



*The Royal Society
of Edinburgh*

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**Tapping All Our Talents Review 2018: Women in STEM
Women working in STEM Roundtable
10 May 2018, 10.00 – 12.00**

Note of Meeting

Roundtable Participants:

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Working Group Members:

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Secretariat:

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Discussion Topics

1. Increasing women in STEM and girls' engagement in STEM has been a political and economic priority for a number of years – to what extent, if at all, have you seen a positive impact of this in your study or work?
 - There has been little meaningful intervention which is baselined and measured. We need to know what works and do more of that. University intake is not looking much better. Until men (and all women) champion equality, it will not happen. Need to tackle kick-back from men (and some women) who object to positive interventions.
 - In a 20-year career, only once had female colleagues. Now actively pursuing CVs of female candidates (and instructing recruitment agencies to do so).
 - For mechanical engineering recruitment for university, they have held open days for women only. Appears to be successful, but only been running for 2-3 years.
 - Some universities run successful engineering summer schools for S3 girls, which are sponsored by engineering companies.
 - Engineering in Scotland is mostly within small companies, which can be an issue. Need quantifiable asks of men. Need events only for girls in schools, universities etc.

- Some people still do not recognise that there is a problem. We are still having to persuade some men of the need for work towards equality.
- We need the message (particularly in schools) to be that STEM is for everyone.
- The focus needs to be on achieving balance. People need to understand the difference between positive action and positive discrimination.
- Positive discrimination definitely has negative connotations, which we want to avoid. There are also differences (and different issues) within STEM, for example there are a lot more women working in clinical sciences than physical. We need to change people's mindset so they feel that everyone can do STEM.
- Can we learn from women who are running STEM companies?
- Senior levels in companies still tend to be predominantly men, even when the CEO is a woman.
- University subjects with more women do not seem to recognise the problem (even when there are gender imbalances at higher levels and in industry). Notice generational differences; younger men tend to be more supportive and engaged. How can we encourage those supportive men without giving more power to the non-supportive men?
- On graduation it was noticeable that all the women got jobs. There was a perception that this was because they were women (and employers wanted to increase their numbers of female employees).
- However, there is plenty of evidence that women do outperform men in STEM subjects.
- Women start to question their ability and get discouraged if they always hear that they only got something because they are female.
- Need to build confidence and resilience. Also, worth noting that employing/promoting someone because they are female is illegal, so employers are not going to do that and put themselves at risk of legal action.
- Experience with school outreach suggests that the gender balance is OK in primary, but it is in secondary you start to see the difference.
- Leadership from the top also produces positive results.
- Where there is gender balance within a department/organisation, women tend to be in roles such as communications, marketing, rather than actually doing STEM-based work.
- There is definitely more awareness of the issues. Generational change has made a difference to attitudes.

2. What do you think are the best ways to challenge and change deep rooted attitudes that are likely to produce results and can be evaluated?

- Men have seen a positive change having women in the office.
- Rather than focusing on women/girls only, 50% quotas might be useful.
- Women in Engineering coffee meetings are open to men, so they are not excluded.
- 50% quotas are a good way to not alienate men.

- Advertising, messaging etc can make a big difference and can make STEM more attractive to women. Should everything be gender neutral? Should there be a common language that we use and share?
 - Wording of curriculum outlines, job descriptions, event invitations etc can make a big difference.
 - People doing public engagement need to know what language to use to appeal to both genders. Women want quality of life, flexibility etc and this is not necessarily available as an option.
 - Need to change the language around STEM to make it more broadly appealing (for example, engineering requires creativity, but 'creatives' do not necessarily see this). A lot of our gender issues are cultural.
 - Primary teachers with a passion for science can make a real difference (particularly to girls, given that primary teachers are predominantly female). However, there are not many primary teachers with STEM skills.
 - We need a normalisation of science.
 - Pupils are not getting enough career advice in schools. They do not know what real careers in STEM look like or what the requirements are. STEM ambassadors in schools do make a difference.
 - Danger that careers advisers continue gender roles/stereotypes. Teachers should have life experience (not 'school – uni – school' as is often the case).
 - Need good careers advice, informed by industry. Need to expose young pupils to different careers.
 - STEM ambassador programme is great, but we need STEM to be seen as a core subject in schools.
 - University open days for children seem to be positive. Need these proactive actions.
3. What do you identify as the barriers for girls and women to get into and stay in STEM? And what would you want to see done to tackle these barriers?
- a) What do you think employers in particular need to do?
 - b) What do you think universities and colleges in particular need to do?
 - c) What do you think Government or policy makers in particular need to do?
4. What do you think are the biggest challenges to increasing women's representation in STEM?
- We should preserve the word 'engineer' so it has the respect/status it deserves.
 - It is probably too late to change attitudes and language use, but could make more use of Chartered Engineer status.
 - We need public STEM figures who are female.
 - It is happening (#stellarscientist) but those that are engaging are probably already aware.
 - We need flexible working to be normalised, not just women taking parental leave, changing their work patterns etc.
 - Normalising of negative practices is also unhelpful (breakfast meetings, working during holidays etc.)
 - HR can actually be a barrier to flexible working.

- Smaller companies can make it easier to allow flexibility (informally).
- Compressed working is not always available. Often flexible working or different working patterns have to be applied for once you are in the job, so women are less likely to apply in the first place.
- Need to convince people that flexible working actually makes people more productive. Evidence is there to prove it. Senior management need to be giving this message.
- Employers are more likely to offer flexible working when men are also asking for it.
- Comes back to language – people often talk about women being mothers, but rarely mention that men are fathers. This needs to change.
- There can be ‘Queen Bee’ syndrome, where women feel that only one woman can succeed. We need to support other women and create spaces of solidarity.
- Queen Bee syndrome can come down to a lack of confidence and insecurity, where women are worried they are being overtaken.
- Also comes from always looking up, rather than down. Need to change attitudes to support those below you. Recognise your position of power.
- Unconscious bias training is needed.
- Some universities have mentoring schemes. These can help provide a network for women.
- Mapping of existing STEM provision, with measures of effectiveness, is needed. There is a danger of fatigue if you are the only one championing equality.
- Funders (including Government) could ask for a baseline level of evaluation before making funding available, and a commitment to record details of the programme in a ‘hub’.
- Industry need to be taught how to speak to children, and training needs to be available for STEM ambassadors (including how to make their work relevant to the Curriculum for Excellence). Children need to know that apprenticeships are an option.
- Need good gender equality and unconscious bias training.
- Culture now is that to be successful you need to establish your own thing, rather than be part of something which is already successful. This can be unhelpful in terms of activities to improve equality, where we should be building on existing good work.
- Organisations need to be open to identifying gaps and improvements that can be made.
- We need to work with those that are doing it successfully, rather than always trying to set up something new.
- Current trend of disruptive thinking can be useful to identify gaps, but need mapping for this to work. Need to spread opportunities beyond the central belt.
- Children do not know what industry is like, and how to go about finding a job for an apprenticeship.
- It was only when moving in to industry that equality became an issue (did not feel like an issue at university).
- Would be useful to identify what did not keep women in science.

- Women can deselect themselves (because they want a family and do not see STEM employment as flexible enough). Equality and Diversity is being developed as part of the curriculum for engineering.
- Role models are always the exceptional women, which can be intimidating if you are not (or do not see yourself as) exceptional. We need normal role models, otherwise girls believe STEM is hard and only exceptional women can succeed.
- Exceptional women should also be encouraged to show vulnerability.
- Imposter syndrome can be an issue.
- Equality training has to start at the beginning of university.
- Need to be careful that we do not alienate women who do not want to get actively involved in equality actions.
- Role models also need to represent a range of women (not just white, middle-class).
- Modern children's literature is helping to tackle gender stereotypes.
- Goodnight Stories for Rebel Girls is a great example.
- Men taking time off for caring responsibilities is becoming more normalised.
- Universities could do more to ensure that female professors speak to those female students looking to go down the academic route.
- Athena SWAN is meant to create space for that.
- Work needs to start with the parents, not just the schools.
- Some schools are great at involving parents, some less so. American example of Show & Tell of parents' jobs is a good one.
- Need to make use of grassroots organisations that have connections into the community.
- Science festivals could do more to engage parents.
- International perspectives are interesting. Countries with fewer issues seem to have more of a focus on vocational education, and see industry taking the lead.