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Scientific ambitions caught in gender trap

Academic shares some home truths about female scholars' battle to reach the top, reports Liz Gooch

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The last time an academic tried to explain why women were under-represented in the upper echelons of science, there were howls of condemnation and calls for his resignation.

Lawrence Summers eventually resigned from his post as president of Harvard University in June last year. Although other issues were also at play in the resignation, his remark that innate differences between men and women were the reason why so few women worked in the academic sciences sparked a furore that has never fully subsided.

The topic continues to spark fiery debate whenever it is mentioned, and it was a brave American psychology professor who took on the thorny issue at a University of Hong Kong lecture this week.

It was far from the first time Professor Diane Halpern, director of the Berger Institute for Work, Family and Children at Claremont McKenna College in California, had broached the subject. Having addressed prestigious gatherings from the US Congress to the National Academy of Sciences, she attests that the issue is guaranteed to elicit much emotion.

"Before I even started talking at the New York Academy of Sciences I thought there was going to be a fist fight," she said. "This is a topic that people have very strong feelings about."

That strength of feeling sprung from women continuing to be under-represented at the higher levels of the academic sciences despite more girls choosing to study science at university.

Professor Halpern, who is spending three months at the Chinese University of Hong Kong working on a book about women in leadership positions who have children, and developing critical thinking materials for students, said while women had made impressive gains in obtaining science qualifications, "they're not then going on and achieving at those rates".

US university data, which Professor Halpern said would be reflected in Hong Kong, showed women made up 50 per cent of students who graduated from medical school with a PhD; almost 75 per cent who graduated from veterinary school; and 44 per cent who graduated with PhDs in biology and life sciences.

But the statistics were worse when it came to other fields of science. American women constituted only 29 per cent of maths graduates with PhDs, 17 per cent of engineering graduates and 22 per cent of computing and information science graduates.

In Hong Kong, the proportion of female academic science staff at the city's universities dropped from 15 per cent in the 1997-98 academic year to 12 per cent in 2004-2005, University Grants Committee figures show.

Professor Halpern said she believed a combination of factors, including women bearing the bulk of family care responsibilities, discrimination and differences in interests, were to blame.

Two months before Dr Summers made his controversial remarks, Professor Halpern wrote a column questioning the process of how universities award tenure to academics.

She suggested that the strict rules governing tenure, which usually required academics to work full-time, could be detrimental to women's careers.

Professor Halpern said the average age for achieving tenure was 36 - an age which coincided with women's prime child-bearing years, or as she puts it: "Tenure clocks and biological clocks run in the same time zone."

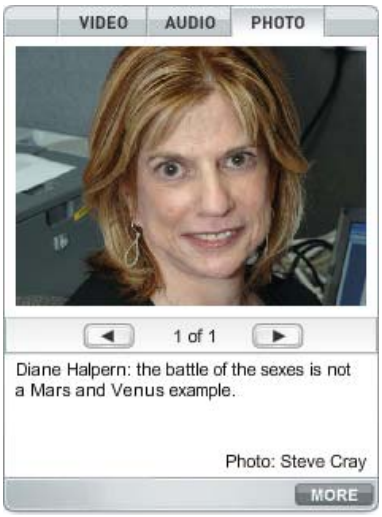
Professor Halpern suggested there could be alternative ways of organising tenure, such as allowing professors to work part-time.

"It would also be beneficial to men who have family care responsibilities," she said.

Professor Halpern said studies had shown that marriage and children had negative effects on the research productivity of women in academia and positive effects for men. "It really is going to be incompatible with being a mother," she said, adding that this would apply equally to men if they were the primary caregivers.

Research showed that when a woman chose to have a baby it could affect her career opportunities.

In studies published in 2002 and 2004, researchers from the University of Berkeley found that women who had "early babies" - categorised as those born within five years after the woman received a doctorate - were 20 to 24 per cent less likely to have tenure 12 to 14 years after their doctorate than men or women without children.



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Women with "late babies" - those born after the women had received tenure - and women without children, were equally as likely to achieve tenure within this time.

The research also showed tenured women in science were twice as likely as tenured men to be single, and of the married women with children interviewed for the study, 59 per cent indicated they were considering leaving academia.

"We really are asking women to make some choices between a family and a career that we are not asking of men," Professor Halpern said.

But it's not simply a case of balancing the work/life equation.

The shortage of female scientists has also been attributed by some to women's perceived lack of interest or ability in the field.

Professor Halpern acknowledged that studies had shown girls tended to perform better in reading and writing, while boys recorded better results in maths. She said that it appeared on average girls and boys relied on different strategies when solving some problems.

"Those are differences. It doesn't mean they will always be there. The question becomes, why are they there? Even if there are differences it doesn't necessarily explain why you would expect more of one sex than the other in a profession," she said. "There's no evidence that one sex is smarter than the other."

Professor Halpern said while on average women tended to be more interested in people-oriented subjects than men, we needed to question how girls' interests were shaped.

Schools could reinforce sex role stereotypes and consequently, girls may be dissuaded from pursing a career in traditionally male-dominated areas such as science, she said.

"Those stereotypes are powerful even if we're not aware of them," said Professor Halpern, who acted as a consultant when Hong Kong's Equal Opportunities Commission challenged, and overturned, the government's Secondary School Places Allocation System in the High Court on the basis that it was discriminatory.

Equal opportunity policies may be on the statute books of almost every university around the world but Professor Halpern said discrimination remained a barrier for women.

She cites a Swedish study which investigated the peer review process used to award postdoctoral fellowships. It found men and women with equal levels of productivity received different competency ratings.

"There was clear evidence of discrimination," she said, adding that people may unconsciously discriminate against women.

Professor Halpern said she believed society needed more women in science, not only because there was a shortage of scientists, but because women might choose to research different questions than men.

Having concluded in a paper published earlier this year that "early experience, biological factors, educational policy and cultural context affect the number of women and men who pursue advanced study in science and maths", Professor Halpern warned there were no simple answers to the problem.

"We should not ever expect any answer that it's all environment or it's all hereditary because that's not how things work," she said.

Instead, it was important people acknowledged the differences between men and women honestly, otherwise there would never be any change.

"We are similar in many ways and different in many ways ... it's not a Mars and Venus example. Every one of us is from Earth," she said.

Although Dr Summers may regret raising the subject, Professor Halpern believes his contribution to the debate may not have been all bad. "On the one hand I think we owe him a debt for energising people to look at it more," she said.