The Acceptability of Scientific Methodology

Thomas S. Kuhn's The Structure of Scientific Revolutions created many controversial topics regarding the processes of science. The scientific community was jolted by this writing and therefore caused many reactions. These responses were not only in agreement with Kuhn's assessment of science, but also show the discrepancies in his arguments. One of Kuhn's opinion deals with scientific methodology and the process in which science carries out its experiments. The Philosophy of Science edited by David Papineau contains an essay by Larry Laudan which refutes Kuhn's book and this idea he presents. Kuhn's proposal is consequently deemed invalid, but it raises the question that both cannot be right. Laudan's argument presents a more logical and rational approach and trumps Kuhn's presentation of scientific methodology.

In order to fully understand each argument, one must understand what is being presented. What is scientific methodology? It can be defined as, "a set or system of methods, principles, and rules for regulating a given discipline, as in the arts or sciences." Under this definition there is also a view of similar theories, ideas, comparable approaches and critiques all fall under the notion of methodology. In scientific methodology there is a certain precedent that is followed and it is not based on original ideas or notions. Each methodology is seen as unique to each individual practice. That is to say the process for biology will be different from physics or psychology. This issue has not been prevalent until relatively recent times and it makes one wonder what arguments were presented for the issue to reoccur. Has the process of science really changed that much? Kuhn presents an idea which altered this unification.

Kuhn originally did not perceive scientific methodology as a prevalent issue. He viewed it as it stood and it needed no alteration of debating of the fact. He believed everything was fine

the way it was. “ Kuhn insists that methodological standards are too vague ever to determine choice between rival theories” (Laudan 194). This proves that Kuhn believed these methods to be separate from each other and not intrusive. If rival method or theories became known in science, Kuhn believed that the correct one would sort itself out and that the correct one would prevail, showing science to have a particular outcome. However, Laudan begins to question whether this conclusion made is rational or irrational. He begins to wonder if the methodologies actually follow their given criterion and argues whether the scientists are making conclusion based on feelings or on rationality. We then have to look at the previous notions of methodologies.

Laudan addresses the previous opinions and shows that they have two different forms of how a decision is made. The first doctrine in which scientists follow is called the rationality thesis and he defines it as, “Most general scientists have made their theory choices rationally.” (Laudan 197). Laduan believes this is the view that people should follow and make all decisions. There is nothing open for interpretation and everything is based on facts. The second doctrine in which Kuhn supports is the meta-methodology thesis which Laudan defines as, “A methodology of science is to be evaluated in terms of its ability to replicate the choices of past scientists as rational,” (Laudan 197). The brings up a dicey situation in which scientists show flaws in their evaluation of evidence. This view creates an issue of a circle of dependent facts that could have been based on lies or inferences. The defect in this proposition is that if the original scientists who proposed a theory based that theory not on facts, then all following initiatives must accommodate for that error. It does not allow scientists to create their own independent views on given issues.

Kuhn's refutation to this conception is that it allows people to create multiple theories and methodologies about a particular subject. It furthers the ability of people to advance their beliefs based on the acceptability of new theories. He argues that there becomes reason in evaluating the values of a theory and not just based upon other scientists ideas. It causes one to think for themselves and create their own perspective and possibly come to a different conclusion than your neighbor. Kuhn believes that new theories must become more general than the previous one because of the lack of evidence in this factor. For example, Einstein's special theory of relativity has a lack of evidence. It was accepted long before anyone was able to show their classical mechanics. Is this conclusion rational? The answer is no and this where Laudan has a problem with Kuhn's meta-methodology. If new scientific models do not follow this precedent, Kuhn would determine them to be insufficient and inadequate. So then the question becomes how do scientific methodologies become improved and Kuhn has yet to address that issue, showing another flaw in his supporting of meta-methodology.

Laudan's rationality thesis has everything that science needs in order to progress. It causes there to be sufficient evidence in order to create a conclusion. This does not allow there to be two methodologies addressing the same scientific theory, which does not create any confusion. It allows progress to be made in scientific theories and jumps to become more specific. Rationality causes methodologies to create rules and facts versus possibilities. With rationality there can be a conclusion the x *will* produce y versus x *may* result with y in some occasions.

There are many explanations about scientific methodology. Kuhn argues for a meta-methodological idea that allows multiple theories to arise. However, there are many flaws with this point of view. There becomes a lack of evidence, lies, and multiple views which prevent

science from improving. Laudan says that methodologies must be rational and be completely based on these facts.