

Accountability *versus* Autonomy? Toward a More Responsible Practice of Science¹

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This story about contemporary US science policy really begins as all great stories do: with the routine reauthorization of existing legislation. Congress' passage in 2010 of the America COMPETES Act reauthorization contained few revisions and only a handful of additions to the original text. One such addition concerned the federal funding of basic scientific research through government agencies such as the National Science Foundation (NSF) and the National Institutes of Health (NIH). Congress now requires empirical evidence that significant returns on research investments – which these days amounts to more than \$72 billion annually in taxpayer money – are indeed being realized in the form of benefits to society generally. Research outcomes, such as published materials or new technologies, are now being evaluated for the impact they have upon society outside of the scientific community.

While this legislative change may seem slight, the addition of this particular demand for accountability is the result of a continuing struggle within both the scientific and science policy communities. In securing this addition to the legislation, proponents of scientific accountability appear to have won a major victory and managed to circumvent the threat of academics' ultimate defensive weapon: expertise, an armored ideology with enough cultural clout to resist bureaucratic upheavals in the name of preserving academic autonomy. Scientists can no longer rely only on the pure scientific merit of their proposed research projects in order to secure research grants to finance those projects. NSF has codified this demand for accountability in its peer review processes for grant proposals. Project proposals traditionally were only evaluated on the basis of their Intellectual Merit. Researchers must now, however, also address the Broader Impacts criterion by explaining the extent to which the scientific project may be relevant to society, or will contribute to ameliorating a social, political, cultural, or economic issue(s).

¹ This essay was composed in January of 2013 as an entry for the Nicholas D. and Anna Ricco Ethics Award scholarship competition, sponsored by the University of North Texas. Contestants were instructed “to compose an essay of no more than 1500 words that meets the following criteria: 1) Define a pressing public problem and explain why it should be addressed from the standpoint of ethics. As you compose this argument, you must define how you understand the study of ethics and be careful not to assume that your audience is familiar with the topic. You may consider approaching this requirement from your disciplinary perspective. Specifically, you might ask: Is there an ethical problem raised in my field of study that must be addressed in a wider public forum? 2) Develop a policy that addresses the ethical problem you have selected. This policy should outline practical strategies that will help resolve the ethical problem you have defined. As you answer this question, you should consider what public forums would serve best for advancing your policy recommendation.”

But what is the nature of this victory for accountability? And anyway, shouldn't an academic (or future one) be concerned first and foremost with preserving academic autonomy? While defending either one side or the other seems to be an appropriate response, such a position ignores that both accountability and academic autonomy contain deeply-rooted ethical dimensions. If taxpayer investment in basic research is meant to benefit society, and not only "big science," then the issue at stake here concerns the degree to which scientists ought to be responsible to the general public. Academic scientists in the context of contemporary science policy are thus faced with an ethical situation in which the values of accountability and academic autonomy are in tension. As a specific policy measure to address this situation, I recommend that universities add new criteria to department-level peer evaluations, ones that emphasize realizing societal impacts from scientific work. Over time, this policy will stimulate a shift in academic culture toward scientists habitually incorporating the needs and interests of their taxpayer benefactors into their research activities. The argument that scientists must choose between being accountable and being autonomous constructs a false dilemma; this policy seeks to negotiate a balance between the two.

Perhaps with the exception of "efficiency," "accountability" seems to be every bureaucrat's favorite buzzword. But what is meant by "accountability" in this particular context? At its origins, the term invokes a kind of reckoning, or giving an account, of practices or activities with the intention of bringing to light a rationale for those practices and activities. At its core, accountability invokes a specific kind of *responsibility*, and being responsible *to certain groups*. In light of this, the mandate set forth in the reauthorized America COMPETES Act is not only a new policy for the governance of scientific knowledge. It is also, and more importantly, a new ethical standard of responsibility to which the scientific community is being held. This standard demands that scientists be responsible for the societal impacts of their scholarly work equally to their peers *and* to the broader public.

Many basic researchers, however, have strongly resisted this new responsibility. At least since 1950, science policy in the US has been, to a large extent, premised upon Vannevar Bush's influential 1945 report to President Roosevelt, *Science – The Endless Frontier*. Bush outlined a kind of contractual *quid pro quo* between science and society: the federal government would establish agencies to fund basic scientific research, the outcomes of which would presumably lead to societal improvements and the progress of human civilization. Perhaps the most germane of Bush's philosophical assumptions was of the apolitical nature of the scientific enterprise. If scientific knowledge was to be authoritative, it must be insulated – that is, autonomous – from being influenced by the special interests that drive the country's volatile political climate. Additionally, since a scientist's peers are the most qualified experts to pass judgment on what does and does not constitute excellent scientific work, scientists should be held accountable only to their peers for the quality of their work. Peer review has historically served as precisely this 'gatekeeper', the means through which standards of quality are internally defined and enacted. Scientific autonomy *via* self-governance, Bush argued, would ensure that only the highest quality, objective scientific work would be pursued under the auspices of public funding.

Bush's policy model presumes a dichotomy between academic autonomy and societal accountability: scientists cannot be both objective epistemic authorities *and* a special interest group for societal progress within the general political milieu. Many scientists have subsequently concluded that preserving academic autonomy is more important than societal accountability. Sacrificing any degree of autonomy for the sake of societal accountability represents seems to permit a dangerous intrusion of politics and "non-experts" into scientific quality control processes. Such intrusions, the argument goes, threaten to undermine the credibility and objective validity – and, therefore, the authority – of that knowledge.

However, privileging autonomy as more valuable than societal accountability entails accepting the ethically indefensible position that scientists are *not responsible* for their end of the contract: pursuing quality work, funded by taxpayers, that results in returns that contribute to improved quality of life and general societal wellbeing for those taxpayers. In other words, choosing to side with academic autonomy, and thus reinforcing the dichotomy, presumes that scientists *are not responsible* for justifying to the public why they ought to receive public funding.

Contrary to this argument, I contend that being accountable for the scholarly work pursued by academics to the broader societal context in which they pursue it is a good thing. One need not sacrifice autonomy to accountability, or vice versa. Additionally, if accountability is ultimately about responsibility, then this new standard further entails that scientists be accountable not only for negative consequences from their work, but also for ensuring that desirable outcomes are realized. Thus, scientific research activities involve implicitly ethical dimensions beyond concerns about what in particular is being researched and how. Responsible action, after all, ultimately belongs in the realm of moral judgment. Since academic autonomy is the source (or, at least one) of the epistemic authority of scientific knowledge, policy recommendations meant to address the ethical issue outlined above must balance the demand for internally-defined criteria regarding what constitutes quality, rigorous scientific knowledge, on the one hand, with the demand that this knowledge be relevant and applicable to the needs and interests of groups beyond the scientific community on the other.

My recommendation attempts to strike this balance between preserving academic autonomy and ensuring that scientific research is accountable to societal wellbeing. Peer evaluations of researchers are regularly conducted at the departmental level within universities. However, current quality criteria for the most part do not take into consideration the impact or relevance of scientific work in contexts outside of the academy. I recommend that universities require these peer evaluations to include criteria that speak to the interests and needs of societal groups and members of the general public. These additional criteria could include, for example, *relevance* to a particular policy or social issue; *timeliness* for contributing to ameliorating that issue; *rhetorical effectiveness* in tailoring the presentation and dissemination of one's work to the audience for which that work is relevant; or attentiveness to *social justice*, which could take the form of making opportunities available for those of minority or marginalized races,

ethnicities, genders, religions, or socioeconomic classes both to participate in and to benefit from scientific research.

The goal of this policy is to couple the evaluation of scientific work directly to societal relevance so that quality, rigorous scientific work is also responsible to society. Autonomy would be retained through the flexibility academics would be afforded in determining which of these additional criteria apply in particular situations and for particular portfolios of work. The point is not to mandate what kind of societal benefits are realized in different fields of study, but rather to emphasize the importance of considering how research may be relevant and utilizable by extra-academic communities to their benefit. Scientific research activities are already imbued with ethical dimensions. The strength of this recommendation lies in bringing those dimensions to the forefront as a main component of research activities, such that the initial promises of progress through investment in science can be demonstrably realized.