Discussion Lecture - Session 1

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It's not what you know, it's who you know: Vocational network development within Professional Doctorate programmes

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Professional Doctorate schemes are, by their very nature, the starting point for a first or new personal network of peers with multiple functions and benefits. Structuring postgraduate training and research programmes to provide adequate and appropriate opportunities for interaction, networking and social learning is, however, a major challenge. Such peer group development both creates an identity for cohort based schemes and seeds the professional relationships which serve to nurture post-graduation career advancement.

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However, many Professional Doctorate schemes are rather fractured and heterogeneous as an experience, involving attendance in multiple locations (university, sponsor), engagement with multiple working environments (learning, research, development) and interaction with multiple communities (professional, peer, disciplinary, sector). Furthermore, flexible learning regimes which offer bespoke skills and competency acquisition opportunities (e.g., in terms of timing and topic matter) are not conducive to peer group development and can leave programme managers struggling to maintain a record of student activities and performance. The initiation and promotion of peer networking both within and between cohorts of a professional doctorate scheme clearly needs to overcome, or perhaps be reconciled with, the equally important ambition of programme flexibility.

These concerns are particularly pertinent to the design of the programmes to be implemented by the Industrial Doctorate Centres (IDCs) recently funded by the Engineering and Physical Sciences Research Council (EPSRC). These centres offer a four year EngD programme with industrially sponsored projects. Working across five universities (Cranfield, Exeter, Imperial College, Newcastle and Sheffield), the STREAM IDC supports the water sector through delivering the next generation of engineering leaders and addressing sector wide strategic research challenges. As a consortium based initiative, students (called Research Engineers - REs) can be registered at any one of the five universities and be sponsored by any of the water utilities, regulators, technology providers, etc.

Our ambitions for the programme included providing Research Engineers with customized advanced technical skills training as well as a common set of transferable skills, ensuring that sponsors received early and consistent benefit from their sponsorship, and actively supporting professional network development. With Research Engineers being supervised at five different universities, taking Masters level courses at any of those universities and being located for large periods of time at their sponsor's site, the promotion of cohort and inter-cohort identity, cohesion, and interaction as well as professional network development is a significant challenge.

In designing the STREAM Research Engineer experience, we have taken a number of steps to counteract the fragmentation caused by flexibility. The potential pitfalls of processes designed to promote professional networking are akin to those of technology transfer – opportunities do not always result in actions and actions do not always result in value. In designing the STREAM programme we cannot only improve opportunity, but can also enhance the quality of those opportunities by providing time and space for more than just a handshake and chat about the traffic. The programme components listed in the Table below are designed to afford extended and repeated contact with a range of communities so that professional networks become reinforced, resilient and mutually beneficial.

Intervention	Details	Intended effect
Common induction semester	Each cohort spends Oct-Dec attending same five modules + Group Design Project at Cranfield	Build cohort identity in early stages of programme. Community building through shared experience.
Inter-cohort symposium	Run at end of induction semester – all cohorts make presentations / posters on their work	First opportunity for new cohort to meet with others – semi competitive
Challenge week	Residential week run in July each year. All cohorts attend	Intense inter-cohort interaction and chance to bring in leading sector figures to make presentations
Payment of fees for professional institutions	Fees for two professional institutes paid for by the programme	Provide cost-free opportunities for professional development and networking
Second supervisors	The primary academic supervisor based at the REs home institution is supported by one or more co-supervisors from other STREAM partner universities	Ensure that STREAM is recognised by REs as a truly collaborative undertaking + expose REs to the networks of more than one relevant expert

Intervention	Details	Intended effect
Collaborative visiting student agreement	All STREAM students are registered as visiting students at the four unis that they are not hosted at	'Home' is the consortium – not just one of the universities
Prizes	Set of four intra and inter cohort prizes	Promote cohort identity
Transferable Skills & Engineering Leadership course	Five week long modules attended by whole cohort	Reinforce cohort cohesion and collaborative working throughout the programme
STREAM-ER	Cross between a social networking site and a distance learning platform	Provide access to the STREAM community and learning platform for REs wherever they are located

The STREAM-ER platform is perhaps the important support tool for student cohort identity and as such needs to provide a point of reference for the programme which emphasises its core components; science, knowledge, learning, problem solving, career development and networking. Specific components / functionality will include;

1. Areas to support delivery of the taught elements of the programme; (i) advanced technical skills, (ii) transferable skills & engineering leadership, (iii) research.
2. A shared or collaborative workspace and video conferencing function (synchronous) with video, voice and shared presentations / whiteboards.
3. Blogs – Research Engineers should be able to maintain a blog of their experiences. These will be updated weekly and contain text, images, video. A selection of blog entries will also be available via the public website.
4. File repository & file sharing.
5. Multimedia presentations (lectures, video clips, etc.).
6. A 'Help' surgery for RE's to post problems / requests for support to their colleagues and academics from the five universities.
7. A careers section containing interviews with people in a variety of job roles.

In committing ourselves to providing a more personalized RE experience (which, if nothing else, allows REs to build on their own strengths and redress their own weaknesses) we have had to invest in measures to alleviate the undesirable effects of a dispersed cohort. The experience of designing the programme, however, has encouraged us to think carefully about what constitutes a professional network and how it evolves.

Whilst we are monitoring Cohort's impressions and experiences to ascertain whether any additional measures are warranted, budgetary and consistency constraints probably mean that we have now cast the dice and must largely place our trust in those measures already implemented. Vocational networks are difficult to evaluate (both in terms of their extent and quality) and we are yet to determine success metrics for this element of the programme. Whilst we are confident that the component parts of our strategy are in themselves of benefit to our REs, proof of the value of the whole package in terms of shaping a useable professional network may be elusive.