

Objectivity, rationality and truth are the best arguments for more women in science

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[Nancy J. Lane](#) suggests that the growing interest in the advancement of gender equity in SET is partly due to "the growing awareness of the huge untapped economic potential that women present." Arguments presented in support of gender equity in science often appeal to values which are external to the practice of science, and therefore, may appear to the practising scientists as policy interventions from the outside. Such arguments are undoubtedly useful in guaranteeing the support of the policy makers. But I suggest that other kinds of argument are needed to bring the goal of gender equity closer to the practising scientists. Recent work in philosophy of science provides arguments which appeal to the internal values of scientific communities such as objectivity, rationality, and truth.

Helen Longino¹ argues that the possibility of a dialogue where qualified practitioners share equal intellectual authority would increase the objectivity of scientific knowledge. The argument goes as follows: scientific knowledge is based on empirical evidence and scientific reasoning which establishes a relation of evidential support between evidence and a theory or a hypothesis. Empirical evidence has to satisfy three criteria: first, observations must be intersubjectively verifiable; second, experiments must be repeatable; and third, observational data must be ordered and organized. Empirical evidence may not always be an outcome of an actual dialogue among scientists, but each one of these three criteria require that empirical evidence is produced in a social context where there is an opportunity for such a dialogue.

Longino also points out that empirical evidence can confirm or falsify a hypothesis or a theory only against some background assumptions. It is not reasonable to require each scientist to produce evidence for all the background assumptions used in reasoning. A more reasonable methodological guideline is that a background assumption is rationally acceptable to the extent that it reflects a relatively stable consensus achieved by means of a public, inclusive, critical, and responsive dialogue in a relevant scientific community. But not just any dialogue will be successful in eliminating error and bias. And not just any consensus will deserve to be called scientific knowledge since a scientific community can arrive at a consensus in many ways. For example, a consensus can be an outcome of the imposition of one point of view on others, or it can be an outcome of a situation where a community ignores the scientific work of some of its qualified members. The scientists and the rest of us should be able trust that a consensus reflects good epistemic grounds and not the imposition of one point of view on others or the exclusion and marginalization of some members of the community.

Given this philosophical analysis of scientific knowledge, it is not difficult to see how gender bias can work against the internal goals of values of scientific communities. Shirley Tilghman, a molecular biologist from Princeton University, tells *Science* magazine how unconscious gender bias can function as an obstacle for inclusive scientific dialogue. When Tilghman ran a conference in 1988, about 33 per cent of the speakers and 45 per cent of the attendees were women. When another conference on the same topic was organized by her male colleagues, only a small percentage of the speakers were women. "I don't think you can attribute this to anything but an unconscious gender bias," she says².

Equal treatment of women in science would create better opportunities for scientific dialogue, and thus increase the reliability of scientific knowledge. I think that arguments which appeal to the internal goals and values of scientific

communities will bring the cause of gender equity closer to home.

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References:

1. Longino, Helen. 1990. *Science as social knowledge*. Princeton: Princeton University Press.
2. Morell, Virginia. 1992. *Speaking out*. *Science* **255** 1369 (13 March 1992):



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