Looking at Career Development Opportunities for Technical Staff Involved in International Exchange Partnerships

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This document gives a brief overview of some of the activities I have been involved with and will highlight some of the development opportunities I have been given through involvement in international exchange projects.

I am involved with an ongoing exchange project with The Hague University of Applied Science (THUAS) where technicians accompany students on their exchange visits. The initial aim of the project was to improve learning outcomes of teaching activities focused on active learning. It was hoped that by giving technicians the opportunity to work together they could design and develop more authentic practical activates by making use of their combined technical knowledge and expertise.

I am also involved with the CDIO initiative, an education framework that develops engineering students and brings together collaborators from all over the world. Through the CDIO network I work with colleagues from around the UK and the rest of the world to improve engineering education. I have hosted workshops at UK and Ireland meetings for technicians as well as attending the 15th International CDIO conference where I chaired discussions with academics and technicians on technician involvement in teaching.

The nature of the work technicians undertake often benefits from experiencing and observing how colleagues tackle similar problems. Seeing colleagues work in environments outside of their own workplace can often provide new insights that could otherwise be missed. My involvement has given me the opportunity to develop hard skills, where a technical skill is transferred directly from one technician to another along with the opportunity to develop a wide range of soft skills.

I have found that a skill exchange can be pre-arranged, i.e. a gap in knowledge is identified and then a request is made to colleagues to provide specific training. I have also experienced a skill exchange on an ad-hoc basis, for example during a lab tour a novel approach to a problem was identified which then lead to further discussion on the subject.

Below are two typical examples of some of the hard skills training that I have been involved with.

- During a lab tour of the THUAS workshops, the technicians demonstrated to me a number of techniques with regard to foam modelling, a method of quickly prototyping designs that is used by our engineering students. This demonstration included the suggestion of using a more appropriate model material and a demonstration of custom-made tools, both of which were incorporated into practice at Liverpool.
- A requested was made by THUAS students and technicians for a demonstration on a technique used at Liverpool to build wing sections for UAV vehicles. This technique allowed the THUAS technicians to move away from the more expensive and time consuming method of 3D printing wing sections.

Another opportunity that can be gained from an international exchange is the development of foreign language skills. A CDIO colleague from The University of Twente, Netherlands, Dr. Lisa Gommer, arranged for six technicians to visit Aston University, UK, with the aim of improving their English language skills.

As courses at Twente are taught in English the technicians felt that they were lacking in the necessary language skills to be able to effectively support students outside of their native Dutch language.

The exchange project has also provided the opportunity to discuss best practice with external colleagues, these discussions are further enhanced when issues, and their novel solutions, can be experienced first-hand.

These discussions have proved to be invaluable, sharing best practice from a variety of sources and learning from the insight and inspiration offered by working with international partners can be the catalyst to improving practice, in turn contributing to improving student satisfaction and learning outcomes.

Below are some examples of points of discussion which have influenced practice within my own workplace.

- Maintaining the quality and efficient delivery of activities in the face of increasing student numbers.
- Innovative ways to manage stock materials and keep activity costs within budget constraints.
- The use of appropriate tools and technologies.
- Best practice on workshop layout and health and safety procedures.
- Best practice on teaching workshop skills to undergrads.

I have found that the opportunity to discuss the challenges technicians face with international partners and colleagues outside of the University has allowed me to develop a wider range of communication skills, has improved my understanding of the wider HE sector and has improved my confidence in my own knowledge and practice.

Crucially, creating close working ties with external partners has made it easier to facilitate and arrange for students to work across a variety of disciplines and gain experience in overcoming language and cultural barriers, providing a more authentic learning and assessment experience.

The exchange project with THUAS continues to be successful, we are now in our third year. The student feedback remains positive, in particular they appreciate that working with international partners can increase their employability. The project has allowed me to further develop my career, I am now supervising a team of seven MEng students on this exchange project, running a project that I have developed myself.

My involvement with the CDIO initiative is also showing promising signs. The idea of an international technicians network has been well received, there will be sessions running at this years Asia meeting to discuss moving the network forward and I will be co-chairing sessions at the European meeting in January on the same topic.