a study abroad experience that is tailored to computing.

The Seidenberg School of Computer Science and Information Systems has taken the initiative of developing courses which have international field experiences (1-2 weeks) related to the course content. The difficulty, of course, is both finding suitable study abroad topics and then organizing the field experiences around them. The first course offered was on international aspects of network security and information assurance. This course has run successfully for 4 years. Originally in the UK (London and Wales), the last time it ran a visit to Paris, France was added to the travel itinerary. In 2006, with intent to run it every other year, a course on Managing IT Outsourcing with travel to IT centers in India (Bangalore, Mysore and Delhi) was offered.

**COURSE FORMAT AND COSTS**

These courses are run as online web-based courses using Blackboard as the instructional vehicle. As a multi-campus institution, students from all locations can participate. A side benefit has been a cross-fertilization of students from the different locations. Throughout the regular semester, students have weekly reading and writing assignments utilizing a textbook specific to the subject (security or offshore outsourcing). Additional reading assignments from articles, a culture-oriented textbook and the web support the international component of the class [10, 13].

There are two onsite meetings for the purpose of administering the travel trip details. This includes gathering passport copies, medical forms and waiver forms; discussing customs, behavior, what to bring, and money; discussing the itinerary; and finalizing hotel room assignments.

The online component of the course is scheduled during the regular semester. Travel is scheduled either during the Winter Break for travel to India or right after graduation ceremonies for travel to Europe. This way there are no travel conflicts for students enrolled in other courses.

Tuition and trip costs are separate. For undergraduates tuition is included in a fixed semester fee. Graduate students have to pay for both tuition and trip costs. Occasionally, some students are able to find independent funding. Some students work full-time and can role the trip costs and tuition into their education benefit.

**PLANNING THE INTERNATIONAL COMPONENT**

There are two parts to planning the international component. The first involves the travel arrangements. Many institutions are very organized with staff to develop and administer travel arrangements. At Pace, aside from collecting and accounting for payment, the work of organizing the trip is done by the faculty. A travel agent helps organize the itinerary, hotels, travel, etc. At Pace, instructors enjoy this part of the planning and are very involved in this stage.

The second and most challenging task is finding activities which support the content. With the exception of a museum visit to Bletchley Park (see below) this usually takes the form of a corporate or university visit. Relationships and contacts are developed to set up seminars at a company or university location. Seminar leaders address the issues raised during academic component of the class and provide an opportunity for questions and answers. Highlights of the visit usually include a tour or demonstration.

**INTERNATIONAL PERSPECTIVES ON NETWORK SECURITY**

The importance of network security and information assurance in today's world is increasingly becoming a global concern. It is imperative to have an understanding of how the international community addresses security issues to insure the reliability of our own data communications infrastructure as well as to understand how to operate in the global arena. Data stored in one country, for example, may be processed in another country and used in a third location. The course provides an introduction to the issues of globalization including legal and privacy concerns as well as the technology of telecommunications and networking.

Topics also include techniques and policies for securing networks and an overview of cyber crime and its prevention. Abroad, students participate in seminars with academic and industry professionals to get the international perspective. The course objectives include:

- Understanding information assurance issues from US and foreign perspectives
- The ability to describe and evaluate security exposures (threats, attacks, needs)
- Understanding available security technologies to prevent intrusion (cryptography)
- Understanding and evaluating the human factor in information assurance (Social Engineering)
- Understanding how to employ security management policies
- Understanding international aspects of legal and privacy issues

The main textbook is on computer security [23], but the course includes additional readings on IT and globalization [10], biometrics [17], and early code-breaking computing [4]. Web reading assignments are used to inform the cultural component of the trip. Students are asked to write short reports on the history of some of the sights visited that cultural and historical understanding. These include Salisbury Cathedral and Magna Carta, Stonehenge, and the Greenwich Observatory and museum on time and the longitude problem.

Some of the companies visited included the HP Research lab in Bristol, MCI International in Reading, and Citibank in
London. A visit to IBM was included when Paris was added to the itinerary. A highlight of this trip is a visit to Bletchley Park, where British and American mathematicians broke the German Enigma code. Alan Turing led the team of mathematicians and the first electronic computers were developed there. Until recently, British secrecy laws prevented this from becoming public. A highlight of this trip is when students (and faculty) are able to encrypt their own messages with an original Enigma machine!

MANAGING IT OUTSOURCING

Outsourcing is more than the headline grabbing news about jobs lost abroad; it is about corporate strategy to reduce costs by performing software development and common business processes in offshore labor markets. In this course, the focus is on IT outsourcing, particularly to India and the students examine strategies, benefits and pitfalls of this emerging business practice. The course investigates how the culture and politics of the receiving countries play a role in the success of the outsourcing business model. Additional topics cover how offshore projects are managed and the effect of outsourcing on US economy, job market, and politics. A textbook on offshore outsourcing and additional readings support course, globalization, and cultural topics [10, 13, and 22].

The course topics included:

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<td>Introduction to Offshore Outsourcing</td>
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<td>Offshore Industries – Best Practices</td>
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<td>3</td>
<td>Offshore Strategies</td>
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<td>IT Outsourcing</td>
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<td>Political and Social Issues I : US point of View</td>
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<td>6</td>
<td>Political and Social Issues II: Impact Abroad</td>
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<td>7</td>
<td>India: history, culture, government, religion and education; our trip (cities and companies)</td>
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During travel to India, there are visits to American companies with a presence abroad (IBM, AOL and Intel), India-based companies who do work for U. S. and global markets (Infosys, and Mindtree and a number of universities and engineering colleges that train the workforce and give some perspective on the India educational system. A highlight of the trip was observing the AOL call center and listening in to help desk calls.

In contrast to the U. S. enrollment and employment situation, the universities are graduating thousands of students, many of whom are not computer science graduates, who either follow their study with IT oriented certificate programs or get entry level jobs that include training. In a visit to Satyam, one of the larger India outsourcing companies, we learned that they had recently hired 8000 graduates and put them through their own 3 month education program.

The last trip visited a number of cities and tourist locations including Delhi, Bangalore, Mysore and Agra (Taj Mahal).

IMPACT ON STUDENTS

The value of the experience on students can’t be underestimated. While no formal follow-up was conducted, a survey of the outsourcing course indicated a high degree of satisfaction as well as fulfillment of the course objectives. Note that the educational value was rated outstanding by most students. Some of the comments also indicated how the travel component added to the educational experience.
7. How would you rank the following:

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<th>Outstanding</th>
<th>Satisfactory</th>
<th>Poor</th>
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<tr>
<td>Educational value of the trip</td>
<td>12 92%</td>
<td>1 8%</td>
<td>0 0%</td>
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<tr>
<td>Sightseeing</td>
<td>6 46%</td>
<td>5 38%</td>
<td>2 15%</td>
</tr>
<tr>
<td>Accommodations</td>
<td>10 77%</td>
<td>3 23%</td>
<td>0 0%</td>
</tr>
<tr>
<td>Food</td>
<td>7 54%</td>
<td>6 46%</td>
<td>0 0%</td>
</tr>
<tr>
<td>Travel arrangements</td>
<td>4 31%</td>
<td>7 54%</td>
<td>2 15%</td>
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4. In a few sentences, please describe your overall opinion of the trip.

Response

The trip was definitely and "eye opening" experience. I am lost in words to describe the evident clash is classes in India. Although, it was striking to witness the number of Engineers and PhD’s that are of Indian decent and are collaborating to India's recent economic success it was also striking to see the public's disregard of their poor. Overall, the experience made me realize what we Americans take for granted as well as how far behind we are with our education system.

The trip was well organize and contained all the elements of a successful travel course i.e academic requirements and cultural aspects as well. We had a full schedule everyday, and accomplished a lot in a short period.

Excellent trip over all. I think we have learned just as much as what reported by Business Weekly Reporters in a few recent articles. We also had the opportunity to visit university, which is a plus for us as educators.

I thought that the trip was extremely educational, fast paced and interesting.

The trip was spectacular. If a student in the IS, IT, or CS is given the opportunity to take a travel course related to their field of study; they should take it in a heart beat. This trip was about outsourcing and it provided a full perspective of not only outsourcing in India but the readiness that India has to cope with their challenges. The number one challenge I saw was infrastructure of roads, traffic lights, and car exhaust.

The India trip was very well organized and it had the right combination of corporate visits and cultural sightseeing.

Outstanding. It was great to experience both, the cultural and academic aspects of India.
CONCLUSION

It is clear that information technology professionals operate in an ever increasing global environment. To provide students with a world view as they enter their careers, it is necessary for them to have some international experience. One way to do this is via travel courses which provide both discipline content and a global cultural experience.

REFERENCES
