

Comment

THE SOCIALISATION OF SCIENTIFIC AND TECHNOLOGICAL RESEARCH

Science and technology: socialising what for whom?

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ABSTRACT: In the Handbook on the socialisation of scientific and technological research, edited by Wiebe Bijker and Luciano d'Andrea, 'socialisation' is used to both describe and prescribe the ways in which science and technology are used in society. In this comment, 'socialisation' is discussed from two other points of view. First, the ways in which science and technology are sometimes used to organize, structure and dominate the social are identified. Second, drawing on Merton's norms of science, an argument is made against over-socialising science and in favour of acknowledging and preserving the 'special' nature of science, for its own sake and because, at its best, science can offer an alternative model for other social activities.

The recently published *Handbook on the socialisation of scientific and technological research*, edited by Wiebe Bijker and Luciano d'Andrea¹, raises many valuable issues. It will undoubtedly be of great value to its main audience of policy makers and those actively engaged in research and innovation. But it is also of interest to other stakeholders, and my comments are from the point of view of citizen and social scientist, groups who are also addressed by the handbook. I focus on the key concept of 'socialisation' that appears in the title and is used by Bijker and d'Andrea both to describe the current role of science and technology in society and to prescribe what that role should be. Before going any further, I will declare my own citizenship status, which becomes relevant below. I am lucky enough to have dual nationality: I was born and grew up in Canada, and because my parents were born in Britain I was able to apply for and acquire a British passport when I studied in the UK, aged about 20. I lived in the UK for many years after completing my studies and moved to the Netherlands in 1999 though I have not been so greedy as to try to obtain a third passport. This personal history gives me a particular insight into processes of 'socialisation'.

Within sociology, socialisation is used to describe the process whereby people learn to conform to social norms, a process that makes possible a stable society and the transmission of culture across generations. Children learn this in families and in schools; the process continues in adulthood as people learn the norms associated with their profession or workplace or new social roles if, for example, one becomes a parent. The process of socialisation is usually conceptualised in two ways. The first concerns the internalisation of social norms which happens when social rules become internal to the individual so that they are self-imposed and become part of the individual. The second includes an element of social interaction, based on the assumption that people want to enhance their self-image by gaining the acceptance of others.

This approach to socialisation was particularly dominant in the middle of the twentieth century and is associated with the work of Talcott Parsons and functionalism². It is an approach that has been much discussed and critiqued within sociology. It is now more generally accepted that socialisation is a process of transaction between individual and society in which both are mutually influential. It is this contemporary meaning that is being suggested in the handbook but here I want to explore an idea, largely left implicit in the handbook, though it peeks through more vividly occasionally, for example, when science and technology are described as a 'foreign body' (p.18). It is the idea that science has to internalise social norms about relevance and usefulness and enhance its image in line with societal expectations. This is problematic for two reasons. First, it ignores the ways in which science and technology sometimes shape society, and second, it does not acknowledge the 'special' nature of science. Both are discussed further below.

First, the socialisation process also works the other way. Many areas of social life have become subject to some of the norms of science and technology. There is much discussion of the medicalisation of

human experience, as happens when childbirth is treated as a pathology subject to massive medical intervention rather than as an everyday occurrence; or when sadness and grief at the loss of a loved one becomes depression to be treated with drugs³; or when childhood behaviours across an ever-growing spectrum become labeled as ADHD (attention deficit hyperactive disorder) or autism with more pharmaceutical or therapeutic interventions. For decades, workplaces of all sorts have been subject to the norms and routines of workplace technologies, from assembly lines in factories⁴ to their contemporary equivalents in call centres where information and communication technologies are routinely used to standardise and monitor interactions between customers and clerical workers⁵.

These kinds of interaction between science, technology and society are often seen negatively as people individually and collectively often resist the stigmatising labels associated with mental health as well as the machines that discipline work practices. Many people involved in science, technology and society studies (STS) became involved out of concern that science and technology, particularly in the areas of healthcare, in transport and energy, were beyond democratic control and not serving broad social interests.⁶ But times have changed since STS began 25-30 years ago in at least three significant ways. First, science has come under increasing attack from religious fundamentalists, not least in the US. This was clearly articulated by US President Obama during his inauguration speech⁷ when he expressed the need to restore science to its 'rightful place', a clear attack on his predecessor's views and policies on, among other things, stem cell research. Second, science is increasingly marketed and marketised⁸. Third, the rise of technoscience (as suggested by analyses of Mode 2 science⁹ and post-normal science¹⁰) means, among other things, that science has become increasingly caught up with the more instrumental norms of technology. Instead of being concerned with the dangers and risks associated with an increasingly scientised society, maybe those involved in STS also need to consider what there is in scientific and technological research practices that needs to be defended and maybe even cherished.

The second point relates to other ways of thinking about the norms of science which also date from the middle of the twentieth century. Robert Merton was one of the most prolific sociologists of the twentieth century. He identified four norms that together distinguish science from other areas of social activity: universalism, communalism, disinterestedness and organised scepticism. He first wrote about this in 1942¹¹ out of a concern to defend science against a number of ideological misuses that had occurred during the first decades of the twentieth century. Whether science ever fulfilled these norms is a question for historians but as ideals they can play a crucial role.¹² Each is briefly discussed below.

Universalism refers to the idea that knowledge claims should be subjected to pre-established impersonal criteria consonant with observation and previously confirmed knowledge. Knowledge claims should not depend on personal or social attributes of their protagonists, thus nationalism, sexism and racism are not compatible with universalism. Further, doing science should be open to anyone who is interested and qualified, regardless of gender, ethnicity or religion. Thus, democracy and science are compatible¹³.

Communalism points to the social nature of science and its place in the common heritage. This suggests that property rights should be limited. In other words, secrecy about science is the antithesis of the norm. Thus science is not compatible with private property rights in capitalist economies; nor is it compatible with pressures in many industrialized countries to 'valorise' science developed in universities paid for by public funds.

By disinterestedness, Merton was referring not to individual scientists but to the organisation of science as an institution, as a profession that subjects knowledge claims to rigorous scrutiny. Individual scientists can be as good or as bad as anyone else, but science is subject to institutional controls such as peer review, open access to data and the possibility of replication of experimental and other results.

Organised skepticism operates at both the methodological and institutional level. It refers to the suspension of judgement and belief that scientists must exercise in order to ask difficult questions and come up with answers based on reason and evidence. This is what got science into trouble with religion a few centuries ago and sometimes still today. The financial crisis of 2008 offers a more recent example: one could suggest that part of the reasons for the crisis was that the vast majority of professional economists were too uncritical of neo-liberal and neo-classical economic theories¹⁴.

Consideration of Merton's norms could suggest that it is risky to socialise science and technology. On the contrary, maybe the norms and ideals of science need protection from the messiness of the so-called real world in which economic and political power threaten such ideals. Maybe it would be better to scientise the social along these lines in order to create a more democratic society in which institutionalised power is routinely open to question.

Finally, it is worth remembering that socialisation is not a one-way process. As mentioned above, socialisation is often used to describe how children learn and how immigrants adapt. In many European countries at present there is much, sometimes very heated and emotive discussion about immigration and how immigrants should 'integrate' into the host society. The implication is that immigrants should become socialised into the local norms and leave the norms and values of the host society untouched. That is not how it works in practice and nor is it how immigration is seen in a country such as Canada where immigrants are welcomed for their diversity and contributions. If we follow the Canadian model, that would suggest that we need to be careful about how far we socialise science and also that we need to consider how scientific norms and ideals can be nurtured for the long-term collective social good.

Science is a social institution that, at its best, exhibits some valuable features from which other social institutions might learn. Science is a social activity, so is art, so is football, so is politics. But not all social activities are the same. Instead of only focusing on policy measures that maximize what science gives to society, policy makers could also consider what it is about science that needs to be cherished, and what society can learn from science.

Bijker, d'Andrea and all of the contributors to the handbook provide many ideas and tools for developing a more interactive view of the relationships between science, social science, humanities, technology and society. The challenge of doing this so that these parts can co-operate productively while retaining their separate identities and strengths is a challenge for everyone involved.

Notes and references

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