

Diversity in Engineering

Update October 2013

Welcome to the fourth update from the Diversity in Engineering programme.

These updates are produced twice a year to keep all stakeholders and interested parties up to date with activities and progress. To find out more, email diversity@raeng.org.uk or telephone Bola Fatimilehin or Jenny Young on 020 7766 0600.

Introduction to the Academy Diversity Programme

The Royal Academy of Engineering and the Royal Society are funded by the Department for Business, Innovation and Skills (BIS) to run a programme of work aimed to address the issue of diversity in the STEM workforce. The programme runs over four years from 2011 and is made up of two strands one run by the Royal Society and the other by the Royal Academy of Engineering. There are a number of areas of overlap including data gathering, pilot activities, and showcasing role models. Both academies work together on events when launching research findings and programme activities.

Our diversity brief from the Department for Business, Innovation and Skills (BIS) challenges the Academy to lead the 'mainstreaming' of diversity in all its aspects across the engineering profession. We have now started the third year of our 4 year programme.

The programme has established productive links with key stakeholders, particularly professional engineering institutions (PEIs) and, more recently, engineering employers. The other focus of the programme continues to be proactively collaborating with partner organisations and to deliver activities and research that supplement the existing literature and evidence available surrounding diversity.

Engineering Diversity Concordat

We are delighted that the Engineering Diversity Concordat has seen significant progress since our Spring newsletter, under the guidance of Professor Dame Wendy Hall FREng. The concordat is a voluntary commitment that PEIs can make in order to provide focus to their on-going action to increase diversity and inclusion within their own membership. In May the first 9 organisations became signatories, followed in September by a further 19 organisations <http://www.raeng.org.uk/news/releases/shownews.htm?NewsID=883>. With the concordat now being taken up by 26 of the 36 Professional Engineering Institutions (PEIs), as well as the Engineering Council and the Royal Academy of Engineering, this represents over 90% of the engineering registrant population.

Each signing event represents an opportunity for the professional engineering community to share its action, approaches and progress. We are now working to support the concordat signatories and encouraging the remaining PEIs to consider signing.

At the September event, attendees from 25 PEIs heard about progress of work within some of the initial signatory institutions. They also heard from Martin Houghton of TBR about research conducted into the circumstances and underlying reasons behind lapsing members from three of the larger PEIs. This research was undertaken as part of one of the pilot projects funded under the Diversity Programme.

Further information and support documentation on the concordat can be found at http://www.raeng.org.uk/about/diversity/resources/eng_div_concordat.htm

Diversity Leadership Group

In July 2013 we established an employer-focused group, chaired by Allan Cook CBE FREng, to co-ordinate action in stimulating demand for a diverse talent base. The Diversity Leadership Group (DLG) comprises senior leaders from around 40 engineering employers and employer-led organisations. Its focus is on practical collective action to establish and encourage greater inclusion in the engineering labour force, reflected through recruitment and retention.

The DLG met for the second time on 11 October and is collating existing activity amongst member organisations as a pre-cursor to agreeing actions to take forward.

If you are an employer interested in working with us in these aims, please get in touch at diversity@raeng.org.uk

Pilot Projects

We are funding three pilot projects as part of the programme. All have been underway for almost 18 months and are nearing completion. The three partnership pilot projects are aimed at exploring opportunities for increasing diversity across the profession as described below.

Access to civil engineering careers via the apprenticeship route

This pilot is being run by the Institution of Civil Engineers (ICE) and Mott MacDonald representing the London Apprenticeship consortium, a collaborative venture which in its first year involved six engineering consultancies - Mott MacDonald, Halcrow, Arup, WSP group, Hyder Consulting and Capita Symonds.

The pilot has progressed extremely well, and in 2012 expanded to include 30 companies (from six in 2011) and seven colleges (from three in 2011) in the recruitment and training of Advanced Technician Apprentices in Civil and Building Services Engineering. In 2012, 93 and 52 apprentices embarked on qualifications in Civil and Building Services Engineering respectively – compared with 40 in Civil Engineering in September 2011.

Pilot partners have worked with the Construction Youth Trust (CYT) to pilot the Budding Brunels Programme as an effective apprentice recruitment tool <http://www.constructionyouth.org.uk/what-we-do/our-work/budding-brunels/>. This partnership has proved extremely effective in delivering 80% apprentice recruits from disadvantaged backgrounds together with 67% recruits from black and minority ethnic (BME) backgrounds, compared to a national average of 11%.

A dissemination event for this project is being held on November 7 at the Academy – please see the events section of the newsletter.

Lapsing membership and poor retention

This pilot is a collaborative project between the Institution of Mechanical Engineers (IMechE), the Institution of Engineering and Technology (IET) and the Royal Aeronautical Society. It aims to build a better understanding of the reasons behind lapsing participation and poor retention in engineering institutions – and the wider profession. The research phase has been delivered by TBR to help develop a better understanding of:

- the reasons why individuals lapse membership of PEIs with a focus on women, and where possible BME members
- the conscious or unconscious actions of employers that support the retention of engineers
- the actions PEIs can and should take to improve the retention of members from different backgrounds.

The research element of the project, conducted by TBR, has concluded and findings were presented at the second concordat signing event in September. Suggested actions from the research are now being trialled by the Lapsing Membership Pilot PEI partners and will be reported over the coming months.

Proactive membership

This pilot is being run by the Institution of Chemical Engineers (IChemE) using a best practice example put forward by the Royal Academy of Engineering. The IChemE plans to create a Proactive Membership Committee with the aim of increasing the diversity of chartered chemical engineers. The main role of the committee will be to ensure that IChemE membership better reflects the society within which the IChemE exists in terms of diversity.

The project established its baseline data analysis and moved on to develop a role profile for regional ambassadors whose task it will be to identify potential members for progression to chartership and above. In conjunction with the above, the IChemE have been reviewing the information on their website and the value proposition of being a chartered engineer. The project is due to report at the end of October 2013.

Research and other activity

Socioeconomic background and race research

To generate evidence and develop a better understanding of steps employers and PEIs can take to increase participation of people from socially disadvantaged and minority ethnic backgrounds, the Academy commissioned the University of Hertfordshire Business School to investigate. The investigation took in a wide range of inputs, collected through stakeholder interviews and focus groups.

Findings were tested at a consultation event on 2 May 2013, including a lively presentation and panel discussion, with an audience of industry, diversity stakeholder and PEI representatives. Details are available in our events listing at http://www.raeng.org.uk/about/diversity/news_events/default.htm

Designed to Inspire showcase

Between 29 April and 1 May the Academy staged a showcase entitled 'Designed to Inspire', featuring 10 inspirational engineers from black and minority ethnic background. The showcase comprise an exhibition of role model timelines and a series of 'Audience with' events at which students undertaking education pathways towards engineering heard from two of the featured role models and had an opportunity to ask detailed questions of them.

The 6 events were attended by a total of 175 students, over which 20% were girls, from A level, apprenticeship, BTEC and undergraduate routes. We were also very pleased to welcome the Rt Hon David Willetts MP (Minister for Universities and Science) and Jo Swinson MP (Minister for Employment Relations and Consumer Affairs in the Department for BIS and Women and Equalities Minister in the DCMS), who both spoke to the students about the importance of engineering skills to the UK economy.

A showcase of materials was developed for the event including:

- [A2 poster featuring Black and minority ethnic engineers \(1662KB\)](#) 
- [A6 postcard featuring Black and minority ethnic engineers \(1779KB\)](#) 

Materials linked with *Designed to Inspire* - including individual role model videos, a short film from one session, a Q&A transcript, poster and postcard of role models can also be found on the [Tomorrow's Engineers](#) website and on the [Royal Academy of Engineering YouTube channel](#).

Black History Month

To mark Black History Month in October, we have circulated packs of posters based on our *Designed to Inspire* showcase and role models to a number of Further Education colleges and STEM teachers around the country. This helps to further raise awareness of successful engineers from different backgrounds and provides continued promotion of the video material available at <http://www.tomorrowsengineers.org.uk/inspire/>

If you would like to request a poster pack, please contact diversity@raeng.org.uk with your details.

Research into engineering internships and graduate destinations

Two pieces of research have been commissioned from CRAC and the Engineering Professor's Council and will be reported in the spring. These are:

1. Exploring the inspirations, aspirations and destinations of undergraduate engineers by gender, ethnicity and socioeconomic background - due to be completed during autumn 2013.
2. Investigation into the different success rates of diverse groups securing internships/work placements - due to be completed in autumn 2013.

We are considering how best to disseminate this work and how to combine it with the work that has been done under the programme to date.

Atkins survey

Atkins, in association with Rolls-Royce, BP and the Royal Academy of Engineering, has undertaken a survey of 300 female engineers in order to capture the positive stories of those who are working in the sector. The survey report, entitled 'Britain's got talented female engineers', explores the experiences, motivations and influences for the group surveyed and was launched at the Academy on 10 September. News of the launch and the link to the report can be found at

<http://www.raeng.org.uk/news/releases/shownews.htm?NewsID=882>

STEM Disability Committee

The Institute of Physics has recently led a project to produce a guide for supporting STEM students with dyslexia in higher education on behalf of the committee. The guide is free to download from http://www.iop.org/publications/iop/2013/page_61061.html

The Academy has commissioned a further phase of the previous project to create BSL signs for physics and engineering terms to support the KS3/4 curriculum on behalf of the committee. The team at the Scottish Sensory Centre have created an additional 189 new signs to add the existing 201 in the glossary

<http://www.ssc.education.ed.ac.uk/bsl/list.html>. The team are now filming the signs and undertaking evaluation of the site usage as well as providing exposure of the new signs at public events such as the BIG Event 2013 for science communicators (Glasgow) http://www.big.uk.com/Resources/Documents/events/BIG%20Event%202013/BIG_Event_Prog_2013.pdf, Sign Circle for BSL users (Preston) and the Manchester Science Festival.

The committee has also been connected with Positive Signs, an organisation that supports BSL in the public and private sector. There is particular interest in their Deaf Apprentice scheme that encourages and supports employers to take on deaf apprentices, with their first recent success placing an apprentice in the engineering sector. For more information see <http://positivesignslondon.com/deaf-apprentice>.

Diversity in the media

There has been a slow but steady increase in the positive media coverage surrounding the push to increase diversity of the engineering profession and the overall

attractiveness of the sector. Here is a small selection of interesting features from the last few months:

'Britain's got talented female engineers', covered in The Engineer

<http://www.theengineer.co.uk/channels/skills-and-careers/news/women-engineers-call-for-better-careers-advice/1017089.article>

A BBC Radio 4 Women's Hour feature on girls in engineering, including Yewande Akinola, a Designed to Inspire role model

<http://www.bbc.co.uk/programmes/b03brnrb#programme-broadcasts>

Roma Agrawal, a Designed to Inspire role model, featured in The Stylist

<http://www.stylist.co.uk/stylist-network/work-life/work-life-roma-agrawal-structural-engineer-wsp-group>

Roma also featured on BBC World News

<http://www.youtube.com/watch?v=0NKeGvUiTUI&feature=youtu.be>

Professor Dame Wendy Hall, speaking on BBC R4 The Life Scientific

<http://www.bbc.co.uk/programmes/b03c3cmk>

Consultations

Women in STEM Careers submission

The House of Commons Science and Technology Select Committee ran a consultation over the summer on Women in STEM Careers, specifically academic careers. The Academy, along with the Royal Society and many other organisations, made a submission. More information on the inquiry can be found at

<http://www.parliament.uk/business/committees/committees-a-z/commons-select/science-and-technology-committee/inquiries/parliament-2010/women-in-stem-careers/>.

Social Mobility

The Social Mobility and Child Poverty (SMCP) Commission recently asked for evidence in advance of its annual report into progress by government and businesses towards tackling social mobility issues. The Education for Engineering forum submitted their recent publication, 'Aspiration or Opportunity', a summary of action being taken by the engineering profession and including several specific initiatives taken directly from the diversity programme activities.

http://www.educationforengineering.org.uk/news/pdf/Aspiration_and_Opportunity.pdf

The SMCP Commission published its '*Business and Social Mobility: a manifesto for change*', earlier this month. We will use the manifesto to guide and challenge our activity, particularly with employers.

<https://www.gov.uk/government/publications/business-and-social-mobility-a-manifesto-for-change>

Events coming up

WISE Business Breakfast – 17 October.

We are pleased to host this event, part of an ongoing series of business breakfast meetings run by WISE. Please contact info@wisecampaign.org if you would like more information on this series of events.

Apprenticeship dissemination - 7 November.

We are holding an event to disseminate the results of one of the three pilot projects that we initiated in April 2012, investigating the role that Higher Apprenticeship can play in encouraging entrants to civil engineering consultancies from non-traditional backgrounds. This pilot has been run by the Institution of Civil Engineers (ICE) and Mott MacDonald representing the London Apprenticeship consortium, a collaborative venture which in its first year involved six engineering consultancies - Mott MacDonald, Halcrow, Arup, WSP group, Hyder Consulting and Capita Symonds.

The dissemination event will feature a stimulating mix of speakers, including some of the apprentices and their managers, and is facilitated by Tim Campbell who is the Major of London's Ambassador for Training and Enterprise.

For further information and to register for a place, please see http://www.raeng.org.uk/events/pdf/Apprenticeship_Event_Flyer.pdf

Everywoman Leadership Academy in Advanced Manufacturing and Engineering – 14 November.

We are partnering with Everywoman to host this, their first leadership academy for the engineering and manufacturing sector. GE are also a key partner for the event, with supporting partners of SEMTA.

The leadership academy is aimed at women with the aspiration and potential to develop their careers in the engineering and manufacturing sector. It provides a stimulating mix of inspiration, challenge and development as well as the opportunity to network with many similarly-minded women.

Please see <http://www.everywoman.com/engineeringacademy> for more details and to register for the event.

Academy internal activity

The Academy has agreed and established a business-linked Diversity Strategy and Implementation plan. This is being used to integrate a focus on diversity across all Academy activities. Internal directorates now have action plans in place for their areas.

We have formed a working group with representatives from each action plan area. This group will meet throughout the year, starting this month, to act as a support network in progressing the action plans.

Earlier this month several staff took part in a seminar about positive parenting. Based on evidence from the *Triple P approach to parenting* www.triplep.net and open to anyone with parenting responsibilities, the seminar titled *The Power of Positive Parenting* was offered by the *Positive Parenting Project* <http://www.positiveparentingproject.co.uk/> as part of a National Work-Life Week which ran 23-27 September <http://www.workingfamilies.org.uk/articles/employers/national-work-life-week>

Diversity resources

The Academy diversity pages are updated on an on-going basis to include more relevant reference material. The information is organised into separate strands to make it easier to navigate www.raeng.org.uk/about/diversity/resources/default.htm

If you have any reports or case studies you would like to share, please send them to diversity@raeng.org.uk

If you would like to follow up on any aspect of our diversity work, please do not hesitate to contact either Bola Fatimilehin (0207 766 0656) or Jenny Young (0207 766 0621) or email us at diversity@raeng.org.uk

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