Brilliant women are academic all-rounders

In a recent interview US sociologist Andrew Penner said that women avoid or leave male-dominated disciplines like maths and computing, not because they are intellectually inferior to men, but because they are academic all-rounders with more career options than men. He stated that one reason for women being underrepresented in science, technology, engineering and maths (STEM) careers is that women are more likely than men to have strengths in both maths and verbal areas. They are therefore less attracted to STEM careers than men whose strengths are skewed towards maths. Penner argues that women who leave STEM careers, like German Chancellor Angela Merkel, who earned a PhD in physical chemistry, and the former British prime minister Margaret Thatcher, who obtained a chemistry degree from Oxford University, demonstrate their brilliance in other ways and make valuable contributions in a variety of fields, including health, education and politics.

Penner was commenting on a study, co-led by Princeton University philosopher Sarah-Jane Leslie and University of Illinois psychologist Andrei Cimpian, which shows that women who excel academically are underrepresented not only in certain STEM fields, but also in a variety of non-STEM disciplines, all of which take the view that only men possess the required “raw, innate talent” and academic brilliance. Leslie and Cimpian write that the greater the emphasis on innate brilliance or giftedness in an academic field, the fewer the number of PhDs awarded to women. In the US, women are awarded over 50% of PhDs in molecular biology and neuroscience and over 70% of PhDs in psychology, but less than 35% of PhDs in economics, philosophy and engineering and less than 20% of PhDs in physics, computer science and music composition.

After quizzing 1,800 US academics and postgraduate students from 30 STEM and non-STEM disciplines about working hours, competitiveness, the importance of analytical reasoning and the innate skills required in their respective fields, Leslie and Cimpian found “no evidence that fields with more women have weaker applicant pools” or that women are “less likely to possess innate intellectual talent”. They also found no evidence that women prefer family-friendly, non-competitive and empathetic careers. Instead, they found strong evidence to support their hypothesis that “across the academic spectrum, women are underrepresented in fields whose practitioners believe that raw, innate talent is the main requirement for success, because women are stereotyped as not possessing such talent”.

Leslie and Cimpiani concluded that some academic fields are “inhospitable” to women and that the biases and discrimination exhibited in these fields may make women “vulnerable to stereotype threat”, meaning that they internalise the stereotype that they are not as brilliant as men and “decide that these fields are not for them”. The result is that women are persuaded to believe that they do not belong in “brilliance-required” fields despite being as academically gifted as men. A follow-up study, not yet published, has since found “very promising” evidence that a woman’s motivation to pursue a career is reduced in fields that emphasise brilliance over effort.
Penner agrees that it is not lack of intellectual brilliance that keeps women out of some fields. Molecular biology, neuroscience and psychology are all academically demanding fields, he says, but “effort is viewed as important”, unlike in philosophy and physics, where academic ability is viewed as innate. He writes that Leslie and Cimpian’s “intriguing finding” not only explains why women are well represented in some STEM fields and not others, but also why women are now pursuing careers in law at the same rate as men, “even though law school has a competitive culture, lawyers work long hours, and law firms are not yet as family friendly as one might hope”.

Conclusions
Leslie and Cimpian recommend that academics “downplay talk of innate intellectual giftedness and instead highlight the importance of sustained effort for top-level success in their field” in order to attract more women to their disciplines. Penner, however, takes a different tack, arguing that “when we define success as becoming a STEM professor at a research university”, we “risk trivialising the contributions” of women “who choose to pursue other endeavours”. He has even questioned the wisdom of using “men’s curricular choices … as the baseline for women to emulate”. Instead he points out that women graduates now outnumber male graduates and asks, “Would society be better off if men were more like women?”

References

