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Assessing the Value of Short Term International Experience for Industrial Technology Educators

By Mr. Bruce D. DeRuntz

The United States Bureau of Economic Analysis (2003) recently reported that the national trade deficit has continued its record setting trend of the past 20 years, and the US now imports almost twice the amount of goods that it exports. This perpetual decay of the US economy and its manufacturing base is a direct threat to our standard of living and eventually even our national security (Manufacturing News, 2003). Education is the foundation and driving force by which research develops technology, corporations increase productivity, and nations are able to compete globally to raise their standard of living. This postulate was formally acknowledged over 20 years ago in the landmark report "A nation at risk: The imperative for educational reform" (The National Commission on Excellence in Education, 1983). Since then, the US government has reacted with a plethora of legislation aimed at addressing our nation's educational needs and arming all of our students with the skills necessary to compete in the new world economy. "U.S. colleges and universities have a national obligation to produce well-informed students who can play an intelligent role in international trade, diplomacy, development, business, and security and who, as citizens can understand the world around them" (Aiken, Millman, & Stephens, 1999).

A great deal of programmatic effort has been placed upon study abroad, travel study, foreign language acquisition, and recruitment of international students to mix with American students on our campuses in order to develop "well-informed

students.....who understand the world around them" (Osberg, 2003). International educators have also worked to internationalize curriculum in the various disciplines in an effort to provide students with some modicum of the importance of the international dimension to their principal area of academic study. Students are told that international workforce preparation and economic development are imperatives for their future success. However, at the end of the day it is the faculty within our institutions of higher education that will be expected to impart to the students, information concerning how globalization will impact the academic discipline of the student and the industry in which the student hopes to find work. Unfortunately only a small percentage of students in engineering and technology fields have an opportunity to take even a modicum of courses with international content. Even fewer of these students have the luxury of taking six months or a year off to study abroad. In his American Council on Education landmark research study "International Studies and the Undergraduate," Richard Lambert (1989) discovered that of students that do undertake study abroad, the largest percentage come from private as opposed to public universities (more expensive institutions) and women far outnumber men in study abroad participation. Female enrollment in foreign language study also exceeds male. The Institute of International Education noted that of students that study abroad, only 2.7% are engineering students compared to 17.7% coming from business and

management and 8.0% in foreign languages (Institute of International Education, 2001).

This situation is at least partially the fault of faculty who themselves suffer from a deficit of background in the international dimension. In 1994, (Mahan & Stachowski) demonstrated that teacher training institutions across the U.S. were finding foreign study experiences to be a viable means of developing a broader world perspective among teachers. Research on how international experience affects the content of teaching has found that experience abroad enhances the social and self-awareness of teachers, which in turn leads to increased global content of classroom teaching (Sandgren, Ellig, Hovde, Krejci, & Rice, 1999). At the post graduate level, programs such as the Fulbright have proven to be very beneficial for providing faculty with international experience in teaching and research (Gomes, 2002).

As offshore manufacturing, the search for new foreign markets, technology transfer, and a host of other international activities have become increasingly important to business in the nineties, the Association to Advance Collegiate Schools of Business (AACSB) and the Accreditation Board for Engineering and Technology (ABET) have both begun to embody the importance of the global perspective in their accreditation standards. The AACSB in its accreditation standards for both undergraduate and MBA curricula calls for "understanding of perspectives that form the context for business"... including global issues and the impact of demographic diversity on organizations (The Association to Advance the Collegiate Schools of Business, 2002). ABET now requires that engineering programs must demonstrate that their graduates have an ability to function on multi-disciplinary teams and have the broad education necessary to understand the impact of engineering solutions in a global and societal context (Accreditation Board for Engineering and Technology, 2003).

The National Association for Industrial Technology (NAIT), while not explicitly requiring their accredited institutions to incorporate a global perspective in their programs is nonetheless focusing on it as demonstrated by the theme of its 2002 national conference: "Technology and the Global Society". According to Green & Baer (2001) "many institutions pursue the goal of global perspective in their departmental mission statements but fail to define global perspective." In a study of the accredited institutions offering a BS in Industrial Technology (IT), Scott, Rodchua & Downing (2002) found that 91 percent had the key words *global* or *international* in their mission statements. However, they also found a gap between the rhetoric and actual course offerings with international content in their programs. Only 9 percent offered a global or international course in their departmental program.

As previously mentioned, those faculty who have had foreign experience in teaching and research are much more likely to integrate the international dimension of the discipline into their teaching. What has not been made clear is that faculty development opportunities, especially for young, tenure track faculty, for international experiences that will provide both the impetus and academic experience to bring global focus to their teaching, are either not available or not beneficial in terms of tenure considerations. While the importance of the "global perspective" may be found in both institutional and departmental mission statements, there is little recognition afforded tenure track faculty for international teaching, research, and technical assistance experiences. In addition to the fact that such experiences are not recognized in the promotional process, overseas experiences take the young faculty member out of the departmental flow and they miss out on other collaborative opportunities that are counted toward promotion. Finally, the cost of unsupported foreign experiences can be monetarily prohibitive.

So, what is the solution to the problem of faculty development in the

international dimension for IT professionals? How can young, tenure track IT faculty secure a foreign study or research experience that will enhance their teaching in the international domain and still meet the rigors of tenure promotion?

While there are many programmatic solutions for both teaching and research abroad, many of these require a commitment of six months to a year as in the case of Fulbright research and lectureships. These longer term commitments are simply not feasible for tenure track faculty who are trying to establish themselves professionally. However, there are other enriching professional programs available that are low in cost, involve as little as a month of overseas time and yet put the young IT professional in contact with international colleagues in the same profession. In the following pages, the author, who had an opportunity to participate in just such a program, will provide a qualitative assessment of his personal experience as a member of a Rotary Group Study Exchange (GSE) team to Argentina.

Purpose

The purpose of this research is to assess the ability of the GSE and similar short-term international programs to meet the international professional development needs of an IT professor, given the constraints and expectations placed upon tenure-track faculty. The specific areas that have been chosen to be evaluated are employment constraints, vocational objectives, and cultural objectives. The specific criteria for performing this evaluation are as follows:

Questions Pertaining to Employment Constraints

1. *Is it feasible for tenure track IT faculty to participate in professionally enhancing international activities and still meet teaching, research, and collaborative obligations on campus?*
2. *What institutional constraints exist that act as barriers to tenure track faculty participation in international activities?*

Vocational Objectives

3. *Given the short-term nature of the international activity being examined (Rotary GSE Program), is there adequate time and opportunity for the faculty participant to achieve an understanding of his/her field in the host country?*
4. *To what degree does a short-term international activity provide future research possibilities that can be considered in tenure decisions?*
5. *When balanced against collaborative opportunities on campus, does short-term international professional development activity have positive value for the tenure track IT faculty member? The department? The college?*

Cultural Objectives

6. *Given the short-term nature of a Rotary GSE, the linguistic constraints of many faculty to collaborate with their peers in another language and culture; can a tenure track IT faculty member gain sufficient cultural exposure to positively affect both their teaching and research?*
7. *Given the importance of teamwork across cultures in the field of manufacturing (technology transfer in the workplace for example) and in our diverse workplace at home, does the cultural venue of GSE have a transfer value to teaching at the home institution?*

Program Description

In order to begin examination of these research questions, a cursory understanding of the Rotary Group Study Exchange program is necessary. The use of the terminology “group study” in the program title is a misnomer. It conjures visions of a group of people in a foreign setting doing some type of structured academic study. To the contrary, the GSE program has since 1965 provided unique “applied” vocational experiences to more than 32,000 men and women in dozens of professional fields. The program was

designed to develop professional and leadership skills among young professionals in order to better prepare them to address the needs of their communities in an increasingly global workplace (Rotary International, 2001).

The program provides travel grants for teams of participants to exchange visits between paired Rotary Districts in different countries. These visits are of four to six week duration and team members are provided with a home-country orientation prior to departure. They also receive intensive exposure to the host country’s institutions, way of life, and have multiple opportunities to observe their vocations in the context of the host country. Perhaps the most important feature of the success of the GSE program is the “home stay family” experience. Normally participants live with several host families in the course of the program. During this period the participant shares in family activities, Rotary visitations, and an intensive schedule of professional visits which are arranged by Rotarians. Because Rotarians in the host country provide meals, lodging, and group travel within their Rotary district, there is little cost to the faculty participant other than gifts and personal expenses.

A GSE team consists of four non-Rotarian business or professional people and a Rotarian team leader. Candidates for team membership must be currently employed in any recognized business or profession on a full-time basis and be 25-40 years of age. The age requirement is philosophical as well as practical in nature. It provides homogeneity in the age, interests, and level of professional development of the participants, but also assures that the participants will continue to be working in their field long enough to profit by the impact of the GSE experience. To help assure that each team member’s individual professional goals have the greatest chance for success, each individual submits a professional profile and statement of interests to the host Rotarians five months prior to departure for the host country. These profiles are utilized by the host Rotary clubs in creating the professional visit itinerary. As the name of the program implies, once the team

returns home, there is an exchange of young professionals arriving from the host country. This provides the faculty member with additional opportunities to collaborate professionally.

Discussion

The Southern Illinois GSE to Argentina took place between March 30 and April 30, 2001. During that time the group visited very socio-economically diverse locations in both populous coastal and agrarian/industrial interior regions of south central Argentina. Interestingly, the most populous city, Buenos Aires, was not included in the itinerary. The following qualitative analysis is based on the author’s stated findings and cumulative experience.

Employment Constraints –

1. *Is it feasible for tenure track IT faculty to participate in professionally enhancing international activities and still meet teaching, research, and collaborative obligations on campus?*

The answer to this question is an unqualified “yes;” however there are a number of caveats that go along with this response. Depending upon the commitment of a given institution, college, and department, a tenure track faculty may choose not to avail himself/herself to an international professional development activity. Research over two decades has demonstrated that the commitment of university CEO’s often influences the value placed on participation in foreign teaching, research, and service opportunities. This commitment normally filters down to the college and departmental level if a CEO is aggressively supportive of international activity. A faculty member contemplating an international professional development experience should speak with trusted colleagues, departmental chairs, and deans to determine the level of support for the activity. The degree to which the president supports international programs and services, i.e. recruitment of international students, foreign technical assistance projects, campus activities of an international nature are

indicators of the value a CEO places on the international dimension. Based upon these types of inquiry and others, which will be detailed below, the faculty member may answer “yes” to the feasibility question.

In the case of the author, a tenure track assistant professor in the Department of Technology at Southern Illinois University Carbondale, a decision was made in the affirmative. Both the dean and departmental chair agreed to the faculty member’s release time on the condition that his classes and responsibilities would be satisfactorily covered during his absence. Having adequate advance lead-time proved important as the author was able to organize lesson plans and prepare a graduate assistant to confidently assume teaching responsibilities during the faculty’s absence.

2. *What institutional constraints exist that act as barriers to tenure track faculty participation in international activities?*

One of the primary institutional constraints exists within the tenure criteria. International study that is not obtained through a competitive grant is regarded with little merit toward tenure. While the Rotary GSE experience has a net value of approximately \$10,000 and is the result of a selection process, a monetary award for transportation is the only cash which exchanges hands. Combined with a general lack of recognition for all teaching, research, and service experience abroad, whether for short or long term, little direct value can be attributed to success in the tenure process. An exception to this is spin-off research publications that may derive from the foreign activity. If there is no commitment on the part of the institution, a faculty member may also have to reimburse the institution for release time, normally “in-kind.”

Vocational Objectives

3. *Given the short-term nature of the international activity being examined (Rotary GSE Program), is there adequate time*

and opportunity for the faculty participant to achieve an understanding of his/her field in the host country?

International educators generally agree that study abroad and other long term activities are more beneficial in understanding foreign cultures, language, and vocational questions. Given the choice which faces a non-tenured faculty member, i.e. a short-term experience or none at all, internationalists agree that a short experience is better than no experience at all. Given the fact that the author hoped to collaborate with not only university professionals in engineering and technology but also private sector manufacturers, evaluating the above becomes even more daunting.

In the four week trip, the author visited and lectured at four universities and a total of 15 very diverse manufacturing operations ranging from coffee to cement. In addition the author met with local Chambers of Commerce and Chambers of Industry. Normally, faculty contemplating an international experience would have to spend a significant amount of time in a country to make the types of connections available through the Rotary GSE. This is to say that the short-term nature of the GSE was balanced against longer term experiences by the advanced preparation and connections of countless Rotary clubs and Rotarians. In this case, the author was able to secure a good feel for the academic side of engineering and technology in Argentina as well as a host of manufacturing problems including quality. A caveat for any faculty contemplating a short-term overseas experience for professional purposes is advanced preparation of visits combined with multiple host family experiences.

4. *To what degree does a short-term international activity provide future research possibilities that can be considered in tenure decisions?*

There is no question that a short-term experience abroad is not the

optimum for developing professional research collaboration. The total number of faculty and administrators with which the faculty come in contact is likely to be relatively small. Language problems can also inhibit in-depth discussions about mutual research interests. Having said this, the Rotary GSE once again afforded opportunities that other short-term experiences might not. The opportunity to lecture to students and faculty at three national and one private university placed a significant number of faculty in contact with the author. Those with similar interests made an effort to exchange email addresses and talk briefly about research interests. The opportunities were much like a professional conference in the United States in this respect. Again, pre-trip preparation by the Rotary and a well-defined outline of vocational interests made this a potentially valuable collaborative experience.

On the negative side, the author feels that potential collaboration of research was impaired by several factors. First, the Argentina economy has been in recession for over twenty years; consequently neither government nor industry was making any investments in research. Second, the author was unable to generate any collaborative interest in his area of research without providing funding. Finally, while the universities were very accommodating, they were not prepared to match a specific professor with the author’s research interests. Given these circumstances, it is recommended that a faculty member establish contact with a professor that shares his research interest prior to arrival and be able to provide some modicum of shared funding.

5. *When balanced against lost collaborative opportunities on campus, does short-term international professional development activity have positive value for the tenure track IT faculty member? The department? The college?*

At this point in time it is not possible to actually assess the value of

the Argentine experience upon the tenure decision of the author. However, the author's department and college did make possible a paper presentation at the International Conference for Engineering Educators in Norway subsequent to the GSE experience. Since such paper presentations at professional conferences are given some weight in tenure decisions, a case could be made that the GSE was professionally worthwhile. The sharing of this paper with other professionals in the field through a refereed journal is part of an effort to share the value of short-term overseas experiences for IT non-tenured faculty. That too may have some value in a tenure decision along with quantitative research.

The rewards of experiencing international professional development far outweigh the risks of being displaced from campus for one month. For the author, it has enriched his knowledge of international manufacturing and teaching. The department has perceived this experience to be beneficial by allowing other faculty members to participate in a GSE. Finally, there is recognition with the college that such experiences are important to broaden faculty's international experience and promote the college internationally.

Cultural Objectives

6. *Given the short-term nature of a Rotary GSE, the linguistic constraints of many faculty to collaborate with their peers in another language and culture; can a tenure track IT faculty member gain sufficient cultural exposure to positively affect both their teaching and research at the conclusion of the activity?*

The short-term nature of the GSE was less important than the fact that most engineering and technology professionals are limited in their linguistic ability and exposure to foreign cultures. The author observed that the same held true for the Argentine professionals who were equally deficient in English. Much of what the author learned about the contrasting teaching styles was learned by inter-

viewing students who possessed a better command of the English language than their professors—a sad commentary on our profession globally. While many of the Argentines understood English well enough to interpret the author's lecture on "Creating Partnerships with Industry," they preferred to ask questions in Spanish, which required the assistance of a translator.

The one lecture on creating partnerships with industry was reasonably well received, albeit through a non-professional translator; however, a cultural deficit once again became evident in the "mis-targeting" of this topic. The lecture proposed that Argentine industry donate equipment to universities in exchange for students being better trained. It emphasized that students were the main product that industry wanted and that if industry wants better students, then they need to begin working cooperatively with the university. The faculty felt that the proposed model would not work in Argentina for cultural reasons, because there is no incentive from the government for industry to donate money or equipment (even if it was going to the scrap yard). Argentine faculty attributed this to a difference in corporate cultures.

In spite of linguistic and cultural deficits, the short visit revealed a number of interesting similarities and differences that are valuable in developing future research collaboration in Argentina. Among these were:

- Most of Argentina's science teachers are women because "women do what makes them happy and men do what makes them the most money".
- Nearly the entire faculty is capable of reading English because it is the predominant language of professional journals.
- Teaching receives greater emphasis than research for tenure-track faculty
- The title of *ingeniero* (engineer) carries the same social recognition as a medical doctor

7. *Given the importance of team work across cultures in the field of manufacturing (technology*

transfer in the workplace for example) and in our diverse workplace at home, does the cultural venue of GSE have a transfer value to teaching at the home institution?

At a time when "Globalization is no longer an objective, but an imperative," (Jack Welch, former Chairman and CEO General Electric), overseas experiences for faculty are also becoming critical. The number of cultures encountered in our culturally diverse workplace is rivaled only by the need to understand potential markets globally. Engineering and technology professionals are as likely to work with a team of Saudis, Chinese, or Malays as they are to work with other U.S. professionals. The need for technology transfer, the key to selling our products abroad, is an understanding of the languages and cultures of our global customers. Therefore, the answer to the above question is that GSE and programs like it will have increasing value both in the global marketplace and in our educational system.

Implications

The findings of this research are important because the GSE program offers an attractive format for junior faculty to gain an international perspective within the constraints of their employment. Such experiences have the potential to arm beginning IT professors with new teaching ideas, skills, strategies, knowledge, and work perceptions that conventional programs are less likely to provide. By immersing themselves for several weeks in schools, homes, and manufacturing where things are done differently, IT professors inevitably experience what participants have termed *life changing* personal and professional growth leading to experiential insights that no book can provide. By examining this qualitative evaluation of short-term overseas experience, tenure track IT faculty can evaluate the potential of such an experience for their own professional development. Hopefully, it is apparent that the positive aspects of such international experience far

outweigh the few negative aspects and barriers to the international experience.

Through greater understanding of another culture, a host of research and collaborative possibilities emerge that can affect both teaching and learning in our technical programs. This same potential exists for tenure-producing research and publication. At the same time, such experiences respond to the need for greater cultural understanding within our increasingly diverse workplace, a workplace where engineering and technology professionals must contribute to a globally interdependent U.S. economy. Most importantly to IT educators, these experiences can be incorporated into coursework and better prepare U.S. students to compete in the global marketplace for their employers. These skills are critical to every student and of every nation that wants to prosper and increase the standard of living for its citizens.

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