



October 2023

Juxtaposing Longino's "Equality of Intellectual Authority" with Her "Shared Standards"

Gourav Krishna Nandi
info@ubiquitypress.com

Follow this and additional works at: <https://digitalcommons.cwu.edu/ijurca>

Recommended Citation

Nandi, Gourav Krishna (2023) "Juxtaposing Longino's "Equality of Intellectual Authority" with Her "Shared Standards"," *International Journal of Undergraduate Research and Creative Activities*: Vol. 6: Iss. 2, Article 5.

DOI: <https://doi.org/10.7710/2155-4838.1098>

Available at: <https://digitalcommons.cwu.edu/ijurca/vol6/iss2/5>

This Article is brought to you for free and open access by ScholarWorks@CWU. It has been accepted for inclusion in *International Journal of Undergraduate Research and Creative Activities* by an authorized editor of ScholarWorks@CWU. For more information, please contact scholarworks@cwu.edu.

Juxtaposing Longino's "Equality of Intellectual Authority" with Her "Shared Standards"

Abstract

Helen Longino has proposed four criteria that can objectively criticize the background beliefs and assumptions in the development of scientific theories. She deduces that the criteria - 'recognized avenues for criticism,' 'shared standards,' 'community response' and 'equality of intellectual authority' - are mutually dependent. Using the assumption that the acceptance of more than one scientific approach is possible only if an individual is educated in a non-standard background, and is given intellectual authority which, in turn, refutes the idea of standardization in science, I argue that her assertion is contradictory. One of her criterion 'shared standards' implicitly nullifies the attempt to embrace points of view from various other perspectives, based on the difference of cultures and intellectual backgrounds - 'equality of intellectual authority' in the scientific community.

Juxtaposing Longino’s “Equality of Intellectual Authority” with Her “Shared Standards”

Gourav Krishna Nandi
Montana State University - Bozeman

Published online: 4 June 2014
© Gourav Krishna Nandi 2014

Abstract

Helen Longino has proposed four criteria that can objectively criticize the background beliefs and assumptions in the development of scientific theories. She deduces that the criteria - ‘recognized avenues for criticism,’ ‘shared standards,’ ‘community response’ and ‘equality of intellectual authority’ - are mutually dependent. Using the assumption that the acceptance of more than one scientific approach is possible only if an individual is educated in a non-standard background, and is given intellectual authority which, in turn, refutes the idea of standardization in science, I argue that her assertion is contradictory. One of her criterion ‘shared standards’ implicitly nullifies the attempt to embrace points of view from various other perspectives, based on the difference of cultures and intellectual backgrounds - ‘equality of intellectual authority’ in the scientific community.

Introduction

Helen Longino, in her essay, “Values and Objectivity,” (1990) asserts four criteria that can objectively criticize the background beliefs and assumptions in the development of scientific theories. She maintains that science is a social process, since, scientists are not independent of personal values and beliefs; moreover, they depend on one another in this enterprise. Also, the scientific community is dependent on society for value-judgments and economic benefits. It may be argued that some disciplines in science are independent of contextual values. Nevertheless, considering the scope of this paper, the disciplines this paper are concerned with, constitute value-judgments. To attribute objectivity to science, Longino asserts, is to “claim that the view provided by science is one achieved by reliance upon non-arbitrary and non-subjective criteria for developing, accepting and rejecting hypothesis and theories that make up the view.”¹ As such, in the

¹ Helen Longino, “Values and Objectivity”, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton: Princeton University Press, 1990), 62

essay, Longino offers a procedural account of objectivity²—a social criticism that is vital in recognizing the parameters of assumptions.

She argues that the scientific community is objective if “it realizes certain fair and objective procedures. Communities that meet her criteria [are] more likely to produce reliable, less distorted, or more accurate knowledge about the world.”³ Nevertheless, Longino’s criterion of “shared standards” in the scientific community is inconsistent with her notion of “equality of intellectual authority.”

Longino’s Four Criteria

Helen Longino asserts four criteria in science education and policy development to overcome bias in science. Her claim concerns that from a contextualist perspective, science and objectivity are mutually inclusive, however, science can adapt to the notion of contextual bias with regard to scientists. These criteria are the ‘recognized avenues for criticism’, ‘shared standards’, ‘community response’ and ‘equality of intellectual authority’. The first criterion is concerned with peer review and possibility of increasing and improving the scientific method by critical thoughts on a theory by individuals with expertise in the discipline. Such involvements of members pertaining to scientific collaboration may require the standardization of the sciences. Longino recognizes the setting standards in science may require the consent of the individuals involved in the scientific enterprise. As such, the next criterion of her argument is the availability and development of “shared standards” in the scientific community. Also, the inclusion of community members at large implicitly explores her urge to democratize science. Science is a social process and as such, the most rational way to progress in science is to heed to the values and involvement of the community members who are funding scientific research.⁴

² Objectivity in science is defined as a state where knowledge that is the result of science is true irrespective of opinions, beliefs and ideas. If a theory in any branch of science claims absolute objectivity, the theory must be true irrespective of any auxiliary hypotheses and personal prejudice of the collaborating scientists. However, absolute objectivity in scientific theories is often nullified by the problem of induction, and underdetermination, among other, which affirm that our biases are intrinsically related to our epistemic limits in the pursuit of knowledge. As such, for the rest of this paper, the aforementioned assumption of objectivity shall be held in science shall be held.

³ Kristen Intemann, “Intemann Comments for Nandi,” *Seminar: Objectivity and Bias in Science Peer Review*, Montana State University Bozeman, 2013.

⁴ Here, I must clarify that Longino is not arguing for the scrapping of pure science research, and she understands that pure science research often can be prone to more objectivity.

However, especially concerning the sciences that are value laden, she recognizes the importance of values in the sciences. Also the funding required for value laden research calls for more involvement of the community in order to heed to the values of science. Such a concern also leads to her last notion of 'equality of intellectual authority.' The idea of dispensing equal authority to members from different communities of science, is intended to help and perhaps bring in more perspectives to the scientific community. It is important to state Longino's reasons for such an endeavor. She is working toward a hypothesis, and she expects the scientists to be objective such that science should have regard for the values from every community, and that no one value by a certain group of individuals may have precedence over any other kinds of value. One instance that may highlight her disposition is the craniology research in the late nineteenth and early twentieth century. The new enhancement in the social ideas of statistics and introduction of reductionist ideas in the sciences led to the involvement of some of the prominent scientists of the era to get involved in the research of the measurement of the skull and its interpretations. Craniologists, among others, measured the different parts of the skulls of men and women of European descent and African descent. The measurements were inherently mathematical, and the statistical data and interpretation were unbiased. There indeed seem to be a difference in the length and the width of the skulls and the portion of the skulls between these people belonging to different genders and races. Was this study unbiased? Certainly. To anyone who adhered to the objectivity of numerical systems and Euclid's arithmetic, the measurements were empirical and in no way refutable. Nevertheless, the study is invalid and unquestionably fallacious with regard to their values. The inherent intention of the study was to prove the inferiority of the individuals belonging to African descent and as such was biased and erroneous. Now, let us analyze the study. The notion of the inherent differences between the two races was axiomatic for the group of scientists who collaborated in the investigation. Were the scientists intentionally subverting data to reach a conclusion that was unscientific? As stated above, the method was scientific. However, the inferences that they drew upon were heavily biased. They followed Longino's first three criteria. They critically examined one another's results. The scientists shared a certain standard among themselves, they believed in the statistical analysis of the skull measurements, and they were succinct in their measurements of the parts of the skulls. Furthermore, they adhered to the values of the then scientific community, which comprised of the men of European descent. But, the study is still erroneous and fallacious owing to the absence of the fourth criterion. The lack of the fourth criterion implied that intellectual authority was not necessary to be given to the African community and that the scientific study could be accomplished unbiasedly without their involvement. Longino's fourth category, "the equality of intellectual authority" thus has significant implications that have historically given rise to false hypothesis and, as a result, to pseudoscience. As such, to continue in Longino's causal path, the four criteria are mutually dependent.

Such an assertion upon scrutiny, nevertheless, seems contradictory to one of her criterion ‘equality of intellectual authority’ in the scientific community. Her ‘shared standards’ implicitly nullifies the attempt to embrace points of view from various other perspectives, based on difference of cultures and intellectual backgrounds. The acceptance of more than one epistemology is possible only if an individual is educated in a non-standard background, and is given intellectual authority which, however, explicitly refutes the idea of standardization in science. Shared standards in science is inevitable to avoid the problem of infinite recurrence of axioms and assumptions.⁵ Longino’s criterion concerning Equality of Intellectual Authority, since, “some assumptions are not perceived as such by any members of the community,”⁶ contradicts her assertion of values for shared scientific standards. In the next section, the paper claims that ‘shared standards’ and ‘equality of intellectual authority’ are mutually inconsistent and the latter may be integrated in science, only if the individuals concerned with intellectual authority are educated in a environment that shares a scientific standard.

Conflicts and Contradictions

The notion of shared standards is concerned about the presence of shared characteristics of the scientific method, with an intention to supply enough and possible criticism. Furthermore, the idea of equality of intellectual authority claims that the members of the larger human community should be engaged in the proceeding of the scientific community. As such, a person may not be excluded from the scientific community owing to their geographical location or predisposed beliefs. There belies a significant dichotomy within Helen Longino’s criteria for the intended objectivity in science.

Shared standards in the present scientific community underscores the extended period of scientific investigation in an approved university system where individuals are indoctrinated into the scientific method, and other disciplines through the pursuit of standard notions and hypothesis of science. Let us imagine a university system where every student goes through rigorous academic instruction in certain standard set by the international body of say, physicists. These standard notions imply that the undergraduate education received by contemporary physicists matches the education presently being received by the contemporary undergrads. Longino’s fourth criterion

⁵ Longino in “Values and Objectivity” (1990) writes, “if scientific inquiry is to have any effect on a society’s ability to take advantage of natural processes for the improvement of the quality of its life, criticism of assumptions cannot go on indefinitely. From a logical point of view, of course, criticism of background assumptions, as of any general claim, can go on ad infinitum.” [157]

⁶ Helen Longino, “Values and Objectivity”, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton: Princeton University Press, 1990), 62

results in the acceptance of student from all genders, races, and belief systems into the undergraduate program in physics. Present universities follow the non-discrimination of the students based on gender, birth, race, and economic resources. Moreover, the undergraduate education received by the students in the United States will be equivalent to the undergraduate education in physics in Zimbabwe. As such, Longino's criteria are successful in removing geographical biases that occur in the scientific enterprise. Also, there are numerous examples that her criteria for objectivity avoid the gender biases by including her equality of intellectual authority in the shared standards of the scientific community. However, the criterion fails to address the ideological bias.

I shall address this issue from both directions. I shall assume that shared standardization of science is inevitable and prove that in a world of shared standards, equality of intellectual authority may not be achieved. Subsequently, I shall argue that given equality of intellectual authority, the concept of shared standards is reduced by an extent that may not allow science to work. As such, the paper comes to a compromise between that equality of intellectual authority and shared standards which allows science to accept intellectuals and ideas from the all genders, races and classes while avoiding fallacious and erroneous science.

Let us imagine a scenario where the scientific community sets standards for the practice of science. In other words, certain approaches in the pursuit of knowledge are to be called science, whereas the others are to be deemed pseudoscientific. If we explore the previous instance of teaching physics, the physics courses in universities across the world adhere to accepted theories of physics. Even the theories which are not proven have a standard value, achieving which a theory is deemed teachable. It respects the fourth criterion to the extent that the universities have a non-discriminating admissions policy, that accepts students from all genders, races and classes. These students have different presupposed assumptions as they enter the university system. However, once they enroll in the program, they are compelled to give up their previously held beliefs. For instance, suppose a freshman held a traditional belief in the ethereal theory of light, which was never disproved by physics. However, the standards set by the scientific community refute the ethereal theory of light for a theory concerning the quantum of light. The ethereal theory was never explored after Hendrik Lorentz and as such has never been disproved. Philosophically, no school of thought can disprove the ethereal theorem of light. However, every experiment after the establishment of quantum mechanics have resulted in the acceptance of light as a quantum and implied the apparent insignificance of the ethereal theory. As such, though the student is not scientifically incorrect in hypothesizing her universe with the ethereal theory of light, the shared standards imply that her hypothesis stands refuted by the scientific community. Such an instance underscores the inconsistency of the 'equality of intellectual authority' and the shared standards of the scientific community. Let us observe a similar historical event concerning the refutation of a valid scientific hypothesis.

In the seventeenth century, the Dutch physicist, Christian Huygens proposed the wave theory of light, according to which light travelled in waves and was analogous to mathematical periodic waves. However, contemporary to Huygens was the British born Isaac Newton who propounded the corpuscular theory of light, according to which light was composed of particles. The contemporary scientific community had a shared standard which accepted the Newtonian theory and refuted Huygens' theory of light as a wave. Moreover, any argument to compromise both was impossible -- matter could never be both a particle and a wave. Hence with such an assumption, shared standard failed to equate the intellectual authority of the well-known Newton and the little known Huygens. Even with Longino's other characteristics, peer review and the community involvement too had to side with one of the two theory, and the corpuscular theory of light was one of the reasonable ones. However, history has witnessed the lack of development of the wave theory of light till the early nineteenth century. As such, the notion of shared standards in the acceptance of scientific theories refutes the equality of intellectual authority. Even if the scientific community accepts individuals from everyone in the community, it can never accept hypotheses from apparently unscientific origins. Therefore, the shared standards of science provide equal authority to individuals and hypotheses which are indoctrinated in the "shared standards." Outsiders⁷ can have no acceptance rate in the scientific community. As such, outsiders cannot receive equal authority and thus, Longino's criterion of "equality of intellectual authority" in science is contradicted by any standard shared over time.

The second proposition is the hypothesis that if intellectual authority is granted equally among the members of the human species, shared standards of science will be reduced to an extent that science cannot work beyond the basic assumptions of mathematics and reason. An instance based on an ongoing issue in public schools in the United States is the teaching of creationism in science classes. Creationism is based on a belief system about the origin of life aided by an intelligent agent. It involves the presence of an authoritative deity to begin the formation of unicellular organisms from the organic molecules on an early Earth. In the late nineteenth century, however, the English naturalist Charles Darwin, successfully theorized his theory of evolution through natural selection, where the origin of life is attributed to the random selection, based on environment and instincts. Owing to faith and other unfalsifiable reasons, some experts in evolutionary biology, nevertheless, believe in creationism. Here, Longino's ideas have intriguing implications. A preference toward equality of intellectual authority would imply that the experts who incline more on their personal and community values would possess the opportunity to propose the teaching of creationism, as a plausible theory, in public schools, whereas a preference toward "shared standards" would imply

⁷ Here, I define an outsider as any individual who adheres to hypotheses and theories unfalsifiable by Kuhnian notions.

the adherence to a falsifiable and Kuhnian scientific theory, which has successfully overcome 150 years of peer review.

Despite Longino's proposal for an objective scientific community, the two aforementioned criteria must conflict at some point. Her reason to provide for the equality of intellectual authority was to ensure that scientific advancement must not suffer due to the scientist's gender or race. Nevertheless, I argue that her intent for equality of intellectual authority can be achieved even by sanctioning more power to her first criterion, recognized venues for criticism, and repealing the criterion of equality of intellectual authority.

Conclusion

This paper has assumed Helen Longino's notion of objectivity, where reliance on science is achieved by non-arbitrary and non-subjective criteria for the development of scientific theories.⁸ She provides the four criteria in her essay -- the "recognized avenues for criticism", "shared standards", "community response" and "equality of intellectual authority." One reason Longino lays down these criteria is "to distinguish between objectivity as a characteristic of scientific method and objectivity as a characteristic of individual scientific practitioners."⁹ Despite arguing for the potency of all four criteria, I have reasoned that her "shared standards" and "equality of intellectual authority" are incompatible. Furthermore, it may be argued, using the aforementioned instances of teaching creationism, that shared standards is paramount to the development of science. The equality of intellectual authority provides for the non-discrimination on the basis of gender and race, and a commitment to diverse values and interests.¹⁰ However, the equality argument also provides for the diversity of beliefs, which may be used to refer to arguments of the creationist. I believe that diversity with regard to gender, race and nationality can be preserved and encouraged using more double-blinded approaches used in peer review and other forms of criticism in the scientific community. But scientific standards once set may not be altered for mere equality of intellectual authority, especially considering the diversity of beliefs. Lastly, I would assert that science is mere a tool for knowledge. It does not recognize authority of arguments or individual beliefs. Science, according to Longino's visions, would result in an egalitarian scientific community. However, it can be more effective if we empower her criterion for "recognized avenues for criticism," by providing for unbiased peer review, implementing strict affirmative action policies concerning gender

⁸ Helen Longino, "Values and Objectivity", *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton: Princeton University Press, 1990), 62

⁹ *Ibid*

¹⁰ Kristen Intemann, "Intemann Comments for Nandi," *Seminar: Objectivity and Bias in Science Peer Review*, Montana State University Bozeman, 2013.

throughout the scientific community and necessitating equal participation of both genders in the scientific enterprise.

Bibliography

Longino, Helen, “Values and Objectivity”, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton: Princeton University Press, 1990), 62-82.

Longino, Helen, “Gender, Politics and the Theoretical Virtues”, *Synthese* Vol. 104/3, *Feminism and Science* (1995), 383-397.

Popper, Karl, “The Problem of Induction”, *Philosophy of Science: The Central Issues* (New York: W.W. Norton and Co., 2013), 406-411.