Technology and the human future

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Sheila Jasanoff, *The Ethics of Invention: Technology & the Human Future*, W. W. Norton and Company, 2016

Sheila Jasanoff has worked on the interface of public policy and technology for many years. In *The Ethics of Invention* she explores how technology influences the way in which we live our lives and why we need to have more control over it. Digital technology is making us all aware of how technology shapes what we do. Yet we are also aware of how digital technology does not always improve the way things are done. It is predicted that increased digitalisation may radically reduce the size of the labour force. This raises questions about how technology, which exerts such an influence on our lives, can be made more democratic. How can we access the knowledge and expertise that would enable us to negotiate with the researchers, government agencies and companies that produce technological products?

Sheila Jasanoff starts by making a series of statements which provide a starting point for developing a more democratic alternative. She presents a view that brings technology and society together: 'Through technology, human societies articulate their hopes, dreams and desires while also making material instruments for accomplishing them.' This statement is important because it links the dreams of society with technology. Frequently technology drives the creation of products which are automatically assumed to be what society needs because the process is market driven and is determined by what people are persuaded to buy. There are social needs that could benefit from technological developments but there is no way of prioritising issues that do not fit into a market

framework. This reflects the loss of 'public-ness' as a result of neo-liberalism.

Although technology is often defined as 'the application of expert knowledge to achieve practical goals', this does not acknowledge that the goals of technology are not always known in advance. Risk assessment was seen as a way of minimising the unknown consequences of technological innovation, but even institutions which are tasked with assessing risk for society are not value neutral. Assumptions about how change is good and that positive outcomes can be seen in advance have shaped risk assessment processes although there is plenty of evidence to show that not all innovations are positive and the outcomes of technology cannot always be predicted. In addition, societies change their values and aspirations over time.

Sheila Jasanoff emphasizes that technology is not politically neutral and so should not be considered as outside the democratic process. Legislation and ethical frameworks have been used as a way of regulating and controlling science and technology but are often seen as 'behind' scientific developments. Although science is often considered as a value neutral activity, it is as much driven by values as other areas of public policy, but fails to make its decisions transparent.

The way in which expertise is built up is often separated from other areas of expertise, for example in the such fields as genetics, medical knowledge and seed storage. 'Expert imaginations are often circumscribed by the very nature of their expertise' (p250). Yet an understanding of how different areas of expertise interact will influence visions of the future. The separation of expertise is also enhanced by the hierarchical structure of organisations and companies, which result in knowledge being

determined by someone's position in a hierarchy rather than by what is needed to assess risk.

As a way of understanding some of the issues that need to be addressed in making technology more accessible and democratic, the book analyses some of the disasters that took place in the late twentieth century.The example of the Bhopal disaster is examined, where toxic gas, generated when water leaked into the storage tanks of a highly toxic pesticide, mixed with the air around the factory. A safety mechanism designed to neutralise this gas was not working. Up to 8,000 people died as a result of the gas, which caused choking, blindness and vomiting. The company considered this an act of sabotage, but further investigations into the causes showed the asymmetries of knowledge and expertise. Who knew how toxic the pesticide was, and why was it stored in the middle of an urban area?

One of the most valuable contributions of Sheila Jasanoff's argument is about the nature of knowledge and expertise and the inequalities of access to technological knowledge. She sees this as both an unresolved ethical issue and a political barrier to a 'just governance of technological innovation' (p256). The underlying theme of this book is how to address inequalities between the individuals and/or companies which develop new technological products and the increasingly large populations who are likely to be affected by technological change. A new form of global governance is needed, but this will depend on an acknowledgement that: 'Institutional deficiencies, unequal resources and complacent story-telling hamper profound reflections on the intersection and mutual influence of technology and human values' (p265).

As educators how can we start to address this imbalance of power? In the last issue of *PSE*, Colin Waugh offered 'controlling social production by social foresight' as a definition of socialism which he took from Marx. Sheila Jasanoff argues in a similar vein that we should 'spur a deeper ethical and political engagement in the governance of technology . . . only then will an ethic of equal rights of anticipation be accepted as foundational to human civilisation on our fragile and burdened planet' (p267).

In the UK, this debate can be joined across the great divide of institutionalised education between general compulsory schooling and more specialised tertiary/lifelong learning. It could be enhanced by the National Education Union announced by Howard Stevenson (also in the last issue of PSE).

Similarly in the last issue, David Ridley, branch secretary of Coventry University UCU, recalled the Lucas Aerospace Plan for socially useful production celebrated by Mike Cooley's recently republished *Architect or Bee?* and Steve Sprung's documentary film *The Plan*. As Ridley writes, 'we should be presenting alternative plans for the sustainability of those institutions and jobs with decent terms and conditions', by concentrating on quality not quantity, unlike the private 'universities' that government is sponsoring and pushing public universities to imitate: 'That is because it is the people who engage in and support teaching, including students, who know about quality. This knowledge cannot be captured by metrics because it is tacit knowledge that is acquired and developed in experience'.

This is an assertion of professional expertise, the same as primary teachers make in rejecting 'funny phonics', or secondary teachers around the academically prescriptive National Curriculum. Such democratic professionalism needs support from the educated and organized public that it seeks to serve.