DEFENDING LONGINO'S SOCIAL EPISTEMOLOGY

K. Brad Wray

Though critics of traditional epistemology agree that we need to account for the role that social

factors play in inquiry, developing a viable social epistemology has proved to be difficult.

According to Helen Longino, it is the processes that make inquiry possible that are social, for they

require a number of people to sustain them. These processes facilitate inquiry, and ensure that the

results of inquiry are more than mere subjective opinions, and thus deserve to be called

"knowledge." Here, I explain and defend Longino's epistemology.

I

Longino defines her account of scientific knowledge relative to positivist and wholist accounts.

According to the positivists, observation statements, expressed in a theory-neutral language,

provide a foundation for our theories. Theories are true insofar as they are confirmed by

observations. Further, the positivists construe the relation between evidence and hypotheses to be

syntactic (L1990, 23). "What would count as evidence for a hypothesis is determined by the form

of the hypothesis sentences and evidence sentences not by their content" (L1990, 48). Thus, the

criteria for confirmation is similar to "the formal criteria for the validity of deductive arguments"

(L1990, 23). By construing hypotheses and evidence to be related syntactically, the positivists

ensure that inference to a hypothesis is not mediated by value-laden assumptions that may

threaten the integrity of science.

Wholists reject the positivists' "fundamental assumption of the independence of

observation from theory" (L1990, 26). They claim that "confirming or disconfirming observations ... cannot be specified independently of a theory but are ... given content ... by theory" (L1990, 27).

> The consequence of theory-ladenness is incommensurability: two (or more) opposing theories accounting for the same phenomena cannot be compared with each other and against 'the facts' in any way that enables us to determine which is false and which, if any, true. (L1990, 27)

Because competing theories are incommensurable "theory choice ... is no longer a uniquely pure expression of rationality and objectivity" but is "nonrational or irrational, and certainly not evidence determined" (L1990, 27). Wholists believe that a scientist's values may be responsible for determining which of two competing theories she accepts.

Longino regards both of these accounts of scientific knowledge as unacceptable. First, she claims that the positivists are mistaken in believing that there is a theory-independent language of observation statements. She claims that the "unambiguous nature of evidential relations presented in the positivist view cannot accommodate the facts of scientific change" (L1990, 81). Sometimes advocates of competing theories appeal to the same body of data as support for their theories. Were evidence as unequivocal as the positivists suggest, this should not happen.

Second, Longino believes that the positivists are mistaken in regarding the relation between evidence and hypotheses as syntactic.

> Data ... do not on their own ... indicate that for which they can serve as evidence. Hypotheses ... are or consist of statements whose content always exceeds that of the statements describing the observational data. There is, thus, a logical gap between data and hypotheses. (L1990, 58)

And, this gap allows contextual values to influence decision making (L1990, 52). Third, Longino objects to the positivists' account of the role of values in inquiry. If the positivists are correct,

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then good science should generally proceed according to the positivists' prescriptions. But, the historical work of the wholists' suggests that this is not the case (L1990, 28). Scientists are more affected in their decision making by values and value laden assumptions than the positivists' suggest.

Longino is not satisfied with the wholists' account of scientific knowledge either. First, she argues that the wholists "create a bond between evidence and hypothesis impossible to break and ... [destroys] the concept of evidence as something to which one can appeal in defending a hypothesis" (L1990, 57). If the wholist is right, evidence for one theory could not compel someone who accepts a competing theory to change her mind. The data would only appear to support the theory if one already accepts the theory. Second, Longino believes that the wholists have exaggerated the significance of incommensurability. She claims that "the incommensurability of theories in the wholist view cannot do justice to the lively and productive debate that can occur among scientists committed to different theories" (L1990, 81).

Longino develops an alternative account of scientific knowledge, "contextual empiricism." The following two features constitute the core of her account. First, Longino offers an alternative account of the relation between hypotheses and evidence. Hypotheses and evidence are related by assumptions that scientists bring to their inquiries. "In the absence of any such beliefs no state of affairs will be taken as evidence of any other" (L1990, 44). Thus, contextual background beliefs bridge the gap between hypotheses and evidence. And, "relativizing evidential import to background assumptions ... involves abandoning the attempt to specify the relation between evidence and hypotheses by means of syntactic criteria and seeing this relation as involving substantive assumptions" (L1990, 59).

Second, Longino suggests that we change our understanding of the nature of scientific method, and "return to the idea of science as practice" and see "scientific method as something practiced not primarily by individuals but by social groups" (L1990, 66-7). This "shift in perspective" is required because

> the application of scientific method ... of any subset of the ... means of supporting scientific theory on the basis of evidential data, requires by its very nature the participation of two or more individuals. (L1990, 67)

Longino thus situates her account of scientific knowledge between the positivists' and the wholists', avoiding the weaknesses of both. By invoking background assumptions Longino is able to explain how the same data can support competing theories. Advocates of different theories bring to their inquiries different background assumptions, and "in the context of their differing background ... assumptions different aspects of the same state of affairs [become] evidentially significant" (L1990, 47-48). The apparent instability of evidence that leads the wholists to claim that competing theories are incommensurable is due to the fact that the states of affairs that function as evidence can be described in different ways, and different descriptions will draw our attention to different aspects. But, Longino insists that hypotheses, background beliefs, and the states of affairs that count as evidence are independently specifiable (L1990, 57). The sentences that express each of the above are not necessarily laden with the <u>same</u> theoretical assumptions.

Second, the background assumptions that facilitate our inferences also make room for the influence of values in inquiry. Because the background assumptions that mediate our evidential reasoning are value laden, an inquirer's values will shape scientific knowledge. Longino, though, insists that this need not threaten the objectivity of science, as the positivists suggest. She construes the demand for objectivity as the demand "to block the influence of subjective

preferences at the level of background beliefs" (L1990, 73). When the background assumptions that play the mediating role in reasoning do not reflect merely subjective preferences, then a community's methods are as objective as is possible.

II

I want now to examine a number of criticisms that have recently been raised against Longino's account. By addressing these criticisms, I will both clarify and defend Longino's view. Philip Kitcher believes that Longino's view collapses into relativism (K1994, nt.26, 132). He argues that because she believes that "the only useable notion of truth is one that identifies truth with some type of acceptance" (K1994, 122), her account of knowledge does not provide inquirers with a basis from which they can make principled judgements (K1991, 676).[1] Kitcher does not believe that social factors play as prevalent a role in inquiry as Longino implies.

Kitcher's criticism implies that Longino's view does not differ significantly from sociological accounts of science. This is a mistake. Longino distinguishes her view from such accounts in two respects. First, contrary to what the Strong Programmers maintain, Longino does not believe that "the congruence of a hypothesis ... with the social interests of the members of a scientific community determines its acceptance by that community" (L1994, 136). Second, Longino believes that sociological accounts mistakenly make no distinction between knowledge and opinion. Knowledge collapses "into what is believed or what is accepted" (L1994, 138). Such accounts "are too concerned with finding the criteria that do govern scientific selections ... not the criteria that ought to govern them" (L1994, 137-8).

Despite the fact that Longino accepts the traditional knowledge/opinion dichotomy, her

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conception of knowledge differs significantly from traditional conceptions. She argues that knowledge is the outcome of interaction between people that is mediated by the appropriate social processes (L1994, 142). Such processes enable us "to transform the subjective into the objective" (L1994, 144). Longino calls the sort of interaction that leads to knowledge "transformative criticism." She suggests that the following four features "facilitate transformative criticism and enable a consensus to qualify as knowledge": public forums for criticism; uptake to criticism; publicly recognized standards; and, equality of intellectual authority[2] (L1994, 144-5). Longino believes that insofar as the interaction between people satisfy these procedural conditions, the outcome of our inquiries deserve to be called knowledge. Thus, contrary to what Kitcher claims, Longino does not reduce truth to some form of acceptance. She does not even identify truth as the end of inquiry.

Underlying Kitcher's criticism are disagreements about (1) the relationship between truth and knowledge, and (2) the role of truth in inquiry. Kitcher insists that "what is known must be true" (K1994, 119). Like most philosophers, Kitcher believes that a belief's being true is a necessary condition for it to count as knowledge. And, I suspect that it is because Kitcher believes that knowledge entails truth that he regards truth as the end of inquiry.[3] If one only has knowledge when one has a true belief, good inquirers will always aim for truth.

Longino rejects both of Kitcher's assumptions. First, she believes that "knowledge" can (and should) be defined in a manner that requires no reference to truth. She believes that the key constraint on a viable philosophical account of knowledge is that "knowledge" be a normative concept, and thus be distinguishable from mere belief.[4] This, though, does not warrant the traditional demand, that only true beliefs should count as instances of knowledge. Longino

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suggests that "knowledge" should be broadened to include any empirically adequate representation of a portion of the natural world that provides "us with a framework within which to carry out inquiry and successfully to pursue practical projects" (L1994, 153).[5] Second, Longino believes that truth is not the only end of inquiry, but merely one of many aims. She argues that scientists are moved by at least two different sorts of goals, and that there is tension between the knowledge-extending mission and the truth-seeking mission of science (L1990, 34-6).

Kitcher's assumptions get their credibility in virtue of the fact that they have long been presumed. And, the assumptions seem to stand or fall together. If truth is not the only end of inquiry, we have less reason to think that truth is a necessary condition of knowledge. Similarly, if truth is not a necessary condition of knowledge, then truth is not the only end of inquiry.

Longino provides us with compelling reasons for rejecting these assumptions. She suggests that an adequate account of scientific knowledge must account for the fact that knowledge is expressible in models as well as propositions (L1994, 153).[6] And, because models are not reducible to sets of propositions, they are not aptly described as either true or false (L1994, 147).[7] Rather, it is because a model has (1) withstood criticism from a variety of perspectives, and (2) enables us to successfully pursue practical projects that it counts as knowledge. Hence, truth is not a necessary condition for knowledge.[8] And, given that scientists aim not only for knowledge expressible in propositions, but also for knowledge expressible in models, truth cannot be the only end of inquiry.

III

Frederick Schmitt argues that Longino's view is <u>incoherent</u>, and attributes a "multiperspectival or consensus theory of rational choice" to her. Given such an account, "the rational theory choice is the choice that is accepted from each of various perspectives representing opposing interests" (S1994, 26). Schmitt suggests that such accounts are incoherent because they (1) regard the influence of interests on theory choice as ineliminable, and yet (2) seek to alleviate their effects (S1994, 26).

As Schmitt claims, Longino does believe that it is not possible to eliminate the effects that social factors have on decision making. But, she does not claim that we <u>should</u> seek to eliminate their effects. Given the role that some social factors, like background assumptions, play in scientific reasoning, we cannot reasonably expect to eliminate the effects of all social factors. Longino believes that we should mobilize the right sorts of social factors--those that permit transformative criticism. It is only the effects of subjective preferences that ought to be eliminated. Because Longino distinguishes between (1) social factors that permit transformative criticism and (2) merely subjective preferences, she is not guilty of the incoherence that Schmitt identifies.

Schmitt also misunderstands what role consensus plays in Longino's account.[9] Longino does not believe that either truth, knowledge, or rational choice is determined by consensus. She believes that there must be a consensus about background assumptions in order for inquiry to be possible.[10] She claims that consensus plays a crucial role in ordering and organizing our observation reports so that they can function as data (L1994, 140). A similar consensus is required for us to reason effectively. Reasoning involves "bringing the appropriate considerations to bear on a judgment," and, as Longino explains, "every assumption upon which it is permissible

to rely is a function of consensus among the scientific community" (L1994, 141-2).

Underlying Schmitt's criticism is the belief that there is no principled way to evaluate the various social factors that influence inquiry.[11] Longino believes that there is a way in which we can (and should) distinguish between the types of social interests that influence inquiry. We should distinguish between the types of social factors that enable communities of inquirers to satisfy her criteria of transformative criticism, and the types that merely serve the subjective preferences of some part of the community. The former, she argues, are <u>epistemically</u> superior.[12] The onus of proof rests with Schmitt who needs to supply us with an argument showing that all the social factors that influence inquiry are equally detrimental. Traditional research in the sociology of science provides us with evidence for believing that different social factors can have better or worse influences on inquiry--better or worse <u>epistemically</u>. The research of Joseph Ben-David suggests that decentralized academic systems are epistemically superior to centralized systems.[13] In systems of the former type, institutions are more responsive to change, and scientists working in such systems are more apt to respond to criticism and innovation. Such systems are also suited to ensure that there is equality in intellectual authority. Consequently, background assumptions are less likely to dominate in virtue of the political power of their adherents.

IV

Miriam Solomon argues that Longino is mistaken about the role that communities plays in inquiry. Solomon claims that though Longino rightly "regards some social processes as <u>constitutive</u> of scientific objectivity," she "envisages these social processes as practices of criticism that help

[individuals] to reason better" (S1994, 219). Solomon claims that Longino's account is too individualistic, and "argues for a more social epistemology," one in which the community is regarded as the locus of scientific rationality (S1994, 219).[14]

Longino argues that in our efforts to account for the influence of social factors on inquiry, "individuals are not to be replaced by a transcendent social entity" (L1994, 143). She believes that if we construe the community to be a knowing agent we are at risk of overlooking the significance of the role that individuals play in inquiry.

> Without individuals there could be no knowledge: it is through their sensory system that the natural world enters cognition; ... their proposals that are subject to critical scrutiny by other[s] ... their imaginations which generate novelty. (L1994, 143)

Though Longino rejects "transcendent social entities," there is a sense in which her account is not aptly described as individualistic. Epistemologists have traditionally construed knowledge to be a specific type of relationship between the knowing agent and the object of knowledge. Such epistemologies are described as individualistic because they focus on the individual agent and her relationship to the world. Longino recommends that epistemologists shift their attention from the relationship between knower and known to the processes that mediate our interactions with others.[15] Knowledge is the outcome of the appropriate sorts of social interactions.

Underlying Solomon's criticism is a commitment to an externalist standard of rationality. She believes that a community is rational to the extent that they select theories that are empirically more successful than the alternatives. Longino also believes that traditional accounts of rationality are too individualistic. But she amends this difficulty differently. She suggests that what makes the methods of a particular community of inquirers rational is the fact that they ensure that the community employs as many of the epistemic resources as is possible. And this

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involves permitting criticism from a wide variety of perspectives in the community. Longino's

understanding of "rationality" captures an important aspect of our intuitions about rationality.

The fact that an inquirer believes that an action is rational provides her with a reason for doing

it.[16] An inquirer can ask herself questions like, "have I been responsive to criticism from others?",

and act accordingly. An agent's beliefs about what is rational can shape her behaviour. Solomon

construes rationality as an emergent property of a community's behaviour. As such, it is not a

property that an individual <u>can</u> effectively aim to realize. Only after one realizes that the

community has chosen the theory with more empirical successes, can one legitimately claim to

have acted rationally.

In summary, I have argued that Longino's critics have misunderstood her view and have failed to

raise insurmountable challenges for her. A key component of her account of inquiry is the way

she reconceptualizes "knowledge." Longino insists on the traditional knowledge/opinion

distinction, but proposes that we distinguish knowledge from opinion by reference to a social

standard.

K. Brad Wray
Department of Philosophy
University of Calgary

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ENDNOTES

1. In his response to Joseph Rouse's and Longino's American Philosophical Association symposium papers on Knowledge, Power, and Science, Kitcher argues that though "Rouse and Longino offer conceptions of knowledge that are far more sophisticated than village relativism ... in the end, they seem to be forced to embrace all the consequences that make relativism so unappealing" (Kitcher 1991, 676).

2. Longino's fourth criterion is frequently misunderstood by her critics. Alvin Goldman, for example, claims that "in the case of equality of intellectual authority, I think there is a substantive mistake. Longino herself tacitly recognizes the inadequacy of the equality norm by adding the phrase `among qualified practitioners,' thereby blunting the implication that all individuals deserve equal authoritative respect on scientific matters. But she does not elaborate on this qualification" (Goldman 1995, 174).

     Longino is quite explicit that her fourth criterion is meant to ensure that "what consensus exists must not be the result of the exercise of political or economic power or of the exclusion of dissenting perspectives; it must be the result of critical dialogue in which all relevant perspectives are represented" (Longino 1993, 113).

3. More precisely, Kitcher believes that "what we want is significant truth" (Kitcher 1993, 94).

4. This distinction is Plato's classic distinction, the distinction between doxa and episteme. See, for example, Plato's (1963) Theaetetus.

5. Like Van Fraassen, Longino believes that a theory or model is "empirically adequate exactly if what it says about the observable things and events in this world, is true--exactly if it `saves the phenomena'" (Van Fraassen 1980, 12). But, as Longino notes, a theory can be empirically adequate, "we can use [it] to guide our interactions in the natural world, even be committed to so using [it], without being committed to belief in its literal truth" (Longino 1990, 93).

6. Longino suggests that all of the following count as models: "sets of equations, specifications of structure, visual representations, mental maps, diagrams, three dimensional objects like the wire and plastic models of the DNA molecule, [and] four-dimensional models that incorporate change and motion" (Longino 1994, 147).

7. Heidi Grasswick's comments on an earlier draft helped me to clarify this point.

8. I think Ronald Giere provides a clearer explanation for why models are not aptly described as either true or false. As he puts it, "the relationship between model and real world system ... cannot be one of truth or falsity since neither is a linguistic entity" (Giere 1988, 78).

9. Kitcher makes a similar mistake when he claims that Longino "identifies truth with consensus belief in societies that follow certain types of procedures" (Kitcher 1994, n.26, 132).

10. I argue a similar point in my (forthcoming) "The Role of Solidarity in a Pragmatic Epistemology."

11. Schmitt is not alone in making this assumption. The Strong Programmers insist that what makes the social factors that cause "true" belief superior to the social factors that cause "false" belief is that the former serve the prevailing social interests. But this, they note, is just a consequence of historical contingencies. See B. Barnes' and D. Bloor's (1982) "Relativism, Rationalism and the Sociology of Knowledge."

12. Louise Antony has also suggested that Longino fails to distinguish between epistemically better and worse social factors. She argues that there are reasons "to doubt Longino's claim that social interaction can be expected to favorably alter the individual's epistemic situation" (Antony 1995, 82). As Antony explains, "social interaction per se does not guarantee an increase in objectivity. Social interaction can, in fact, strengthen or even engender distorting biases and self-serving preferences" (Antony 1995, 83). Here, Antony, like Schmitt, fails to appreciate

the normative distinction Longino draws, the distinction between merely subjective preferences and those social factors that permit transformative criticism.

13. See J. Ben-David's and A. Zloczower's (1991) "Universities and Academic Systems in Modern Society," in particular, pages 130, 142, 144, 148, 152, 154.

14. Antony suggests that Longino's and Solomon's strategies to socializing epistemology are far more similar than Solomon implies. She claims that both "Helen Longino and Miriam Solomon ... have argued that, at least with respect to scientific knowledge, it is the <u>community</u>, rather than the individuals within the community, that must be the object of epistemic evaluation" and that "the conditions on <u>scientific</u> knowledge are such that no individual could possibly satisfy them" (Antony 1995, 75). This is a misrepresentation of Longino's view for reasons which will become apparent shortly. Solomon is correct to insist that there are significant differences between her own approach to socializing epistemology and the approach developed by Longino.

15. Antony rightly claims that "social knowledge, in Longino's sense, presupposes individual epistemic agency" (Antony 1995, 77). But she is mistaken in thinking that Longino's view amounts to no more than the claim that "other people afford me epistemic access to regions of reality that I cannot secure on my own" (Antony 1995, 81). As Antony suggests, this latter claim is individualistic in the traditional sense. It is concerned with the relationship between the knower and the known. Longino's point, though, is that the norms and practices that make inquiry possible can only be sustained by groups of people. Thus, rather than construing other people as merely "instruments for enhancing [one's] own individual epistemic situations" (Antony 1995, 81), Longino suggests that other people provide the framework within which inquiry and knowledge are made possible.

16. In fact, Robert Audi argues that rational actions must "be performed for appropriate reasons, not merely rationalizable in terms of such reasons" (Audi 1993, 425). Thus, an action is only rational if it is performed for an appropriate reason. See Audi's "Rationalization and Rationality."