

Scientists can't claim to be neutral about their discoveries

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Science has impact. Credit: RIBI Image Library, CC BY

There is an enormous gap between the effects and consequences of science, and how much scientists consider these consequences. This is dangerous, but there is something we can do about it.

There is no pursuit of knowledge that does not seek to affect the world. Science is made by people with interests, intentions and ambitions; and

it's funded by governments and companies with agendas. Scientific development is subject to funding rules, to expectations about outcomes, and to social forces and institutions that shape our research.

In the 1950s, Jonas Salk gave a striking answer to the question: "Who owns the patent on this vaccine?" He said:

There is no patent. Could you patent the sun?

Salk's [immortal words](#) refer to the patent for the polio vaccine that he helped develop. These words are worth remembering not just because his position proved right, but because the question was tremendously important: can a scientist accept privatising knowledge that would benefit all?

There are usually two lines of thought on this. The privatisation argument is that without the subsequent benefit of monopoly pricing, firms would not invest in development of new and socially beneficial products. The argument against it is that restricting others from using and improving technology that should be in the public domain stifles innovation and development of new products. And the issue is not a minor one: for example, [Novartis recently tried](#) to block the manufacturing of a generic lifesaving drug in India that helps treat cancer patients. This is one of the [consequences](#) of the legal system that currently underpins the work of every scientist.

Joseph Stiglitz, winner of a Nobel Memorial Prize in Economic Sciences, [has a position largely against strong IP laws](#). He emphasises that IP seeks to guarantee profits by freezing development and making sure there is no competition. He gives the example of Myriad Genetics, a company that claimed IP on human genes. This is an extreme example, but his observations are widely applicable. He explains that in this case:

Genetic researchers have argued that the patent actually prevented the [development of better tests](#), and so interfered with the advancement of science. All knowledge is based on prior knowledge, and by making [prior knowledge](#) less available, innovation is impeded.

Scientists are at the centre of this process, yet they seem oblivious to it. Indeed, if you talk to [scientists](#), as I do (since I am one of them), these issues almost never come up. Ask them about the nature of scientific progress, the funding decisions of their project, the forces behind it or the interests it serves, and you will get a confused look. This is a problem.

Scientists cannot claim neutrality. What if Jonas Salk had decided to work for a pharmaceutical company? Consider a relevant question for the future: if a vaccine for malaria or AIDS is discovered, should it be IP protected to allow monopoly pricing maximising revenue but not health outcomes? More generally: can scientists really justify the predictable outcomes of the projects they are involved in?

What is to be done, then, to maximise the benefit of science from a public perspective? For a start, we can educate scientists and demand more of them. Scientists often participate in outreach events that aim to educate "the public" and explain what they do. In this model the public is merely a recipient vessel which has to understand the decisions made by scientists and research institutions.

But there is no reason this education should be one-directional. Ethics and politics are conspicuously absent of science curricula. It is legitimate and necessary to ask scientists and academics to justify themselves and their use of funding and institutions to the public. If we rightly scrutinise the actions of private companies or money being spent on social programs and get to debate political priorities in the public sphere, why would scientific research decisions and working models be exempt from

scrutiny?

We scientists should be able to seriously address fundamental questions about our work: what sectors of society does a particular research agenda serve? What agents, public and private, are expected to benefit from anticipated discoveries? What sectors of society might be harmed by them? What could be the misuses of those discoveries? And these answers should go beyond superficial observations used to justify funding.

Scientists often do not have a clear view of the wider impact of their research or think about the forces that shape it. As I have illustrated, the results of their progress have serious consequences. Science is an incredibly powerful force that consumes a vast amount of resources, and those who make this machine run need to make sure it's running in a good direction.

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