

Setting the Stage: Epistemological and Social Values for Scientific Research and Advice

Abstract Advocates of neutrality (or value freedom) in science and scientific policy advice distinguish between two types of values. Epistemological values, on the one hand, are closely linked to an epistemological ideal of arriving at true statements; they encompass the methods, rules and virtues that lead to well-tested theories or convincing interpretations. Social values, on the other hand, concern ethical, cultural and political values. A sophisticated understanding of neutrality in scientific advice maintains, against feminists and other critiques, that social values might play some role, but that the core decisions in science can and should be purely guided by epistemological values.

Keywords Epistemological values · Social values · Method

1 INTRODUCTION

Max Weber links the ideal of ethical and political neutrality in scientific advice to the distinction between facts and values. Promoting certain values and making evaluative judgments belongs, he maintains, to the domain of policymakers, not that of scientists. A scientist can only provide arguments based on facts. Notwithstanding such claims, Weber also notes values that a scientist should maintain in his research and advice. Remarkably, even for an advocate of neutrality such as Weber, science is

not and cannot be completely value-free. Here, a contradiction looms—‘values for a value-free science’.

However, there might be an elegant solution to this paradoxical situation. The threat of a contradiction can be removed if two types of values are distinguished—either values that have a proper place in science and are strictly limited to matters of scientific method, or social or political values for which scientific practice is off limits. In this chapter, such a dichotomy will be introduced, elaborated, and discussed. It will prove helpful to present the different challenges to the ideal of ethical neutrality in scientific advice in the following chapters. First, however, a few words on the notion of values.

2 VALUES, PREFERENCES, INTERESTS

Values, ethicists emphasize, should not be confused with emotions or interests. Of course, acting in accordance with (or contrary to) the values that one holds might cause joy and satisfaction (or pain and discomfort). However, the term values predicates something that cannot be reduced or equated to these emotions. Having a good feeling about something does not mean in itself that the act was good (or bad). Nor can values be identified with interests. To be sure, both can be understood as motivations for certain acts—acting in a certain way because one thinks it a good thing, and acting thus because one judges doing so to be to one’s advantage. Occasionally, these two considerations can have a similar result. However, these motivations are different in quality. When values are involved, we would expect people to be able to justify their actions by referring to something that is worthwhile or of importance beyond their personal needs and preferences. Anyone who identifies interest-realization and acting in line with one’s values confuses ‘I want that’ with ‘that is a good thing to do’ (MacIntyre 1985; Taylor 1985: 85).

Values often are distinguished from norms, rules, and principles. Thus, values are occasionally considered aims that people deem worthwhile, whilst norms or rules are viewed as the instruments to realize them. In other cases, rules or norms are regarded as the limits for value-realizing behaviour; they mark off types of actions that are prohibited or obligatory. In this book, the word ‘values’ is used as a general term that surpasses such distinctions and definitions. Only in the last chapters, when addressing different ethical traditions, will evaluative terms such as rules or virtues refer to more-specific content.

Weber distinguishes values from facts. He connects the former to ‘what ought to be done’ and the latter to ‘what is’. When he addresses the issue of value-freedom, Weber simply relates facts to observation and empirical investigation. He does not elaborate on what we can actually mean by ‘fact’ or whether a fact can simply be observed. For the moment, we will leave it at this simple indication. In later chapters, we will find, however, how observation and the determination of facts are relevant for the types of judgments scientific advisors must make.

3 TWO TYPES OF VALUES

In many elaborated advocacies for a neutral science, it is acknowledged that the type of value-free science that is intended is not completely void of values. Weber, for instance, distinguishes between two types of values. On the one hand, there are ‘the rules of logic and method that are presupposed as valid in all scientific work’; on the other hand, he notes ‘cultural values’ (Weber 1948: 143). Others present a similar distinction, although different terms are often coined. They distinguish, for example, between scientific and extra-scientific values, cognitive and non-cognitive values, epistemological (or epistemic) and societal values or between methodological and contextual values (e.g., Lacey 2005; Popper 1976; Douglas 2009). These advocates maintain that the first type of values—here the term *epistemological values* will be used—concerns the rules, virtues, and norms that guide good science. Following epistemological values is what good or proper scientists do. Doing so ensures that they find the truth and offer the type of advice that ideal scientists can attain. Living up to these rules, values and virtues enables them to distinguish better theories from worse ones about causal relationships in phenomena in the observable world and to distinguish better interpretations from worse ones of the meanings that certain phenomena have for people.

Epistemological values are closely linked to normative theories of science; from these values, particular methodological guidelines and rules are derived. In line with a Popperian falsificationist ideal of science, for instance, these guidelines and rules involve a commitment to systematic testing of theories, including an attentiveness to consistency in theories, logical deduction of hypotheses, and exposition of testing conditions. From Lakatos’ sophisticated extension of this approach, additional concerns follow such as theoretical progression and an increasing empirical content (Lakatos 1973). In an often-cited article, Kuhn suggests a list

of basic scientific values for addressing theories, including accuracy, consistency, scope, simplicity, and fertility (Kuhn 1977). Epistemologies that focus on the interpretation of meanings entail analogous, although not always completely similar, rules and methods. Here, not only the reduction of puzzlement but also robustness and rigour in data gathering and analysis are demanded to minimize bias. Minimizing bias implies generalizability, transferability and replicability (e.g., Bailey 1992). The epistemological values include the rules and guidelines that all students all over the world must learn.

Advocates of scientific neutrality differ on the question of which values exactly should be included in the list of epistemological values. This disagreement largely follows discussions within epistemology, which can be seen most clearly in the social sciences in disputes between adherents of an explanatory science that is focussed on general theories and defenders of an interpretative science that offers assessments of the meaning of cultural phenomena. These disagreements, however, need not undermine the very idea of a distinction between epistemological and social values. The discussion, or at least part of it, may be understood as a proof of the ongoing search within science for rules and methods that guarantee unbiased conclusions and advice. All participants intend to refine further the scientific practice by offering additional guidelines for a neutral stand.

Social values are quite different. They express social, political, and ethical ideals. They include individual attitudes and behaviour such as friendliness and ambition or responsibility and authenticity. They also include societal ideals such as democracy or theocracy, family values or individualism, and merit or gender equality. Societies encompass their own set of values, often quite different from the values to which members of other societies adhere. Additionally, within societies, the presence of a variety of values is valid. Weber presents this social and political value pluralism in his analogy of the warring of gods under polytheism (Weber 1948).

The advocates of neutrality maintain that science cannot determine which social or political value should have priority and that this type of value has no place in scientific practice and advice. In fact, many of the epistemological rules and guidelines are aimed at keeping them out. These include, for example, methods that aim to minimize bias in case-selection, in interview questions, in coding data, and in analysing

statistical material. Epistemological values are, therefore, at odds with societal values. They exclude each other in scientific practice and advice.

Epistemological values, to be sure, are not the single privilege of science. Many rules and values that guide science in finding better interpretations and explanations of the observable world also function in daily life. There is no categorical difference between scientific knowing and common sense, or at least there need not be such a difference (Lacey 2005; Popper 1976). The only privilege that science, at least a well-functioning science, has is the ability and opportunity to try to live up fully to these values. Its knowledge claims are guided by epistemological standards and not by social values. It is precisely for this reason, advocates of scientific neutrality maintain, that science can provide expert advice to policymakers. By relying only on epistemological values, science can provide truth to power.

4 CHALLENGES TO THE DISTINCTION BETWEEN EPISTEMOLOGICAL AND SOCIAL VALUES

The distinction between two types of values, epistemological values and those that express social and political ideals, creates an attractive solution to the first inconvenient observation made in the first chapter. It opens up a path for a more sophisticated ideal of value-free science, a science that is neutral in the sense that it is free of social values.

However, if the advocacy for a neutral science comes to rely on this distinction of values, further critical questions arise. A first question is analytical: is the distinction between epistemological and social values actually tenable? Can there be pure epistemological values, completely free from social ideals? The second question takes the possibility of an analytical distinction between the two types of questions as a given. It asks, is a science that does not (also) employ social values actually possible?

The possibility of distinguishing between epistemological and social values might be questioned in several ways. One might initially note that ideals and values about how to do science well have changed over time and in different contexts. Only from the thirteenth century onwards have researchers begun to use experiments, and centuries passed before rules about repeated observation were formulated. Ideas and accompanying rules and values about using experimental groups and test groups and about double blind tests came much later. The same is true

of guidelines for formulating testable hypotheses and the introduction of statistical methods and measures of statistical significance. Critics might even emphasize that epistemological ideas about knowledge and truth changed over time; they could refer to a shift from a reliance on a Cartesian rationalism in early modern days, via the empiricism of Locke and others, to a form of critical rationalism along the lines of Kant and Popper. They could also note that certain methods, rules and ideals of knowledge can be linked to the societal developments and social values of the time of their invention. Certain ideals of truth and values of research are closely connected to the broader social values of the Enlightenment, for instance. The introduction of statistical methods, to provide yet another example, was linked to the development of strong centralized state powers. For example, it helped organize large armies, facilitated efficient taxation, and made uniform state-education possible. In short, statistical methods connected to certain values of societal organization and control (e.g., Foucault 1975).

Following this historical line of thought, a critic might also focus on the individual level. He could provide examples of methodological methods and guidelines that have been developed by scientists that acted upon certain social or political ideals (e.g., Latour 1987; Shapin and Schaffer 2011).

These historical observations might certainly be accurate. However, they do not necessarily undermine the validity or feasibility of the distinction. For example, all of the methodological elements that have been introduced in science since the Middle Ages can be understood as steps directed at realizing the same value—eliminating error and bias. The same is true for the shifts in epistemological guidelines; they may be understood as steps in an ongoing effort to elaborate what we mean by ‘truth’ and ‘true claims about the observable world’. Moreover, specific scientists having designed certain methods to prove a certain point does not make that method an expression of social value; for that matter, nor does doing so undermine the point’s epistemological value. An advocate of scientific neutrality would maintain that the epistemological value of a statistical test is not in whether it can help to support one’s belief. Rather, it is in whether it can help determine whether that belief is true. Telling the history of the discovery of certain methods and the ideas behind them is categorically different from expressing the epistemological validity of these rules and values (Lacey 2005).

Another means of questioning the distinction between epistemological and social values digs deeper. It does not focus on the history of epistemological values but rather disputes their socially neutral character head-on. This type of comment has been presented in critical studies such as cultural examinations of feminism. Longino, for example, maintains that feminist researchers employ values in their judgments of empirical theories that differ from those that are commonly used. Relying on Kuhn (1977), she claims that mainstream research is guided by values such as accuracy, consistency, scope, simplicity, and fertility in its effort to find and test empirical theories. The work of feminist studies, however, shows a reliance on values such as empirical adequacy, novelty, ontological heterogeneity, complexity, mutuality of interaction, application to current human needs, and diffusion or decentralization of power (Longino 1995: 385). This difference, according to Longino, must *not* be understood as expressing fundamental differences in how men and women understand the world (because of differences in biology or socialization). Such an understanding is not really convincing, Longino argues, given what various male and female scientists actually do. The difference between mainstream and feminist research expresses something else—a different orientation on the value of knowledge. In feminine approaches, doing research is clearly guided by a particular political value—revealing (the workings of) gender relationships in all types of social settings and practices. This concern is expressed by seeking novel theories rather than trying to find those that are consistent with established ones, or searching for understandings that dig more deeply and show complex underlying power relationships rather than concentrating on broadly applicable simple ones. Mainstream epistemological values do not guide the researcher in discovering dominating gender relationships; consequently, they express support for the status quo on societal power relationships (Longino 1995: 391).

This type of comment provides a more serious challenge to the ideal of a neutral science. Epistemological values might appear neutral in relation to social and political ideals, but actually they are not. Doing science is always political in consequence, and a scientist should be aware of this fact and act upon it. Even the mainstream scientist who claims to rely strictly on his rules of method is in truth politically involved when doing so. However, this fundamental critique of the distinction between epistemological values and social values does not necessarily mean that a neutral or sophisticated ideal of value-free science must be abandoned.

Advocates of scientific neutrality or value-freedom might grant that differences in values among researchers, such as the one feminists note, can be found. They might even accept that these values include ones other than only those of revealing (or not revealing) dominating gender relationships: for instance democracy, a sustainable environment, health, or any other social value. Furthermore, they might accept that the work of scientists is social-value guided in the sense that feminists note, even when the scientists themselves have no conscious intention of expressing and realizing a particular social value and think that their work is completely neutral. Advocates of neutrality can hold on to their ideal by granting non-epistemological values a particular, limited place in science. They can maintain that social values might be relevant and even unavoidable in some parts of scientific practice but that they are not in the core of it. In the areas that really matter, the epistemological values must rule in bringing about the truth.

Advocates of neutrality in science who adopt this approach acknowledge that social values can have a role, for instance, in the selection of research topics or in the formulation of research questions. However, in the core of scientific study—in data analyses, theory testing, and the like—there is no room for social values. Lacey, for instance, replies to Longino’s critique of value neutralism by noting that the typical feminist values she mentions have a role only in the very first phase of research. After they have had their due in the selection of the topic, the neutral epistemological values kick in for testing the validity of theories (Lacey 2005: 218). Another champion of neutrality aptly referred to the phase in which social values might have a role as ‘the *antichambre* of science’ (Dahrendorf 1968). Weber follows the same strategy, we can now see, when he refers to the values of doing science and of what counts in different disciplines as ‘worth knowing’. These values clearly are not epistemological in nature, but their relevance is limited to selection of research topics and questions. It is the rules of logic and method that are guiding science proper (Weber 1948: 143).

By following this strategy, advocates of scientific neutrality can uphold their answer to the first question this section started with; the distinction between social values and epistemological values is tenable. The strategy also suggests an answer to the second question. At least in the selection of research topics and research questions, social values might be inevitable.

5 WHAT IS NEXT?

Through granting social values a particular albeit limited place in scientific practice, the ideal of a neutral science might be rescued. However, from the sketch given so far, this ideal remains rather vague. At least two issues must be clarified. The first concerns the exact role of social values in research. The metaphor of an *antichambre* suggests a clear distinction between some preliminary actions and the real scientific work. However, exactly what choices or judgments in a study can and must be made by epistemological values alone, and when can or must social values have a role? Are these latter values only relevant in the selection of topic and research question, or are they also involved in theory selection? What about the further phases? Do non-epistemological values have no necessary or inevitable role in data gathering and analysis, conclusion, and advice? The next three chapters offer answers to these questions. For convenience, the practice of doing research is roughly distinguished into three phases. First is the initial phase, which most likely comes close to what Dahrendorf has labelled the ante-chamber. It encompasses the selection of topics, research questions and theoretical approach (Chap. 3). The ‘scientific core’ of data gathering, analyses, and theory testing forms the second phase (Chap. 4). The third phase concerns drawing the conclusion and giving scientific advice (Chap. 5).

The strategy of distinguishing epistemological and social values and granting the latter a limited place brings up a second issue that needs clarification; that is, what should a scientist do when confronted by value-choices that cannot be answered by epistemic values (alone). Scientists are well trained in employing epistemological values—for example, the use of logic, guidelines for valid data gathering, the appropriateness of certain statistical tests, and rules for selecting the better theory. However, what about those decisions that inevitably involve social or political evaluations? Are there proper, even scientific, ways to approach such decisions? Answers addressing this issue will be the subject of Chaps. 7, 8, 9, and 10.

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