

Democratising expertise and socially robust knowledge

Journal Article**Author(s):**

Nowotny, Helga

Publication date:

2003

Permanent link:

<https://doi.org/10.3929/ethz-b-000423040>

Rights / license:

[In Copyright - Non-Commercial Use Permitted](#)

Originally published in:

Science and Public Policy 30(3), <https://doi.org/10.3152/147154303781780461>

Dilemma of expertise

Democratising expertise and socially robust knowledge

Helga Nowotny

This paper presents arguments for the inherent 'transgressiveness' of expertise. First, it must address issues that can never be reduced to the purely scientific and purely technical, and hence must link up with diverse practices, institutions and actors. Second, it addresses audiences that are never solely composed of fellow-experts, whose expectations and modes of understanding reflect the heterogeneous experience of mixed audiences. Recent demands for greater accountability have created a vast site for social experimentation, especially on the supra-national level, which are briefly reviewed. However, the democratisation of expertise also creates tensions, especially on the institutional level. Moving from reliable knowledge towards socially robust knowledge may be one step forward in negotiating and bringing about a regime of pluralistic expertise.

THE DILEMMA OF EXPERTISE has been with us for some time. Plato lets Socrates take an outrageously (in modern terms) élitist position. He argues in favour of the aristocratic faction in the Greek *polis*, for those who understand and possess knowledge about the “immutable laws of geometry”. He lashes out against the distortions and the irrationality that characterise the formation of public opinion and the articulation of political will among the ‘mob’. To overcome the corruption and disorder that appear to threaten his native Athens, Plato’s solution was to find an immutable anchoring point outside the cacophony of political, social and economic interests of his time.

The lure of such an ‘external’ certainty, whether enshrined in the laws of the gods, of geometry or of Nature, has been with us ever since. The modern ‘agora’ (meeting place) can hardly be said to be populated by the ‘mob’. It is inhabited by a highly articulate, and never before so well-educated population. Experience of participating, at least in liberal western democracies, should also have taught citizens how to express their views and articulate their demands. Today, there is a widespread expectation that science not only ought to listen to these demands, but also can satisfy them. The incorporation of science into the modern agora, therefore, is an expression of confidence in its potentiality, not a loss of trust.

Nevertheless, recognising the need for expert knowledge and to understand the role it plays in leading to the right decisions, has not resulted in solving the dilemma of expertise. Expertise has never before been so indispensable, while being

Professor Dr Helga Nowotny is at Society in Science: The Branco Weiss Fellowship, ETH-Zentrum, HAA, CH - 8092 Zurich, Switzerland; Tel: +41 1 632 25 30; Fax: +0041 1 632 10 11; E-mail: nowotny@society-in-science.ethz.ch; Web page: <http://www.society-in-science.ethz.ch/index.html>.

Helga Nowotny has been Professor of Social Studies of Science at ETH Zurich and was Director of Collegium Helveticum until 2002. She is Chair of the European Research Advisory Board of the European Commission and Director of the post-doctorate Fellowship programme 'Society in Science. The Branco Weiss Fellowship'. She has a doctorate in law (University of Vienna) and a PhD in sociology (Columbia University, New York). She has held teaching and research positions in Vienna, Cambridge, Bielefeld, Berlin and Paris and has been a Fellow at the Wissenschaftskolleg zu Berlin. She is a member of the Scientific or Advisory Board of many scientific and policy-oriented institutions in Europe and Member of the Academia Europaea. She is prizewinner of the "Arthur Burkhardt Preis für Wissenschaftsförderung 2002". She has authored, co-authored or edited more than 20 books and published widely on societal development, social studies of science and technology and the relationship between science and society.

simultaneously so hotly contested. The question of whose knowledge is to be recognised, translated and incorporated into action has been exacerbated under the pressure for democratisation. It has received additional exposure under the constant scrutiny of the mass media. It is highlighted and challenged by having to manage uncertainty about such diverse issues and public concerns as climate change, BSE (bovine spongiform encephalopathy or 'mad cow disease'), GMOs (genetically modified organisms) or stem cell research.

Yet the dilemma of expertise and its vulnerability is not the result of any risk society. Rather, in the provocative verdict of Niklas Luhmann (1996), "society is shocked by its risks because there is no solution to this problem". This is not a denial of the need to assess, manage and contain risks, but the assertion that in modern societies there can be no safe way of making decisions. Decisions are events to distinguish between our observations of the past and anticipations of the future. To the extent that the future depends on the decisions taken by others, it becomes even more uncertain. Systems and individuals attribute risks, turning risk therefore into a problem of attribution which remains inherent to modern society (Luhmann, 1996).

Expertise has always been pragmatic as well as transgressive. Its pragmatism results from being defined in particular contexts. When acting as experts, scientists do not respond to questions that they have chosen — in contrast to their research. Consequently, they are forced to transgress the limits of their competence. There are situations in which they are under instant and intense pressure to respond to a crisis in decision-making, when neither all necessary knowledge nor sufficient information is available, uncertainties abound and yet action must be taken.

Experts have to synthesise all available knowledge and of necessity transgress the boundaries of their discipline as well as the constraints of their own limits of knowledge. Frequently, they feel under pressure of having to act as if they knew the answers and the conditions under which the answers will unlock an unknown future. The right of experts to say in public

"we do not know" has been won only recently, as the consequence of public scandals that have led to a break with ignoble silence or overt lying.

Expertise is transgressive in two senses. First, it must address issues that can never be reduced to the purely scientific and purely technical. The issues expertise confronts, the practices that are to be analysed and assessed as to their consequences, are characterised by overlaps and interlinkages that bind the specialised scientific knowledge to its local and societal context. To have any predictive value at all, expertise must be able to understand the interlinkages that bind diverse practices, institutions and networks of diverse actors together.

The second sense in which expertise is transgressive is that it addresses audiences that are never solely composed of fellow-experts. The narratives of expertise have to be sensitive to a wide range of demands and expectations and relate to the heterogeneous experience of mixed audiences. Speaking only to decision-makers, like 'speaking truth to power', has become a risky strategy in itself in an age in which transparency, public access to deliberations and assessment procedures, are the order of the day.

The inherent transgressiveness of expertise increases its vulnerability to contestation. By definition, experts speak about matters that transcend their competence as defined in purely scientific-technical terms. Even the protection provided by speaking in a collective voice, to give advice as a committee and to generate authority in a self-authorising way, does not confer immunity against contestation. Nor are recurrent, but futile attempts helpful, that seek to tighten the boundaries of scientific-technical expertise to prevent them trespassing. The complexities of the social and political world demand the contrary: a widening of scientific-technical expertise, exercises in comparative judgement and the ability to move back and forth, that is, to transgress the boundaries between specialised knowledge and its multiple, many-layered (and often unforeseeable) context of implication.

Accountability and international regulations

Undoubtedly, the recent demands for greater accountability have created in many European countries a vast new site for experimentation, seeking to extend the notion of expertise beyond the traditional definition of knowledge coming from certified scientific and technical experts (de Jong and Mentzel, 2001). In a recent EU (European Union) working document, experts are declared to have become "key actors of governance: either as proactive agenda-setters in their own right or, more often, as resources for actors in government, business and civil society" (EC, 2001).

Such a widened role and public acknowledgement of the importance of expertise for enriching the policy process is, however, only part of the story. Less

Democratising expertise has not only an internal political market, but an external, global one: the scarce resources are legitimacy and trust and, if they can be mobilised internally, transnational regulatory expansion will be more credible

noticed, but at least as important, is the extension of expertise beyond the confines of the nation-state in which it originally arose and was certified. The recent interest on the part of national governments and policy-makers, especially at EU level, to ensure greater accountability has a double edge. It represents a reaction towards current debates around issues of great public concern. It seeks to become proactive by widening access, by creating greater transparency and, more generally, by seeking to democratise expertise.

In order to succeed, new sources of legitimacy must be generated. Gaining legitimacy on the domestic (EU) front, will also help to push forward the agenda of moving into international regulatory terrain. Prompt policy responses can only succeed internationally, if there is sufficient regulatory density and transnational co-ordination or harmonisation of efforts. Where international agreements or scientific reference systems do not exist, they must be set up. Democratising expertise has not only an internal political market, but an external, global one. The scarce resources are legitimacy and trust. If they can be mobilised internally, transnational regulatory expansion will be more credible.

It is probably too early to seriously assess these approaches and their longer-term impact. However, it is no coincidence that trying to build up new forms of engagement between policy-makers, experts, the media and the public at large is so pronounced on the supra-national level. The need, and opportunities, to mobilise new sources of legitimacy for governance structures operating at this level is as evident as is the demand for regulatory frameworks that surpass, complement or harmonise national regulatory regimes.

In regulatory fields, expert advisory committees are often confronted with the need to study concepts or set standards whose existence either has not been an issue before or which necessitate addressing issues that are technical, social, scientific, normative or regulatory (Jasanoff, 1990). At EU level, this opens the possibility for developing a kind of expertise that can more easily integrate criteria that fell traditionally into established competencies within national regulatory bureaucracies or have yet to be set up.

The trend towards greater accountability may take different forms. Perhaps the most visible one is to extend the notion of who is an expert and to stipulate from the beginning that there are different kinds of expertise that may become relevant in the policy process or — an even wider goal — are to be regarded as an integral part of ‘good governance’. The now highly fragmented and often localised experimentation with public participatory models, such as consensus conferences, ‘publi-fora’ and other practices in deliberative democracy, may obtain a more stable, although more removed, form by becoming institutionalised on the supranational level. By bringing in those previously excluded — at least symbolically (Shove and Rip, 2000) — the social distribution of expertise is recognised as instrumental in achieving good governance.

Greater accountability can, however, also be sought by changing the ‘institutionalised habits of thought’, by altering the ‘how’ of expertise and not only the ‘who’ or the ‘what’. Sheila Jasanoff (2002), in her recent call for “technologies of humility”, pleads for us to turn away from the technologies of predictive policy analysis, grounded in overconfidence in their own accuracy and certainty. She wants them replaced by methods that try to come to grips with the fringes of human understanding — the unknown, the uncertain, the ambiguous and the uncontrollable.

The four focal points are framing, vulnerability, distribution and learning. They encompass questions such as: what is at issue?; who will be hurt?; who benefits?; and how can we know?. Under such a regime of humility, the existing predictive approaches would be complemented or replaced by an approach that makes apparent the possibility of unforeseen consequences, to make explicit the normative within the technical and to acknowledge from the start the need for plural viewpoints and collective learning.

Thus, expertise would be opened up, not primarily by extending membership in advisory committees to the public or by securing public access to the deliberations of expert committees, but by changing the latter’s epistemological approach and their basic political attitude. It remains to be seen how such a transformation can be brought about without transforming the institutional framework and the recruitment procedure of experts professing such humility and how far these technologies will alter the conduct of their deliberations and the nature of their predictions.

The tendency on the part of all concerned — be they national governments or the European Commission, scientists, regulators, professional reflexologists or representatives of patients organisations — to come to terms with a bewildering complexity of how knowledge and decision-making, expertise and action can be linked, creates entanglements of a kind that surpass the regulatory sciences. The “regulatory worlds” (Hagendijk, 2002) we increasingly inhabit, are spreading faster than any risk society,

although we are overwhelmed at times by the perception of new risks and uncertainty. It is especially with regard to uncertainty that scientific and technical expertise continues to play an indispensable part in attempts to manage it.

This cannot occur in isolation, separate and separable from the social, economic, political and cultural contingencies, nor from the heterogeneous sites where the need to cope with uncertainty arises. The challenges posed by the social distribution of expertise and its ongoing societal contextualisation, lies in the nature and robustness of links it can build with other types of knowledge, other kinds of experience and expertise.

Expertise, of whatever kind, is based on experience of some kind, even though experience tends to be eclipsed by or subsumed under certified expertise. The reductionistic–analytic model of science (which has served science well in other respects) reaches its limits here. Mode 1 science needs to be complemented by Mode 2 science and its respective model of expertise (Nowotny *et al.*, 2001).

Tensions generated

Democratising expertise can be pursued in different ways and achieved in different degrees. Yet tensions are likely to arise, regardless of the route taken. They arise on the epistemological, the political and the institutional level. On the epistemological level, for instance, the tension between rights that accrue from professional expertise (be it ‘contributory’, ‘interactional’ or ‘referred’ expertise) and those originating from more diffuse political rights, has not been thoroughly addressed. While not denying the stakeholders’ rights, the argument goes, they cannot have the same weight as those of professional experts (Collins and Evans, 2002).

On the political level, a strong tension manifests itself with regard to moral expertise. The boom in ethics committees, ethics courses and a new brand of bio-ethics specialists who advise pharmaceutical corporations, testifies to the importance and popularity of the ethical dimension. The moral vernacular of the ethics discourse appeals against an overriding market culture. With the voice of its post-modern universalism, the moral expertise of ethics can present itself as protector of things, species and of a concept of human dignity above history (for instance, Fukuyama, 2002).

This is not to deny the need for regulation and safeguards in research and clinical settings, but the all-embracing, universalistic claims of moral expertise often make it difficult to link up with other kinds of knowledge and expertise. Sometimes belittled as merely providing an alibi function for political decisions, moral expertise runs the risk of serving as an alibi against the democratisation of expertise.

Other tensions arise on the institutional level. In the USA, for instance, studies to ‘prove’ the low

risks of genetically modified crops are predominantly carried out by the industry that generates transgenic plants or food. The job of government regulators is little respected and highly pressured; simple in concept and complex in practice: to mediate between the corporate drive for profit and the public’s need to be protected from damaging effects.

Industry’s position on regulatory control is equally predictable: the corporations favour decreased oversight, arguing that stakeholders are the best arbitrators of safety, and regulation is too expensive or hampering to economic growth and competitiveness (Winston, 2002). ‘Democratising expertise’ in the ‘genetically modified zone’ would mean to move resolutely towards the middle ground and to accord greater weight to more ‘neutral’ public research institutions, that have the capability of carrying out more accurate, unbiased and comprehensive research concerning the risks of transgenic crops and food.

Another approach taken at the institutional level consists of the systematisation and routinisation of experience. Expertise thus becomes a result of evidence-based experience. The systematic uptake of review processes, the spread of auditing and assessment procedures, the introduction of performance indicators and bench-marking exercises, and the widespread introduction of evidence-based medicine and, more recently, evidence-based policy, are responses pointing in the direction of greater accountability, but they do so in a specific way.

‘Democratising expertise’ takes the form of de-personalising and standardising other forms of knowledge, experience and expertise. They are necessarily abstracted from the local contexts in which they originally arose. Verification procedures and practices are objectified by setting up systematic scientific reference systems and similar procedures. In principle, the experience of participants and of relevant social groups, their attitudes, perceptions and even specific vulnerabilities can all be acknowledged, incorporated and taken into account.

However, to make the systematisation and routinisation of experience and expertise operational, knowledge has to be codified, experience has to become standardised. Relevant knowledge and expertise now no longer fall outside the remit of scientific–technical expertise, but the result is unlikely to be a ‘technology of humility’. It is closer to becoming another ‘technology of certainty’, assured of its in-built power to predict and control. It aims to be ‘robust’ on the institutional level, but its ‘social robustness’ will only come about when it remains open to continuous social monitoring, testing and adaptations.

It is reminiscent of the various moves towards ‘objectification’ that occurred towards the end of the 19th century. ‘Mechanical objectivity’ was introduced at the time when face-to-face interaction among scientists and their mutual trust no longer seemed guaranteed because of the expansion of the science system

(Daston and Galison, 1992). Mechanical objectivity, based on standardised and internationalised measurements and techniques did restore the essential element of trust by transferring it from persons and their subjective judgement to mechanical, impersonal and hence 'objective' devices.

The push towards expert systems, benchmarking and evidence-based policy pursues a direction different from that exemplified by efforts to 'democratise expertise' through participatory models or by developing 'technologies of humility'. At best, these expert systems might become technologies of pluralising expertise. They will contain a strong element of evidence-based experience and the expertise that goes with it.

This is a far cry from bringing in lay participants and their knowledge as being as valuable as, although different from, that of scientific and technical experts. To function efficiently, however, evidence-based pluralistic expert systems will need to be continuously updated and reassessed themselves. Societal monitoring in one form or another will continue to challenge the pluralisation of expertise, in the name of 'democratising' it.

From reliable to socially robust knowledge

In *Re-Thinking Science* (Nowotny *et al*, 2001) I have argued, together with my colleagues Michael Gibbons and Peter Scott, for moving beyond merely reliable knowledge towards socially more robust knowledge. This does not mean that the basic conditions and processes that have been underpinning the production of reliable knowledge are necessarily compromised. Reliable knowledge remains the indispensable *conditio sine qua non* of the fact that 'science works'.

However, if reliable knowledge, produced within the relevant peer group of scientists (Ziman, 1978), has been found wanting, it is not because of any deficiency in its reliability. Rather, reliable knowledge, as validated in its disciplinary context, is no longer self-sufficient or self-referential once its 'deliverables' are contested or refused. It is being challenged by a larger community that insists its voice should be heard and that some of its claims are as valid, on democratic grounds, as those of more circumscribed scientific communities.

Socially robust knowledge has three, closely interrelated aspects. First, robustness is tested for validity not only inside the laboratory. The test typically occurs outside the laboratory, in a world in which social, economic, cultural and political factors shape the products and processes resulting from scientific and technological innovation.

Second, social robustness is most likely to be achieved through involving an extended group of experts, of real or symbolic users and of real or 'imagined' lay persons. In this process of extension, the notion of what constitutes expertise, its role and

Socially robust knowledge has three, interrelated aspects: it is tested for validity outside as well as inside the laboratory; it is most likely to be achieved by involving an extended group of experts; it results from having been repeatedly tested, expanded and modified

function, undergo changes in meaning (Nowotny, 2000). Put briefly, expertise spreads throughout society and becomes socially distributed expertise. Experts must now extend their knowledge, not simply to be an extension of what they know in their specialised field, but to consist of building links and trying to integrate what they know with what others want to, or should, know and do. Bringing together the many different knowledge dimensions involved constitutes specific mixes with other kinds of knowledge, experience and expertise.

Third, since society is no longer only an addressee of science, but an active partner participating in the production of social knowledge, the robustness of such knowledge results from having been repeatedly tested, expanded and modified.

Obviously, social robustness is a relational term. It describes a process, and not a product. What can and will contribute to knowledge becoming socially robust is itself the result of an iterative process. It differs from the systematised pluralism of expertise in two respects. First, it remains contextual in the sense that it will take on different forms on the epistemological, institutional and political level.

Second, it pushes the epistemological and institutional initiative 'up-stream', into the research process and to the research sites where new knowledge is generated. Scientists do remember that a public judgement about the acceptance or rejection of the 'deliverables' they produce is a valid judgement, although based on non-scientific criteria. They are aware of the societal context for their work, in which they encounter real and imaginary 'interlocutors'. In these situations, language, and therefore communication, matters. So does history, which may resurface in unexpected places and at unexpected moments, framing in terms of previous events or memories that Nature has no need to frame. Socially robust knowledge can extend to expertise one of its main characteristics: the ability to resist in a social world through continued testing of the sources of resistance and strengthening or modifying the knowledge accordingly.

Between unconditioned acceptance and hostile rejection, there remains space for negotiation. We

have called it the 'agora'. This archaism was deliberately chosen to embrace the political arena and the market place, and to go beyond both. The 'agora' is the problem-generating and problem-solving environment in which the contextualisation of knowledge production takes place. It is populated not only by arrays of competing 'experts' and the organisations and institutions through which they bring their knowledge and experience to bear on decisions taken, but also variously jostling 'publics'.

The 'agora' is in its own right a domain of primary knowledge production, through which people enter the research process and where knowledge (Mode 2 knowledge) is embodied in people, processes and projects. If we all are experts now, the order and ordering of the regime of pluralistic expertise will be played out and negotiated in this public space.

References

- Collins, H M, and Robert Evans (2002), "The third wave of science studies: studies of expertise and experience", *Social Studies of Science*, 32(2), April, pages 235–296.
- Daston, Lorraine, and Peter Galison (1992), "The image of objectivity", *Representations*, 40, Fall, pages 81–128.
- De Jong, Martin, and Maarten Mentzel (2001), "Policy and science: options for democratisation in European countries", *Science and Public Policy*, 28(6), December, pages 403–412.
- EC, European Commission (2001), "Democratising expertise and establishing scientific reference systems", report to the White Paper on Governance; pilot: R Gerold; rapporteur: A Libertore, in European Governance-Preparatory work for the White Paper, Office for Official Publications of the EC, Luxembourg, available at <http://europa.eu.int/comm/governance/areas/group2/report_en.pdf>, last accessed ??please supply date??.
- Fukuyama, Francis (2002), *Our Posthuman Future: Consequences of the Biotechnology Revolution* (Farrar, Straus and Giroux, New York).
- Hagendijk, Robert (2002), "Regulated social world: science, technology and democratic governance in the 21st century", paper presented at the Symposium Localised Science: Novelty, Plurality and Narratives, Zurich, January.
- Jasanoff, Sheila (1990), *The Fifth Branch: Science Advisers as Policymakers* (Harvard University Press, Cambridge MA).
- Jasanoff, Sheila (2002), "Technologies of humility: citizen participation in governing science", manuscript.
- Luhmann, Niklas (1996), "Modern society shocked by its risks", Social Sciences Research Centre Occasional Paper 17, Hong Kong, 3–19.
- Nowotny, Helga (2000), "Transgressive competence: the changing narrative of expertise", *European Journal of Social Theory*, 3(1), pages 5–21.
- Nowotny, Helga, Peter Scott and Michael Gibbons (2001), *Rethinking Science. Knowledge and the Public in an Age of Uncertainty* (Polity Press, Cambridge).
- Shove, Elizabeth, and Arie Rip (2000), "Users and unicorns: a discussion of mythical beasts in interactive science", *Science and Public Policy*, 27(3), June, pages 175–182.
- Winston, Mark L (2002), *Travels in the Genetically Modified Zone* (Harvard University Press, Cambridge MA).
- Ziman, John (1978), *Reliable Knowledge: An Exploration of the Grounds for Belief in Science* (Cambridge University Press, Cambridge).