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Exchange Faculty Perspectives on International Collaborations

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Introduction

The College of Technology at Purdue University in the United States of America and the Faculty of Engineering at the Dublin Institute of Technology (DIT) in Ireland have pioneered faculty exchange during 2005 as one important lynchpin of their overall collaborative programme. The authors, explicitly supported by their respective faculty and School/Department leadership teams, pioneered the implementation of the first faculty exchange between the two institutions.

The main purpose of the paper is to document key issues in developing successful faculty exchanges and to document perspectives and key learnings emanating from the development and implementation of such an exchange process.

Reasons for collaboration

- *Gain perspective of other country's approaches*

  In an increasingly globalized environment, formal engagement between US and European educational institutions is of particular benefit to both of us. As educators, we can benchmark many elements of our 'home' processes and approaches to our discipline and share 'best in class' approaches. Faculty exchange provided an enriched context for us as educators intent on continuous improvement and the pursuit of educational excellence.

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- *Increase the understanding of international dynamics*

  As globalization advances in all fields, valuable international partnerships are created by those who choose to engage internationally. Together we successfully grappled with the particular contexts/issues associated with international collaborations as we delivered 'win-win' partnerships. International perspectives and international collaborative skill sets are of increasing importance to today's young engineers and technology professionals. Faculty exchange was an initiative which assists us in better facilitating today's and tomorrow's students to engage internationally and to develop increasingly important international perspectives.

- *Have a different experience (e.g., mini-sabbatical)*

  The opportunity of a faculty exchange between Purdue University and the Dublin Institute of Technology was a mutually attractive prospect. Attending an education conference at DIT in 2004, Professor Stephens was surprised at how easily and well he related to the styles of engagement he found at DIT. Feeling very much at home in Ireland (despite no known Irish roots!), it appeared an attractive prospect to Dr. Stephens to develop his relationship with DIT further. Mr. McHale, who shared Dr. Stephens' academic interest area (Operations/Quality Management), had pursued his interest in international affairs and engagement throughout his

career. He was keen to explore the additional opportunities, perspectives and experiences which Purdue University could offer him and DIT students.

- *Explore opportunity for joint research or other scholarly collaboration*

  Our first exchange was an asynchronous in nature. One of the benefits of this model was that we got a joint opportunity to fully explore the research interests and background of our exchange partner. For instance, at Purdue University, Mr. McHale was given the opportunity to engage with current members of the faculty engaged in post-graduate research. He also had an opportunity to review some important undergraduate project work which is undertaken in the operations management area. From these explorations, opportunities for joint-projects at undergraduate level and also at scholarship level emerged.

- *Fun*

  While faculty exchange was a 'step in the dark' for each participant, we hoped this collaboration would be fun. We chose to inject social and cultural aspects into the exchange process. These activities gave us enormous insight into each other's cultures, professional and personal lives. This aspect of our collaboration was very important and an unexpected bonus. It helped establish bonds of open communication, trust and flexibility that can only support ongoing momentum in the collaborative effort between our two institutions. In fact, we developed extensive insight into each other's lives and became firm friends—something we had not expected

Realities of Departments

- *Travel funding is tight*

  At both institutions, any international travel must be justified and there are clear resource limitations on the overall extent of such travel.

- *Funding restrictions*

  The costs associated with the development of an international collaboration need to be funded. These include accommodation and food for exchange partners (both students and staff). However, funding is clearly restricted and the development of policy in relation to the pace of any ongoing collaborative effort clearly is limited by budgetary restrictions.

- *Awareness of "The Bigger Picture" is important*

  The development of a new exchange process in a School or Faculty will always have a high profile amongst faculty/staff. For the faculty/staff directly involved in piloting faculty exchange, it is an exciting opportunity. However, due to logistics considerations, personal circumstances and funding restrictions, it is also probable that the majority of faculty/School staff members will not directly participate in faculty exchange, at least in the first two years.

Given these realities, we learned that it is important that those pioneering collaborative exchanges do not unwittingly create the invalid perception at their home institution that the exchange process is a bounded exclusive 'one-to-one' arrangement 'owned by the fortunate few'; a process from which other staff members will not benefit from or ever be given access to. Faculty exchange personnel must actively work to counter the development of such a perception. There can be no doubt that the exchange process has the potential to build very strong personal and professional links for the pilot participants.

However, as an exchange faculty member, you represent your School -- part of an institution's academic network collaborating with another institution's academic network. In the context of the bigger picture, it is useful and appropriate to apply some of the time at the partner institution to support the development of collaborative links (of many varieties) for interested colleagues also into relevant parts of the partner institution's network

- *European student do pressure for international experience*

  Following the faculty exchange, we aimed to also develop 'student exchange'. Once awareness was developed amongst the DIT student body of the possibility for exchange trip to Purdue University, very quickly a number of undergraduate students showed a huge interest in participating in a trip to visit Purdue University. A short-term student visit was facilitated by Dr. Stephens (in collaboration with Dr. M. Dyrenfurth (Purdue) and Mr. Robert Simpson (DIT)) early in Spring 2006 semester. This was also very successful. This short trip developed six DIT undergraduate as 'evangelists' for ongoing student exchange between our two Colleges.

- *American students do not pressure for international experience*

  Students in the US need to be encouraged to engage internationally. DIT is hopeful that Purdue students will engage in a full semester exchange during 2006. The presence of Irish undergraduates visiting Purdue was a big help in assisting Purdue undergraduates get an appreciation of the realities and opportunities of study in Ireland, from a student's perspective.

Similarities and Differences within the Discipline

- *Content Covered*

  At the Program level, we found a very good match between the Degree of Manufacturing Engineering at DIT and aspects of the Industrial Technology and Mechanical Engineering Technology options within the College of Technology.

  We found approximately 60% match in content between the subject 'Introduction to Statistical Control' taken by Purdue undergraduates and the subject 'Quality and Reliability' taken by Year 4 students at DIT. However, the additional content in the DIT module was accounted for by additional contact hours: contact hours at DIT were two hours/week across two semesters whereas the student contact hours at Purdue were three hours/week for a single semester.

- *Accreditation*

  There were clear differences in the accreditation processes between our respective colleges. In the USA, credits are awarded on the basis of contact hours only e.g., 3 credits are awarded for a subject with three hours direct contact per week across a full semester. At the time of our collaboration (2005), DIT Engineering programs were not semesterised or modularized. However, the accreditation model at DIT in the modularized structure (being introduced in ’06-’07) is based on credit for total student hours (contact, tutorials and self-study). 100 total student hours/course accounts for five credits in the DIT accreditation model. DIT in 2005-2006 has introduced a semesterised calendar in ’05-‘06 and engineering programs will be fully modularized by 2006-2007. These changes will increase the level of alignment of our calendar and structures, thereby better facilitating full semester student exchange.

- *Theory—Application Balance*

  Both Purdue’s Department of Industrial Technology (led by Dr. Niaz Latif) and DIT’s School of Manufacturing and Design Engineering (led by Mr. John Lawlor) embed a strong applications bias on to the important theoretical elements underpinning their degree programmes. Each school has strong industrial links and each endeavors to facilitate learners to apply discipline-specific techniques, methodologies and technologies in real-world contexts.

  Both schools endeavor to regularly use industrial case-studies and applications to assist learners in bringing the theoretical concepts ‘alive’. Both of exchange partners have had a significant industrial and applications background complementing their academic background. This philosophical alignment proved useful. The exchange process enriched the applications context for both collaborators and learners in a number of ways. For example, Dr. Stephens lectured at DIT on Six Sigma methodologies and techniques. However, a US Six Sigma case-study on which Dr. Stephens had personally consulted/led provided a fresh global applications context for DIT learners to appreciate the methodology. Similarly, Mr. McHale used European industrial examples with which he was familiar to facilitate Purdue learners discover the uses of the Seven Tools of Quality.

  In addition, Professor Stephens’ exchange at DIT coincided with student Final Year Project presentations. Hence, he was facilitated by the Department of Manufacturing Engineering (headed by Mr. Robert Simpson) to attend the project presentations of Final Year undergraduates in both Manufacturing and Mechanical Engineering. This afforded Dr. Stephens an insider perspective on the typical nature, range and academic standard of project work which final year students at DIT pursue. In addition, he added a valuable independent international perspective to the assessment panel’s deliberations.

  Similarly, Mr. McHale was facilitated by Dr. Stephens in engaging with significant US industrial partners of Purdue University's College of Technology. This included a plant visit and meeting with the Senior Leadership Team at General Motors Moraine plant in Ohio, a plant tour of a large Caterpillar facility in Lafayette and a tour of a Kirby-Risk plant at

Lafayette. This provided an unrivalled and unique insight for Mr. McHale into the processes, activities and challenges of 21st century American Industry.

Teaching at Partner Institutions

- *Identifying instructional topics suitable for exchange*

  This influenced the success of the collaboration. At Dublin Institute of Technology in 2005, fourth year honours degree students of Manufacturing Engineering had approximately 60 hours of lecturer contact per annum in their 'Quality and Reliability' course in 2005.The extent of the syllabus required efficient use of all the available direct contact hours.

  Hence, it was important that any material presented by the exchange faculty member would be relevant, be presented at the appropriate level for the student cohort and fit seemlessly into their course of study. For planning purposes, exchange timelines typically need to be agreed at least 2.5 months in advance. We found it appropriate and useful for the exchange faculty member from the partner institution to propose a list of possible topics where they believed they could bring particular value. Subsequently, we sought the advice and guidance of our overseas partner as to its suitability. In every case, this feedback proved useful in aligning the material appropriately for the cohort of students. Furthermore, in all cases, we provided our exchange colleague with the proposed presentation material prior to travelling.

- *Awareness of Student Differences & Similarities*

  - *Motivation*

    We found surprisingly little differences in the spectrum of motivation amongst students between the USA and Ireland. The same approximate levels of discipline, and atmosphere were evident in the classrooms. Students in both institutions were happy to interact with their professors given some encouragement. They both enjoyed humorous interjections (and the humor proved portable)

  - *Expectations*

    We noted clearly the impacts of the differences currently between education costs and the culture and philosophy of third level education funding between both countries. US students pay significant annual college fees---certainly by Irish standards. Very many US alumni also make significant contributions to the development of third level colleges and universities. From a European perspective, US alumni appear to strongly identify with their Alma Mater (as was evidenced by the numbers that attend college football). There is a very well developed culture of private donations and alumni 'giving back' to their Alma Mater. This culture was very interesting to observe for a European educator familiar with a different model.

    In Ireland, third level education is, in the main, free (apart from subsistence and books costs) to all qualifying Irish students. Third-level education costs in Ireland are heavily subsidized

by the Irish taxpayer. Students have no requirement to take out loans to cover college fees. With the exception of a few large donors, the culture of 'giving back' to colleges is not so well developed in Ireland. Given the funding models and culture at work in the US, the facilities for R&D activity and for extra-curricular student activity are extremely impressive by current Irish standards.

- *Perceptions*

  There were clear differences evident in the way students interacted with faculty/staff members between both institutions. US students, in the main, used a style which was noticeably more formal than the DIT equivalent. This was informed by the culture of the institution.

Challenges for Exchanging Faculty

- *Timing*

  When considering an exchange, we initially by default considered 'synchronous exchange'. There is no doubt that such an exchange process is suitable for longer-term sabbatical type exchanges. However, in planning a short term pilot process, 'asynchronous exchange' proved more realistic and delivered many additional benefits.

  Faculty members have numerous time commitments at their home institution; a lecturing schedule, project supervision and grading, continuous assessment and feedback to learners, course development, faculty and school internal initiatives, scholarship, examination preparation and grading and industrial links. To plan a faculty exchange requires the consideration of its impact on ones existing commitments at the home university or institute. As faculty members, we wanted to choose windows of time which minimized the disruptive impact on our existing commitments. In this regard, pursuing an asynchronous exchange proved more realistic (if not so obvious). It ensured each professor/lecturer could plan his exchange timeline having due regard to his existing professional commitments. Management support was important in planning 'work-arounds' for existing commitments when necessary. Equally, buy-in to any proposed timeline by the partner institution was necessary and forthcoming.

  We took advantage of the difference in the lecturing calendar between Purdue and DIT. As Fall lectures re-commenced at Purdue three weeks ahead of DIT in 2005, it was possible for Mr. McHale to use this window of time to pursue the exchange---using a time which made existing commitments more manageable. Equally, Professor Stephens spent one week of Spring Semester vacation in Ireland, thereby minimizing the impact of his 'Mini-sabbatical' on existing commitments

  Asynchronous exchange' proved more realistic and delivered many additional benefits which were not totally foreseen.

- *Securing substitutes*

Securing short-term substitutes is not easy. Hence, we chose periods from our calendars which minimized the impact on other commitments.

- *Being cognizant of 'home' faculty member's other commitments*

  Beginning the exchange process with asynchronous exchange had many advantages i.e., each of us had 'a shepherd' on site to assist us in many aspects of the transition. This was of enormous practical assistance. However, it was vital also to respect the totality of our host's commitments and be able to work independently during our stay abroad. While asynchronous exchange had many advantages, it was not (and should not) be designed to 'tie-up' the home faculty member with issues related to his exchange partner much of the day for the full duration of the trip. During work hours, he must be free to also pursue his other commitments.

- *Cultural issues in the Lecture Theatre*

  Any faculty exchange directly affects the students exposed to the exchange faculty members. As professors or lecturers, the styles which are effective with learners in our home institution clearly have a cultural context. These interaction styles are influenced by the culture of our individual societies but also by the accepted styles and norms of staff/student interaction within our own institutions. Therefore, prior to undertaking a short-term exchange, it was natural to have a level of concern as to the extent to which our style of interaction with learners (already proven effective at our home institution) will work in another cultural context.

  Although our initial collaboration involved only a short term exchange (no more than three weeks), we definitely received a 'total immersion' in the other institution culture. Never-the-less, we would not claim to have had a fully nuanced appreciation of the other's culture--- to the extent that we would have at our home institution.

  We found that, to a very large degree, concerns about interaction styles disabling student learning were without foundation. Exchange professors/lecturers and variation in their methodologies, styles of interaction, accents and approach are initially a curiosity for students. Any differences in interaction styles with the norms do not prevent communication but actually engender a curiosity which tends to enrich communication and the student experience.

  Professor Stephens's lectures at DIT were clearly very well received as was evidenced by student reaction. Though the content was planned to be appropriate for the audience, it was clear from the student response that the style of interaction was also deemed enriching.

  Yet, we did manage to pre-empt some potential miss-communication. When Mr. McHale chose to lecture at Purdue on a topic called Failure Mode and Effects Analysis (FMEA) ---a technique which is often referred to in the spoken word in Europe as 'Fema', Dr. Stephens approved---but did alert him to the fact that FEMA, in the USA, refers to the Federal Emergency Management Agency not Failure Mode and Effects Analysis!

Strategic directions and conclusions

This exchange process was a very great success. The lecturing exchange collaboration helped our students and ourselves to develop an international perspective. Important insights were gained into the culture of the partner faculty and Institution. We found many other opportunities to further strengthen our collaborative efforts. We agreed to co-author a number of technical papers. We identified one area of common interest in which we could develop joint-undergraduate projects.

We progressed in brainstorming the vision and roadmap to progress student transfers between our colleges. The Purdue visit by six DIT Manufacturing Engineering students we hope will act as a catalyst for Purdue students to engage in for full-semester in Dublin during 2006-2007.

An important element of full semester exchange is the accreditation of the 'study abroad' program. Hence, we hope to map in detail the commonality of subjects between our respective programs and accredit equivalent (or near equivalent) study abroad. This move by DIT to a semesterised and fully modularized program in '06-'07 will greatly assist this effort.

In addition, there are opportunities for longer-term full-semester exchange both for sabbatical and/or for further study which we are actively pursuing.

Pioneering this faculty exchange proved to be a very fruitful and valuable exercise for us as educators and academics. It also benefited our students. It did involve additional effort to engage with a new process, overcome many barriers while also maintaining a focus on our core activities. The initial steps have been very successful. We have developed strong, trusting and flexible personal relationships and strengthened our faculties' partnerships. These achievements could not have happened without significant management support at both institutions. A strong foundation is in place to assist us in developing up the value chain of co-operation. We continue to actively develop further initiatives in support of learners at both faculties while continuing to be cognizant of our learnings to date from the exchange process.