

What's keeping women out of the labs?

Matt Silver, Producer, BBC Science Radio
Thursday, 9 August 2007

If you've worked your way to the top in a university maths, physics or engineering department - you're very unlikely to be a woman.

But why should this be?

In 2005, Harvard University president Larry Summers provoked a storm of protest when he suggested that at least part of the reason for the dearth of women in these fields was biological - in other words, the result of innate differences in tastes and aptitudes between the sexes.



Larry Summers' comments about women caused controversy

Professor Helen Haste, a psychologist at the University of Bath, was working at Harvard at the time. She recalls how the speech revived some uncomfortable memories: "Women scientists who had gone into the profession before the late 1970s told quite harrowing stories of discrimination - sexist comments by their own supervisors, such as 'women have no place in laboratories, they should be at home looking after their children'. "Also some institutions had, for example, a dozen post-doctoral fellowships, only one of which was earmarked for women."

Nature v nurture

Despite changing attitudes, there are still very few women at the highest levels in certain fields. In 2005/6, while more than half of all UK students in higher education were female, just 3% of maths and 2% of civil engineering professors were women, a recent study revealed.

Professor David Geary, of the University of Missouri in the US, suggests there are two key difference between the sexes that might account for the disparity in numbers. The first is a difference in spatial abilities - the capacity to visualise things, particularly in three dimensions. The second is an increased interest in objects and how things work.

According to Professor Geary: "Males are better in both of those areas, and both areas contribute to interest in maths and engineering, and performance in some areas."

But how can we be sure that these differences are genuinely innate and not a result of upbringing and the culture that surrounds us? Professor Geary says: "These differences are found very early on in life. "If you look at interest in toy cars or mechanical objects, boys like those much more from the pre-school years. "Also, girls who have been exposed to a testosterone-like hormone in the womb show boy-like toy preferences."

'Done to death'

But Helen Haste thinks the evidence on spatial skills is overplayed. She says: "This is one of these things that's done to death. "Even if we found a subject for which it was an absolutely crucial skill, we

would expect 60% of the people taking that subject to be male and 40% to be female. "More importantly, we're only surmising that spatial reasoning is such a crucial element in say engineering or physics that it would cause the kind of differences that we've found in the past." More women than ever are entering higher education. For example, the proportion of women taking medicine has doubled since the 1960s and women now account for more than half of all medical students. "When these young people are getting to the point of gaining professorial positions, there will be much greater numbers of women" says Professor Haste.

But Dr Helena Cronin, who studies evolutionary theory and sex difference at the London School of Economics, argues that past statistics give no indication of what might happen in the future. She says: "On that basis, women marathon runners, who have been catching up with men since the 1920s, were predicted to overtake men in the 1990s, and presumably would be running beyond the speed of light if it were continued for long enough." According to Dr Cronin, it's the numbers of men at the extremes of ability that are most telling: "For males, the difference between the worst and the best is far, far greater. "This is a very important aspect of male-female differences. "One way of looking at this is that among males there are more dumbbells, but there are also more Nobels."

Politically correct science

So what conclusions can we draw from this closely-fought scientific argument?

For Professor Haste, history tells us this is an area in which we should tread carefully. She says: "I've never subscribed to the view that it's the correct feminist line to say there are no differences. "But let's not forget that historically, evolutionary arguments have often been used to justify what seemed to be some normal aspect of life at the time - for example, the extreme racism of the late 19th century."

Dr Cronin disagrees: "If people use the science wrongly, you should be objecting to them, not to the science." She describes Harvard's reaction to Larry Summers' speech as "shameful", and sees it as an example of science being hijacked by politically-correct ideology. She says those who are striving for 50/50 sex ratios across the sciences should look at the scientific evidence first. She says: "If you want to change the world, first you have to understand it."

Hear Dr Helena Cronin and Professor Helen Haste debate the issues in the first edition of Science Friction on Thursday, 9 August 2007 at 2100 BST on BBC Radio 4.

*You can listen to the programme for up to seven days after broadcast on BBC Radio 4's **Listen again page**.*