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Practices and Approaches for the Integration of Teaching and Research (0200)

In September 2010 Imperial College London held the first Educating Engineering Leaders conference, bringing together an international group of experienced educators and industrialists. The two-day event focused on the teaching concerns and aspirations of research-intensive institutions. Specifically, discussions were held on the relationship between university teaching and scientific research, how engineering degrees respond to the needs of industry and society, and the student transition into, and experience of, engineering education. A survey on the views of the delegates reinforced concerns of the growing dichotomy between the teaching and research responsibilities of academic staff. Whilst institutional and personal prestige may rely on research output, such research-focused institutions must also address the increasing need for student professional skills and aptitude development for work and leadership in global work contexts. Students themselves are stressing a desire for such development and often for greater involvement in exciting research developments. Thus, a strong need exists for improved synergy in the teaching and research realms of such institutions.

In the light of this need a proposal was submitted and granted for a large-scale Curriculum Innovation and Enhancement project funded by the National HE STEM Programme and led by Imperial College London (May 2010 until April 2012). The aim of this project 'Practices and Approaches for the Integration of Teaching and Research' is to identify and disseminate practices that effectively integrate the research and teaching needs of institutions. Key questions being addressed include:

1. What are the typical practices, work approaches and support resources of those individuals who are able to maintain both outstanding teaching and research profiles? How are / were obstacles overcome?
2. What are some of the Departmental, Faculty / School or Institutional models which facilitate an effective teaching and research balance? How is evidence for this provided?
3. What is the role of employer engagement (e.g. industry, local community, NGOs) in supporting such practices? What are some exemplary initiatives of employer engagement?
4. How can the information on 1-3 above inform the induction and teacher training of new lecturers?

Specific project objectives are listed below:

- The collation of practices, policies and initiatives which help to: effectively integrate the teaching and research roles of academic staff; capitalise on institutional strengths to enhance the student learning experience and improve researcher engagement in teaching.
- The elaboration of teaching pedagogy through examples of good practice in teaching and learning.
- The identification of effective employer engagement practices of benefit to all stakeholders (students, staff and employers).

The project-work involves a combination of questionnaires, semi-structured interviews and case studies, and is framed by some current understanding of individual and social psychology relevant to career and work motivation and job satisfaction. Attention is also given to some institutional policies that help promote or support a balanced teaching-research work profile.

The questionnaire targets a wide cohort of academic staff in research-focused institutions within the UK, including (but not restricted to) the Russell Group universities. Close collaboration with some senior education leaders / managers has been established to ensure wide participation with the study. An online survey is undertaken, but where appropriated other formats, such as a paper-based version, are employed. The questionnaire is designed to gauge the relevant motivation, achievement and satisfaction levels in both teaching and research, and any practices that have helped consolidate tensions, or indeed enhanced the work satisfaction from both roles. Selected survey respondents are interviewed to follow up on any interesting anecdotes, practices or approaches reported.

The case studies focus on several accomplished UK researchers who are also recognised as outstanding teachers or educational innovators. By means of objective criteria, including the use of peer and student information and teaching awards, such individuals are systematically identified from a range of STEM disciplines, and from across various HE institutions. Each case study is accompanied by a short commentary on the educational premise of the practices (i.e. pedagogical basis). This information in itself is expected to be of value to new lecturers, giving a pragmatic understanding of the relevance of educational theory and evidence-based practice.

The combined data from the questionnaires, interviews and case studies is used to identify effective individual work practices as well as some current teaching and learning innovations that promote teaching-research integration. Such information is expected to help new academic staff manage and integrate their roles as researcher and teacher, potentially leading to improved motivation towards teaching, a greater coherence between teaching and research activities (i.e. *vertical integration*); and student learning activities which are in keeping with the institutional strengths.

The presentation at the SRHE Annual Research Conference will include:

- Background and rationale for the need for the integration of teaching and research in HE institutions in the UK;
- An overview of research methods for data collection and analysis;
- Examples of case study reports on academic staff from a range of STEM disciplines;
- A collation of university practices for facilitating an effective teaching-research balance in the work lives of academic staff.