

HPS200H1S Essay 1

Thomas Samuel Kuhn, a 20th century American philosopher of science, established “Objectivity, Value, and Theory Choice” in 1973. Kuhn’s algorithm of theory evaluation, as explained and discussed in his essay, should be used in the sciences due to its long-lasting, various advantages such as reminding scientists the hidden influences by non-epistemic values on theory acceptance. It concludes that accessing theories inevitably requires individuals to make value judgements during its process of acceptance or rejection.

Kuhn’s standard criteria of theory choice is heavily dependent on the following five factors — accuracy, consistency, broadness of scope, simplicity, and fruitfulness. The scientists evaluate competing theories based on these five categories. By contrast, Karl Popper, one of the most influential philosopher in the 20th century, performs the argument which he claims that “the criterion of the scientific status of a theory is its falsifiability”. He emphasizes the significance and necessity of falsifiability; “a theory which is not refutable by any conceivable event is non-scientific”. Even though Kuhn has not openly discussed about refutability in his algorithm, it does not mean he is against of what Popper believes the most. The fact that Kuhn includes accuracy — “agreement with the result of existing experiments and observations” — in his five section consists of his theory choice criteria is an evidence of partial conforming to Popper’s argument. One of the strength about Kuhn’s theory choice system is not only that it is based on accuracy, the results of experiments, but also on four more categories, which he thinks are equally important as falsifiability. Fruitfulness, for example, for the sake of new research findings, is explained as an accepted theory should “disclose new phenomena or previously unnoted relationships among those already known”. This ensures the future potential of development in science theories.

As what Kuhn has stated “...the choices scientists make between competing theories depend not only on shared [objective] criteria, but also on idiosyncratic factors dependent on individual biography and personality”, in other words, scientists are still required to make value judgments. Non-epistemic values cannot be eliminated, but only be minimized. This is in agreement to the argument of value-neutrality thesis, presented by Richard Rudner discussed in Levi Isaac’s paper “Must the Scientist Make Value Judgments?”. “Scientists must make value judgments in drawing any kind of non-deductive inference”, even though it is challenging psychologically to prevent “[letting] attitudes, values, and temperaments influence [one’s] conclusion”. More specifically, the “[greater] the seriousness of the consequences as mistakenly accepting the hypothesis..., [the higher] degree of confirmation is demanded” for acceptance, and such seriousness is relevant to non-epistemic values form the evaluators and the objectivity. Nevertheless, one might argue that since parts of Kuhn’s criteria of theory choice are mostly subjective, which lead to difficulties such as how to ensure that each individual who evaluates the same set of competing theories would be able to end up with a same conclusion, choosing the same

theory. It is likely that they think each category among accuracy, consistency, and etc., is worth differently while comparing the theory candidates. Then, what determines each weight of the categories for different theories while assessing theories? Moreover, non-epistemic values, which take shapes of norms and maxims, often conflict among themselves already. Kuhn argues that “[assuming] the group [evaluating theories] is large enough so that individual differences distribute on some normal curve”, this will not be an issue, and circumstances of “a group [that is] too small, or a distribution excessively skewed...[are] circumstances under which scientific progress is itself problematic”. The influences from individual values and preferences during the process of theory assessment will be minimized with a larger analyzing group size. With careful procedure taken during the evaluation, the group would end up with a same conclusion.

One more argument that Popper proposes is that epistemic values involve heavily in theory assessment; for one to be able to know the action of accepting new theories does make scientific progress, i.e., theories are getting closer to the truth by concluding more precise and accurate data within its domain. Kuhn, who is deeply entrenched with the idea of that the problem of induction is not solvable, believes the opposite. “If science did progress by virtue of some shared and binding algorithm of choice”, it would be “equally at a loss to explain its success”. However, their arguments contain some compatible parts supporting each other’s idea. For example, the inclusion of accuracy by Kuhn as one of the theory measurement, which has been mentioned earlier. In addition, scientific theories are accepted for multiple reasoning, not only just for the sake of capacity of truth — seeking pure truth and making predictions. Accepting theories often has its practical objectivity such as finding solution to economic difficulties or to increase productivity of medication by the means of improving scientific theories. The acceptance and replacement of theories are majorly for the purpose of benefiting humanity, rather than only looking for the truth. Therefore, what Popper thinks that plays the most important rule is subjective; seeking truth might not be an ultimate goal of theories development for the others. After all, it does not contradict with Kuhn’s argument.

In conclusion, Kuhn’s criteria of theory choice should be used in sciences nowadays due to its inclusion of non-epistemic values since accepting theories necessitates value judgements. It might not be the most easy-operating algorithm that exists, but it is the reasonable and promising one. The fact that it puts the non-epistemic values within the evaluating system is unremarkable and beneficial for scientific development so that the evaluators realize the existence of cultural values, and how influential and misleading they could be in terms of theory decisions.

Reference:

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