

## Lecture : 8

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### Science ,Technology and Society

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#### Feminist Challenges

Taking feminist perspective as an alternate mode of defining reality , it is not at all gender specific in its claim for more respectable position for certain virtues, the so called feminine virtues of care based perspective and for restoration of the mode of knowledge by love and participation as against the detached objectivity of science. “ Why can’t one see courage and heroism in the virtues of humility and self-sacrifice?”, feminists wonder. Perhaps this would require a fresh look at the reason - emotion dichotomy to restore love-knowledge perspective to its original respectable position

Some such challenges are aimed at modifying the mainstream ideal of science. Helen Longino has attempted to synthesize, clarify, and defend the proposals for a feminist theory of science by developing a very influential theory of contextual empiricism that includes a social conception of objectivity.

According to Longino, a theory is objective if it has undergone and survived a certain social process of critical scrutiny. Through public critical scrutiny, the background assumptions upon which particular theories depend for their support have the potential to be revealed, and idiosyncratic assumptions can be weeded out. In order to ensure that this system of public scrutiny is working well, Longino sets out four governing norms of interaction in an epistemic community: there must be publicly recognized forums for criticism, uptake of criticism, public standards, and tempered (to allow for differences in intellectual capacity) equality of intellectual authority (Longino 2002).

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To the extent that these norms of social interaction are fulfilled by an epistemic community, the theories they are considering will be subject to the appropriate kind of public critical scrutiny, and their results will be objective. Diverse representation within the community also becomes important, since "a diversity of perspectives is necessary for vigorous and epistemically effective critical discourse" (Longino 2002, 131).

The greater the diversity in the community, the greater the opportunity for revealing background assumptions that may be shared by large segments of the membership. Once a background assumption is revealed, the process of critical scrutiny determines whether it is acceptable or problematic and in need of rejection. The resultant knowledge will not be aperspectival and will not be free of background assumptions, but it will represent a

perspective that is broader than any one individual can bring to the table, and that has been found to be appropriate for the particular epistemic goals of the community.

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Longino contrasts the cognitive virtues proposed by mainstream theorists with an alternative set of feminist theoretical virtues. The former list includes internal consistency, external consistency, simplicity, breadth of scope, and fruitfulness. To this list, Longino counterpoises feminist virtues: novelty, ontological heterogeneity, mutuality of interaction, applicability to current human needs, and diffusion of power; the last two are designated "pragmatic" virtues. One additional item, empirical adequacy, is found on both lists: A scientific theory that accurately predicts facts is better than one that fails to do so. Longino contends that regardless of the bundle of virtues proposed, these virtues "require further interpretation to be applied in a given research context, they are not simultaneously maximally satisfiable, and they are not subject to hierarchical ordering or algorithmic application" (Cognitive, 49).

She intends the theoretical virtues to be virtues of theories, not of individual scientists. They should be thought of as explicating how a valuable scientific theory is to be characterized. By labeling these virtues "feminist", Longino does not mean that they are more likely to be valued by women qua women, nor by women qua marginal members of the scientific community. Rather, the idea is this: "If the context is gendered (in the sense of being structured by gendered power asymmetries), inquiry guided by these virtues is more likely to reveal it or less likely to preserve its invisibility than the traditional virtues" (Cognitive, 50).

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Her version of feminist science is just a reflection of her basic concern for the social and community based nature of science. Such epistemic communities also include feminists. Such epistemic agents would provide better background beliefs by accommodating feminist concerns. That scientific knowledge should interact with the social, that science is improved via feminist and communitarian approach.

Longino's version of feminism is :

"Feminism ... is at its core in part about the expression of human potentiality. When feminists talk of breaking out and do break out of socially prescribed sex roles, when feminists criticize the institutions of dominations, we are thereby insisting on the capacity of humans –male and female –to act on perceptions of self and society and to act to bring about changes in self and society on the basis of these perceptions. (Longino 1990: 190)"

Lying behind feminism is the conception of human nature, of human beings as agents with capacities for self-consciousness, self-reflection, and self-determination and whose intentional states are efficacious.

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This preference for feminist virtues is a prioritization of certain values like liberty, autonomy, and responsibility. Since human agency is a capacity that is enhanced or diminished by favorable or adverse factors, her feminist concern for science is for safeguarding human agency in scientific endeavors including mainstream science.’ what kind of approach to science might serve this objective?’ “What are the scientific practices ,which incorporate a commitment to the liberation of women and the social and political equality of all persons ‘ (andiron 1995 a :51) .Since this enhancement model is obstructed by modern values of control ,Longino’s version of feminist science opposes the Galilean/Baconian approach to mainstream science .The feminist approach is an alternate model of doinfg science differently that will identify the possibilities of agency enhancing conditions.

Opting for a feminist science then prioritizes intentional explanations in the domain of human behavior, more with belief, value, desire ,intention than underlying law ,process and structure of formal , deductive and mathematically organised organization present in materialist theories.

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Human action can not be represented as simultaneously law like and intentional, and it can not be only explained in terms of lawful relations with genes, settled brain states or environmental contingencies.”Illustrating this Longino discusses a strategy in behavioral endocrinology that uses the liner –hormonal model (LHM:hormone-brain-oranisation –behavior), in which sex differences in a variety of behavior (including performance in some mathematical tests ) are lawfully attributed to differences in brain organization ,which are themselves lawfully attributed differential roles of gonadal hormones in fetal development. ( Lacey :2005)”

Longino argues that it could not be shown that theories developed with liner –hormonal model manifests the cognitive values to a high degree of some relevant domains of phenomena.” They appear to do so in the light of assuming that there are essential brain differences between males and females that account for a great variety of behavioral differences. This assumption is not contained in a theory soundly accepted in accordance with impartiality ,and holding it is explicable only in terms of its being a pre supposition .Accepting theories developed with LHM involve play of value alongside cognitive values rather than prior to their play.In opting for Longino’s model of feminist science one identifies human agency as the primary object of inquiry and one is primed to query alleged limits to its possible expansion based on gender, race and other such differences.” ( Lacey :2005)

Thus we find that feminist critics of science like Keller and Longino<sup>1</sup> have criticised the androcentric bias in contemporary biology and social science, though their goal is not to produce a ‘different science,’ but a ‘liberated one.’

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### **Strong Objectivity and its critics**

Sandra Harding agrees with the hermeneutic critique that the ideal of pure objectivity is impossible, but she looks forward to some other kind of objectivity - a better or "stronger" type of objectivity. On the other hand, feminist postmodernist Donna Haraway remains skeptical of universal claims of reason and the progress of science. She argues that only political solidarity across social locations can ground feminist findings, there being no independent epistemological groundings (for example Flax 1990, Haraway 1991). Her focus on the bio behavioral sciences illustrates how the “social” can be shown to have an influence on observations as well as interpretations of scientific phenomena. Dr.Robert Russell reviews Haraway’s feminist stand thus:” Haraway proposed a feminist rendering of ‘objectivity’ which brings together two poles of the argument: the admission that all knowledge and knowing subjects are radically and historically contingent along with a “no-nonsense commitment to faithful accounts of a ‘real’ world.”

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### **Standpoint theorists**

Standpoint theorists, and many who are inspired by standpoint theory, not only maintain Dona Haraway's the situated knowledge thesis, conceptualizing all knowledge as perspectival, but also hold a stronger thesis that some of those perspectives are epistemically more valuable than others. In other words, some perspectives offer objectivity in a way that others do not. Although some standpoint theorists argue for a women's standpoint stemming directly from women's experience, most influential standpoint theorists including Hartsock (1983) and Harding (1986) insist that the Marxist-inspired arguments imply that although the feminist standpoint is deeply connected to the lives of women, the epistemically privileged nature of the feminist standpoint stems from active political engagement in the feminist cause, not just the perspective of women. Thus, a certain kind of political activity is required in order to appreciate the situation of women or other oppressed groups.

This sense of standpoint refers to the capacity to develop "a critical consciousness about the nature of our social location and the difference it makes epistemically" and builds upon, but is distinctive from the situated knowledge thesis that recognizes the importance of social location in shaping epistemic perspective (Wylie 2003, 31). A standpoint does not naturally or automatically arise from a particular social location, although the experiences of an oppressed social location can make the achievement of a standpoint more likely.

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Sandra Harding's strong objectivity results from an acknowledgment of the perspectival nature of all knowing, and a determined effort to examine the world from the perspectives of the socially underprivileged rather than the privileged. The result, according to standpoint theorists such as Harding, will be knowledge that is less partial and distorted, and hence, more objective .To quote Robert John Russell , “According to Harding and Hintikka, ‘we must root out sexist distortions and perversions in epistemology, metaphysics, methodology and the philosophy of science’.” Scientific knowledge, founded on masculine experience as understood by men, is thus only “only partial human experience only partially understood” and distorted when claimed to be gender-free “.

Can hermeneutics of science be an alternate approach from a feminist philosopher of science who has all the ingredients in her for combining successfully these roles, a woman and a scientist, an woman of reason, and an woman who cares and loves. Sandra Harding and Helen Longino falls within this group, If these critics of feminist epistemology of science is justifiable, philosophy of science would be revamped to include the consideration of gender as a necessary element in the epistemology of science.

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Is there epistemic link between gender and bias? Harding thinks so. That gendered bias is negative in the case of male orientation, positive in the case of female orientation.

Drawing from biological sciences,In her book *Whose Science? Whose Knowledge?*, Harding attempts to synthesize standpoint and postmodern feminist epistemologies. “At this moment in history, our feminism need both Enlightenment and postmodern agendas- but we don’t need the same ones for the same purposes or in the same forms as do white, bourgeois, andocentric westerners “( Harding:1991). The subjects of knowledge in standpoint theory are embodied and visible in their social locations as communities of knowers that are multiple, heterogeneous, contradictory, and even incoherent. “Harding, in a more recent defense of standpoint theory, argues that marginalized lives should be the subject of scientific inquiry, not the solution to an epistemic problem. Harding suggests that, by combining feminist standpoint theory with postmodernism, we can overcome some of the limitations of the former. She believes there are many links between postmodernism and standpoint theory”.(Anderson: 2009).

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Overall, Sandra Harding looks for a wider horizon that can accommodate both enlightenment needs and postmodern concerns in the interest of acting out a set of pedagogical values as well. She writes: “These projects are incomplete –we have not yet figured out how to escape such limitations. Most likely, we are not yet in an historical era when such vision should be possible. She argues that feminism, as well as science, contain both regressive and progressive tendencies and that ways are needed to advance the progressive sides and inhibit the regressive natures of science and feminism”.

Harding uses various interpretations of Thomas Kuhn’s ‘The Structure of Scientific Revolution (1970)’ and Quine’s under determination thesis. She says that feminists would improve science posing epistemological challenges to a particular way of doing science. What could be the epistemological challenges?

If we understand by epistemology of science to be concerned with questions about the nature of evidence for or against scientific belief, with critical assessment of the presuppositions and arguments of rival theories of scientific knowledge, by using better methods, by discovering new problems, by resolving existing problems etc., such epistemological challenges are welcome for improving science and technology study.

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### Feminist epistemology and empirical methods

”[S]cience is just one way of perpetrating and legitimating male dominance.” (Harding 1989, p.281).” Harding’s challenge is not science –bashing type, not to eliminate science but to improve it. The problem with science is not sexism, the problem is that scientific knowledge reflects a set of non-cognitive interests and values which serve the political ends of Western European white males, while suppressing other social groups.” (Harding 281)

We have seen here that on the one hand, feminist approach qua feminist philosophy of science could be understood as a thesis about the best epistemic and methodological criteria to ground philosophy of science. This approach differs from *beyond epistemology* type of feminist science critics represented by some others. Harding and Helen Longino fall within the group of science critics for whom objectivity and truth matters in some form. If these critics of feminist epistemology of science are justifiable, philosophy of science would be revamped to include the consideration of gender as a necessary element in the epistemology of science.

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However, the strong resistance to the idea of a separate feminist science comes when feminist science draws positive direction from feminist values. To quote Geertz :

“The worry is .. that the autonomy of science ,its freedom, vigor, authority, and effectiveness will be undermined by the subjection of it to a moral and political program- the social empowerment of women –external to purposes ....[namely ]the knowledge – seeking ones of science ,the no less impassioned effort to understand the world as it is ,free of wishing , “really is “.”

(Geertz:quoted in Lloyd 1996)

The worry is that any scientific practice that bears the label “feminist ‘ will not be value free in ways widely thought to be essential ,at least as aspirations ,to scientific practices.It concerns the very idea of a feminist approach to science’.( Lacey: 2004. .)

The worry reflects the value-free, impartial quest of the gender-neutral scientist. Are the hard sciences biased too so that a better science would use feminist values to explain epistemology and methodology of science? The worry reflects the value-free, impartial quest of the gender-neutral scientist. The feminist critics tends to dismiss this proposal of gender-neutral science and gender biased feminism. This worry itself is shown to be misguided. They rather expose science of its own inherent biases in many guises.