SUMMARY CV, October 2014

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| Ruth 01 - 9217 | Name: Dr Ruth Graham  Position: Consultant in engineering education, innovation and entrepreneurship, R. H. Graham Consulting Limited  Membership of professional bodies: MRAeS, AMIMechE  Email: [ruth@rhgraham.org](mailto:ruth@rhgraham.org)  Website: [ww.rhgraham.org](http://www.rhgraham.org) |

**PROFESSIONAL PROFILE**

* 18 years professional experience in engineering research, engineering education and technology-driven entrepreneurship; working as an independent consultant since 2008.
* Consultancy work focused on fostering change in higher education worldwide; improving engineering teaching and learning and supporting the emergence of international university-based technology-driven entrepreneurship.
* International collaborations with universities, industry and professional bodies. Recent and current clients include MIT (US), the Royal Academy of Engineering (UK), Skoltech (the Skolkovo Institute of Science and Technology) (Russia), Schlumberger Foundation (France), Pontifical Catholic University of Chile (Chile) and University College London (UK).
* Regular international speaker on the challenges and opportunities for change in both engineering education and technology-driven entrepreneurship.

**PREVIOUS EXPERIENCE**

Dr Graham has a first-class degree in Mechanical Engineering and was awarded a PhD in Fatigue Analysis of Aircraft Structures in November 2001 from the University of Hull, in partnership with BAE SYSTEMS. She moved to Imperial College London in 2002 to work within the Railway Research group in the Mechanical Engineering Department. During this period, she was also actively involved in research and development programmes to widen international participation in engineering and science.

From 2005-08, Dr Graham led the EnVision project at Imperial College London, a strategic programme to transform the undergraduate curriculum and learning spaces across all nine departments in the Faculty of Engineering, improve its culture of support and reward for teaching excellence, enhance its international profile and secure external funding to support the project’s goals. The project also called for horizon-scanning and international community-building in engineering education across industry and academia.

**CURRENT ROLE**

Since 2008, Dr Graham has worked as a consultant with universities, professional bodies, engineering industry and charities/foundations to improve engineering teaching and learning worldwide and support the development of university-based technology-driven entrepreneurship. The scope of her activities ranges from international studies benchmarking effective practice to targeted support programmes for individual universities and/or engineering schools. Areas of current interest include (i) the influence of university reward procedures on institutional capacity for educational change, and (ii) the role of entrepreneurship and innovation as a driver for positive change in engineering education.

**EXAMPLES OF CONSULTANCY PROJECTS**

* ***Does teaching advance your academic career? Perspectives of promotion procedures in UK engineering schools*** *(Sept 2013–Sept 2014, Client: The Royal Academy of Engineering)*

The study examined the role that teaching plays in UK academic promotion within engineering. Drawing on survey evidence (n=604) and interview evidence (n=54), the study the study distilled views and experiences fro various levels of the university hierarchy to address the question “*to what extent are university promotion procedures seen to incentivise teaching achievement in engineering*”. The study report will be published by the Royal Academy of Engineering in late 2014. A follow-up study is planned, focused on developing a new set of metrics for the evaluation of teaching achievement in engineering.

* ***Creating university-based entrepreneurial ecosystems: evidence from emerging world leaders*** *(Feb 2012–April 2014, Client: MIT)*

This phased study sought to identify and evaluate the world’s most effective university-based entrepreneurial ecosystems operating outside established technology hubs. The study report, published in July 2014, summarises some of the key opportunities and challenges facing universities seeking to develop their entrepreneurial profile.

* ***Evaluation of university ranking systems*** *(Jan-Mar 2013, Client: Skoltech)*

A snapshot assessment was undertaken of the current systems of university ranking. The world’s most influential ranking systems are weighted towards research and, to a much lesser extent, education. The study examined key national and international systems of university ranking to map how the three domains of education, research and innovation/societal impact are represented.

* ***Achieving sustainable change in engineering education*** *(Jan-Dec 2011, Client: The Royal Academy of Engineering and MIT)*

The study focused on the facilitators and barriers to systemic educational change in engineering. Specifically, it sought to identify the mechanisms and conditions for the successful adoption of a new curriculum and pedagogy within engineering education. The study drew on interviews with international experts and the detailed evaluation of six case studies of highly-regarded educational change. Drawing on international good practice, the study concludes with recommendations for universities wishing to implement programmes of educational change.

* ***WHEN STEM: identifying the most effective age to influence children positively towards STEM (science, technology, engineering and mathematics)*** *(Jan-Apr 2010, Client: Institution of Mechanical Engineers)*

The study sought to understand how children’s attitudes to engineering careers change with age and thereby identify the most effective age/s and strategies for positive intervention.

In addition to the sample research studies listed above, Dr Graham has worked individually with a wide range of engineering schools and universities across the world to support specific initiatives of educational and entrepreneurial change. For example, over the past year, Dr Graham has been supporting and evaluating major programmes of education change in engineering at University College London (UCL) and the Pontifical Catholic University of Chile (PUC). In a second example, she conducted an independent evaluation of the Skylab facility at Denmark Technical University (DTU) in January/February 2014.