

Expertise, Skepticism and Cynicism Lessons from Science & Technology Studies

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The topic of expertise has become especially lively in recent years in academic discussions and debates about the politics of science. It is easy to understand why the topic holds such strong interest in Science & Technology Studies (STS) and related fields. There are at least two basic reasons for such interest. One is that experts are undoubtedly important in modern societies, and the other is that trends in STS research tend to be critical of the cognitive authority associated with the public role of the expert. Putting the two together, STS researchers often align themselves with environmentalist and other movements that question the impartiality of experts and seek to democratize decisions about science and technology. Though such alignment is in many respects laudable, it can also be a source of confusion and misplaced political criticism. Toward the end of this brief synopsis of current STS research and debates on the topic of expertise, I will suggest an alternative agenda for engaging the politics of science and technology.

The Social Importance of Expertise

The daily newspaper delivers a steady stream of testimony about the importance of technical information and expert advice for a broad range of government policies and individual choices. Many of the most pressing political questions of the day turn, at least in part, on technical questions. For example: What level of arsenic is tolerable in municipal drinking water? Is the burning of fossil fuels a significant cause of global warming? Will a new generation of nuclear power stations be safer and more economically viable than the older generation? In addition to advising government agencies and the general public on such questions, experts are ubiquitous sources of normative information and guidance: they define and measure what counts as normal and they give normative advice about how to improve personal health, intimate relationships, financial well-being, and cultural sophistication. They even come into play as

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authorities on broader epistemological and ethical questions associated with the epistemic status of entire fields such as “intelligent design” and the moral standing of different categories of stem cells.

In some circumstances, an individual scientist can exert influence on public decisions that generalizes well beyond the person’s technical area of expertise. For example, Edward Teller, “father” of the hydrogen bomb, or Glen Seaborg, discoverer/inventor of plutonium, reportedly had singular influence on US Federal Government support for the Strategic Defense Initiative and nuclear power programs, respectively. More often, experts render more anonymous and collective advice, delivered through advisory panel reports and *amicus curiae* (“friend of the court”) briefs. Although they supply information, and even make decisions, experts affect the body politic without being democratically accountable. A crucial aspect of their credentials is that they derive from assessments by other specialists (their so-called “peers”). Moreover, in a traditional and still popular view, expert (especially scientific) fields are considered to be meritocracies. Robert K. Merton’s (1973) much recited norms of science—communalism, universalism, disinterestedness, and organized skepticism—substantially overlap with the ideal typical characteristics that Max Weber earlier attributed to modern bureaucracies. While they may be “specialists without spirit” in Weber’s famous dictum, according to the classic view of rationality experts achieve their authority through good works rather than personal connections, are (relatively) disinterested, and can be trusted to deliver the facts without bias or distortion. Having done so, they then join the rest of the community in struggling with the difficult “value” choices that individuals and collectives make when trying to decide what to do with those facts. For the moment, we shall stay with that traditional picture before discussing the trends in STS research that have undermined it.

Experts are not necessarily scientists. As Stephen Turner (2001) points out, there are experts of many kinds. Experts frequently appear in the media to voice opinions, for example, about regional conflicts. Sometimes these experts are academics with appointments in, say, Middle-Eastern Studies, International Relations, or Political Science departments. Often, however, they are retired generals or former government officials (some with courtesy academic appointments). Depending upon the audience and the topic at hand, academic credentials may enhance or count against the credibility of expert pronouncements. Nevertheless, in many circumstances, the pronouncements of experts with scientific credentials tend to be elevated above the opinions of other constituencies that are, or should be, concerned with the problem at hand.

According to legal standards, such as those codified in the US Federal Rules of Evidence, an expert is someone whose specialized knowledge can assist a court to resolve particular questions that bear on the case at hand. An expert need not be a scientist, but scientific expertise is often accorded the status of a gold standard. For example, courts in the US and many other nations commonly treat DNA test results as the gold standard of forensic evidence. When the

results of DNA tests clash with other forms of eyewitness testimony, confessions, or older forms of forensic evidence (including evidence that may have convinced a jury and judge to send a defendant to death row in a trial held before DNA evidence was available), an increasingly common assumption among legal actors and analysts is that the other evidence is erroneous or misleading. All other forms of criminal evidence are now invidiously compared to “DNA,” with its strong connections with laboratory science and the impressive probability figures that accompany reports of matching DNA profiles (Lynch *et al.* 2008). While courts continue to recognize many kinds of experts and meta-experts (experts who testify about norms of practice and judgment in a profession), *scientific* expertise has become a legal paradigm (Risinger 2000). Easily forgotten in this equation of “DNA” with “science” and “truth” is that until recently, latent print comparison (fingerprinting) was deemed to be an absolutely certain, unassailable, and error-free source of scientific evidence. Though still pushed by FBI spokespersons, fingerprint analysis is now criticized as less “scientific,” and possibly less reliable, than DNA “fingerprinting” (Cole 2001). Judicial and popular notions of science are flexible and historically changeable, and despite all of the talk about science, trial judges continue to exercise considerable latitude when deciding what counts as credible “scientific” evidence.

The Problem of Expertise

A problem with expertise is often said to arise from the social distribution of knowledge in late-modern societies. In a society with a complex division of labor that puts a premium on technical expertise, it can take years to master the knowledge and skills associated with key occupations. When such training and experience is a prerequisite for making well-informed decisions about socially significant matters, the persons who are charged with making such decisions, or who are affected by or otherwise concerned with their outcomes often do not have the backgrounds or credentials that would allow credible participation in discussions and debates about the relevant technical and factual issues. A traditional solution to this problem is to trust specialists to supply the facts, and then to rely upon public officials and popular referenda to resolve the larger political and moral questions. Dichotomies between science and politics, facts and values, biased and unbiased advice, objective and subjective apprehension, or technical and commonsense knowledge come into play in this picture. It has long been recognized (e.g., by Justice Learned Hand [1901]) that non-experts have no clear way to resolve disputes when experts disagree with one another, and some political and legal institutions (such as trials held in an adversary system) can be expected to generate such disagreements as a matter of course.

In accordance with the fact-value distinction, experts do not have direct control over public decisions: they advise government and corporate elites, and given the narrow specializations within which they work, their advice is highly

circumscribed. The courts, for example, assign experts with an advisory role, and with some exceptions they do not permit experts to pronounce on the ultimate issue—the final verdict of guilt or innocence in a criminal trial, or of liability in a civil lawsuit. Trial judges are granted broad discretion to admit experts and to specify limits to the scope of their testimony. Similarly, staff scientists or consultants who submit technical reports to government agencies do not control whether the government will act upon, or even pay attention to, their recommendations. Consequently, experts often are subordinated to other, more traditional, élites and officials. However, the problem of expertise arises from the fact that the “ultimate” decision makers do not have sufficient knowledge on their own to evaluate and contest consensual advice given by experts, and when experts disagree public decisions can become fretful and delayed.

Expert advice can be (and is frequently suspected of being) infected by, inflected with, or thoroughly captured by political, economic, and other partisan interests. In such circumstances, the decisions about technical matters are thrown back to the (seemingly incompetent) decision makers, who are faced with determining which of the competing expert accounts to trust or discount as biased or irrelevant. Decision makers are not bereft of resources for making credibility judgments, as their judgments about experts and expert advice rely upon proxies such as credentials, reputation, apparent vested interests, agreements and alignments, intuitive plausibility, and personal performance (Shapin 1995). The use of such proxies is, of course, highly fallible, and the judgments are based on the intuitive, non-expert sources of knowledge that the expert advice was supposed to supplement or correct. Such fallibility has been compounded in recent years by elaborate efforts by corporate and political sponsors to create think tanks and even entire fields that mock up the appearance of credibility, objective evidence, and expert authority.

Skepticism and STS

The traditional view of specialized expertise, and of the institutions that assimilate expert advice into public deliberations, has been questioned to the point that there is widespread skepticism, and even cynicism, about it. The skepticism can be distinguished for analytical purposes into a vulgar and an academic variety, though it is crucial to understand that the two are often indistinguishable. Vulgar skepticism has to do with common suspicions that a person presented as an expert is really not a disinterested authority, and that the “facts” presented by such experts are really contestable assertions that reflect vested political or economic interests. So, for example the implications can seem obvious when a “peer reviewed” publication that presents evidence from clinical trials showing that a particular drug is safe and effective turns out to have been sponsored, or even ghost written, by a pharmaceutical company (Angell & Relman 2002; Healy 2004). For the most part, such skepticism is particularistic: it targets specific experts or purported facts for not being what they are cracked up to be, while assuming that other experts and other facts are

(or, at least, should be) the genuine articles. Academic skepticism raises broader questions about the authority of experts and the supposed correspondence of “facts” to an independent reality. A selective appropriation of skeptical arguments from late-twentieth century philosophy of science became cornerstones for developments in the sociology of science starting in the 1970s (Bloor 1976; Collins 1985). Historical and ethnographic studies claimed to support the once-controversial skeptical theses that scientific theories are underdetermined by evidence, that evidence is always theory-laden, and that laboratory practices do not follow idealized strictures of scientific method. Consequently, it became commonplace in the STS field to reject the idealized picture of scientific autonomy and disinterested knowledge that was stressed by earlier generations. Vulgar skepticism largely adheres to an idealized conception of expert knowledge when it singles out particular experts or facts for being corrupted by political and economic interests, but the more general skepticism that now holds sway in STS circles targets the adequacy of the very ideals that vulgar skepticism uses as a normative basis for its particularistic judgments.

Confusion about Expertise and its Political Exploitation

Although skepticism about expertise is a hallmark of STS research and debate, this does not prevent prominent members of the field from taking part in expert decision making. STS research often supports political efforts to speak for, or even create forums for, popular constituencies whose voices are suppressed by officially recognized expert bodies. However, there is some conflict and confusion about the terms and political implications of such meta-expertise or counter-expertise. By and large, STS researchers are sympathetic with subordinate social categories and classes whose voices are marginalized or silenced in techno-political debates about energy sources, risk, health and safety, sexuality, and so forth. Close study of how “facts” are manufactured and promulgated by official decision-making bodies can help expose the way interests are mobilized and dissenters are marginalized. Consequently, there can appear to be a natural affinity between the programmatic skepticism that motivates efforts to de-construct “facts” and the interests of marginalized and anti-establishment groups. A problem arises, however, when one notices that similar academic arguments can be used to de-construct “facts” and unveil interests that happen to support the political causes with which STS researchers tend to align. While it seems safe to assume that STS researchers hold little sympathy with tobacco companies, oil companies, or fundamentalist Christian activist groups, skeptical arguments with a close family resemblance to their own arguments can be (and are) used to combat anti-smoking ordinances, counsel delay about global warming, and support creationist efforts to contest the “facts” supporting the neo-Darwinian synthesis (Latour 2002). Indeed, some of the more vociferous critics of STS relativism and anti-science, who voiced their

opinions during the “science wars” of the 1990s, now suggest that academic skepticism about science lends tacit or explicit support to right-wing corporate, government, and religious attacks (Mooney & Sokal; Levitt). Ironically, the current controversy about science advice and manipulation of scientific authority is not that scientists have too much authority, but that they do not have enough. The Union of Concerned Scientists and many environmental groups currently argue that the legitimate authority of science is being undermined by politically and economically interested machinations. The story is more complicated, however. It is not that expert authority has been undermined, but that Machiavellian actors are using such authority to cover (and cover up) economically interested lobbying, advertising, and the like. As a quick web search under the heading of “junk science” can reveal, selective skepticism about “junk” science typically supports a confusing array of political lobbies that claim to have objectivity and “sound” science on their side. Indeed, many of the sites that turn up during such a search discuss the confusing and partisan claims that promote “sound science” while attributing “junk science” to their opponents. Even special creationism, often viewed as the epitome of an anti-scientific and religiously inspired belief, increasingly presents itself as a secular and scientific “theory” when seeking a toehold in the US public education system. In such a landscape, it not only becomes ever more difficult to recognize “real” science, but that such confusion can selectively support politically interested skepticism. The skepticism does not simply question facts that would support one or another policy, it can be used deliberately to forestall *any* policy that would address an alleged problem or public concern.

As noted earlier, general or “academic” skepticism is distinguishable, at least in principle, from the commonplace “vulgar” skepticism that comes into play in particularistic disputes. For the most part, vulgar skepticism questions or dismisses particular factual claims while supporting alternative realistic and naturalistic assumptions. According to critics, the current US administration’s effort to promote uncertainty about human effects on climate change uses skepticism as a cynical end-point rather than a critical means of argument. Similarly, critics of the Discovery Institute’s program to “teach the controversy” about evolution, allege that far from being a program of critical education it is a cynical effort to insinuate fundamentalist Christian doctrines into secular education. It is cynical because vulgar skepticism no longer is used innocently; instead, the realization that *any* theory can be attacked for having less than airtight factual support is used to encourage vulgar skepticism about a *particular* theory that otherwise stands as very well supported.

An End to Innocence

In public debates about climate change and intelligent design, the balance of officially credited expertise is heavily weighted on one side. Moreover, the expertise that is mustered by the weaker side tends to be reactive and negative – raising doubts, pointing to gaps in evidence, suggesting alternative scenarios

for which there is limited evidence. Even if they come armed with loads of cash from corporate sponsors and right-wing foundations, and even if (like creationists in the US) they have substantial support from popular opinion, the skeptics in these cases are cognitive underdogs. The other side has a much larger and coherent army of experts. In such circumstances, we may be inclined to exclaim “Thank God for the experts!” Or, rather, “Thank *Science* for the experts!” But this would be to forget what that STS research has supposedly taught us for the past thirty years. If we look into the representation of science and scientific evidence presented by experts testifying for the plaintiffs in the *Kitzmiller v. Dover School District* trial (U.S. Dist. LEXIS 22647 2005), their portrayals of science tend to take a stereotyped form. They present science as a unitary method governed by Mertonian norms and Popperian falsifiability. This picture of science is completely incompatible with current academic thinking in the history, philosophy, and social studies of science. The academic skepticism that took hold in STS starting in the 1970s is skepticism about *that very picture*. It is not skepticism about “science”, as such, or about particular facts and findings; rather, it is an insistence that science, and the way scientists produce and consider facts and evidence, is other than the traditional picture would have us believe. In other words, the lesson from STS is not end-point skepticism, but skepticism about a particular picture of science that is too innocent to withstand empirical scrutiny.

The lesson from STS, then, is not that expertise is always or usually a mask for political and economic interests, though it certainly can be used as one. Expertise can be hard won, and expert advice can be a valuable and reliable guide to action. As educated people, we know and live this as a fact of daily life. Expertise becomes a problem when it, and the grounds for it, are reified and exaggerated beyond all proportion and circumstance. General skepticism about facts and expertise offers no solution, because it plays off of an innocent version of facts and expertise that should be irrelevant. The difficult task for STS research and argumentation is thus to continue the effort to put such innocence out of play rather than to join sides in adversary efforts to appeal to it or, worse, to exploit it.

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