THE GLOBALIZATION OF ETHICS IN SCIENCE

Kathinka Evers
Research Director, Uppsala University, Sweden

Keywords: Guideline, oath, universalism, the trap of analyticity, the norm trap, the executive trap

Contents

Summary

The desire to create universal ethics can be traced through all the major religions, political ideologies, and ethical systems. With the rapid development of science many ethical problems have arisen, and concerns have increased about the consequences of some scientific discoveries. The public image of science is deteriorating. Both within and beyond the scientific communities there are calls for developing international ethical guidelines for science.

Three major traps challenge attempts to formulate international ethical guidelines for science. *The trap of analyticity* poses content against extension: the more content a principle has, the narrower is its extension, and vice versa, a principle's extension reduces its content. *The norm trap* arises from the absence of a superior principle deciding between principles or values that are in conflict. *The executive trap* emerges when the proportions between the efforts required to follow a given rule and the expected results are unreasonable.

The project of formulating substantial global ethics in any field appears problematic from both logical and empirical points of view. Nevertheless, should scientific communities sincerely try to develop an ethical code regulating the scientific enterprise on a global front, this would give rise to valuable discussions providing new knowledge and enriching the exchange of ideas. Thus the project of formulating international ethical guidelines in science can be highly fruitful even though it may not yield a global ethics for science of noteworthy substance.

1. Introduction

The desire to create universal ethics in regard to important issues is an ancient idea that can be traced from the earliest philosophers through all the major religions, political

ideologies, and ethical systems. There are many versions of this quest in terms of goals, methods, and justification, ranging from proselytism and crusades to a general preoccupation with the earth's survival.

The ethical challenges in science are manifold: to construct a coherent ethical position that covers a wide variety of related issues; to balance emotional reactions against rational arguments; and, not least, properly to understand the scientific facts that underlie the situation. Understanding of these developments is limited to a minority, which raises questions of how best to spread scientific education. The public image of science began to deteriorate dramatically in the last decades of the twentieth century, and it is now urgent to develop ways of promoting public trust in science.

With the rapid development of science many ethical problems arise, and there are increasing concerns amongst scientists and others about the consequences and applications of some scientific discoveries. Modern science and technology exert strong influence on the world's development, a power that can be dangerous unless restrained by principles or guidelines. Both within and beyond the scientific communities there are calls for the formulation of international ethical guidelines for science that should regulate its practice in some measure (e.g. concerning socioeconomic development, sustainability of natural resources, world peace, quality of life, equity between nations, the handling of scientific data, or problems in cyberspace).

Some envisage this as the formulation of an ethos that scientists of all disciplines and nationalities should respect, whilst others prefer to see it as an oath, or a pledge. Alternatively, the goal can be considered the development of ethical guidelines, or codes of conduct regulating scientific research internationally. This article focuses on the possibility of formulating international ethical guidelines regulating the scientific enterprise.

The primary aim is analytical; the topic needs to be conceptually clarified. What might such a globalization of ethics mean? Distinctions need to be drawn, notably between the morally binding ethos, pledges, oaths, guidelines, codes of conduct, conventions, recommendations, or declarations and the legally binding statements and laws. This discussion will focus on "guidelines" or "codes" in (albeit, sometimes rough and overlapping) distinction from the other concepts mentioned. The question arises in what sense a guideline or a code can be "universal," "global," or "international." By which standards, set by whom?

The secondary aim is critical; namely, to assess the possibility of formulating international/global ethical guidelines for science. Three general problems challenge those who attempt to pursue global ethics in science: *the trap of analyticity* posing content against extension, *the norm trap* arising from the absence of a superior principle deciding between principles or values in conflict, and *the executive trap* requesting a balance of reasonable proportions between the efforts required to follow a given rule and the expected results.

There are no principles either to guide or to judge human character or behavior that are actually endorsed by everyone. This plurality is profound: individuals of equal

intelligence with access to the same information can hold radically opposed values. In developing a global ethical principle acceptable to most, the challenge primarily consists in finding a proper balance between content and universality. On the one hand, if the possible candidates are too narrowly delineated their qualification is carried so far as to enable the guideline only to reach the already converted. On the other hand, if the candidature is too broad then there is reason to suspect that the price has been a damaging loss of substance by watering down the guidelines to suit a larger number of clients (the *trap of analyticity*). Whilst a truly universal ethics is an unrealistic utopia, ethics that raise no objections anywhere are perforce void of content.

Guidelines will typically be complex and express a number of ethical values or principles, some more peripheral than others. A principal issue concerns the size and nature of the ethical core. Which values are "fundamental" (candidates for universal acceptability) and which are "peripheral" (and accordingly more subject to divergence)? The problem here (the *norm trap*) goes beyond the divergence that is likely to occur or the fact that rules have different positions in distinct systems: when values conflict within a system there may not always be a superior principle to decide between them.

A third potential problem (the *executive trap*) relates to a principle of proportionality that needs to be applied: rules cannot be formulated so as to render their application impossible, or so difficult that the stakes become too high. There should be a reasonable balance between the efforts required to follow the rule and the expected results. The question of sanctions (legal, ethical, or other) when a rule is not followed arises in this context.

2. The Public Image of Science

The worldwide demand for research grows while the available funds are tightened, competition amongst scientists increases, and new alliances are formed. In the pursuit of the advancement of knowledge and the creation of new technologies, traditional institutions of science look for new ways to organize and market their activities. The laws of the marketplace seem sometimes to overshadow the more traditional values and norms of the scientific enterprise. For the critics of science, this development signifies a gloomy vision of a demoralized and socially irresponsible science. For them, science has become the willing servant of those who are in power, and scientific rationality the paradigm for a de-humanized way of thinking, devoid of commitment and value. The general public rarely conceives of science as a voice for them, a role that has largely been taken over by nongovernmental organizations (NGOs) and special interest groups. Many active politicians nourish a deep skepticism towards the contributions science can make to a responsible design of policy. For many young people, science does not provide sufficient stimuli for personal engagement or future careers.

From the point of view of scientific development, this decline is unsatisfactory for pragmatic reasons, if not for ethical ones. Insofar as science is seen as a threat to society, the political support of science is likely to diminish, and laws might be passed that limit its pursuit (for better or for worse, depending on one's perspective). Furthermore, science needs more than material support; it needs public trust. The attitudes of the media are relevant in that context: horror scenarios that may help sales

but lack scientific basis or reports that create false hopes about a particular research area's putative applications harm research by undermining public trust.

The traditionally individualistic and socially secluded quest for "objective knowledge" is today being replaced by project-oriented teamwork science that needs to justify itself in terms of potential human consequences. This gives science an explicit ethical dimension that cannot be ignored. The challenges facing us today are daunting, and there can be no doubt that science shares the responsibility of meeting them.

"Scientific knowledge," says Jane Lubchenco in her presidential address at the annual meeting of the American Association of the Advancement of Science on February 15, 1997, "is urgently needed to provide the understanding for individuals and institutions to make informed policy and management decisions and to provide the basis for new technologies." However, Lubchenco doubts that the scientific enterprise "is prepared for the . . . crucial and daunting challenges that lie in our immediate future. The answer that I must give is 'no.' I assert that the immediate and real challenges facing us have not been fully appreciated nor properly acknowledged by the community of scientists whose responsibility it is, and will be, to meet them."

There is no doubt that much of the scientific and technological development of the twentieth century resulted in great benefits for humankind. Indeed, the frontiers of today's science may hold promises of even greater future benefits. On the other hand, as many scientists today recognize, these benefits are distributed on our globe with profound inequality. Furthermore, threats to our environment and obstacles for peaceful coexistence between different peoples and nations are to a large extent directly or indirectly the results of the scientific enterprise. So while modern science certainly deserves praise for many new achievements, such as deeper knowledge and insights that we have gained through its pursuit, science must also accept criticism for the destructive part it has played and continues to play in some of the less glorious chapters of our history.

Interest in the ethics of science and in ethical issues arising from its various applications has grown significantly. More and more active scientists underscore the importance of engaging in discussions about ethics, and an increasing number of critics challenge science at precisely this point. Many institutions and countries have recognized this. They have established forums and committees where the ethical issues of the scientific enterprise are dealt with. Ethics is a common ground for science and its publics, promising to establish a new and mutual understanding.

-
-
-

Bibliography

Davis M. (1998). *Thinking Like an Engineer*, 240 pp. New York: Oxford University Press. [A text on professional codes of ethics.]

Gray J. (1995). *Enlightenment's Wake. Politics and Culture at the Close of the Modern Age*, 203 pp. London: Routledge. [A text on universalism from a political point of view.]

Harris C., Pritchard M., and Rabins M. (1995). *Engineering Ethics: Concepts and Cases*, 411 pp. Belmont, Calif.: Wadsworth. [A text on professional codes of ethics.]

Illinois Institute of Technology. http://www.iit.edu/departments/csep/PublicWWW/codes. [A discussion of the formulation of ethical codes for science can be found at this Website of the Illinois Institute of Technology, Center for the Study of Ethics in the Professions (CSEP).]

Ladd J. (1983). Collective and individual moral responsibility in engineering: some questions. *Beyond Whistleblowing: Defining Engineers' Responsibilities* (Proceedings of National Conference on Ethics in Engineering, 1982) (ed. V. Weil), pp. 90–113. Chicago: Illinois Institute of Technology, Center for the Study of Ethics in the Professions. [A text on professional codes of ethics.]

Luegenbiehl Heinz. (1983). Code of ethics and the moral education of engineers. *Business and Professional Ethics Journal* **2**(Summer), 41–61. [A text on professional codes of ethics.]

Mackie J.L. (1977). *Ethics. Inventing Right and Wrong*, 249 pp. Harmondsworth: Penguin. [A text on universalism from an ethical point of view.]

Resnik D.B. (1998). *The Ethics of Science: An Introduction*, 221 pp. London: Routledge. [A text on ethics and the responsibility of science.]

Standing Committee on Responsibility and Ethics in Science. (2000). Ethics and the responsibility of science, background paper for the World Science Conference, Budapest June 26–July 1, 1999. *Science and Engineering Ethics* **6**, 131–142. [A paper on ethics and the responsibility of science.]

Ziman J. (1998). Why must scientists become more ethically sensitive than they used to be? *Science* **282**, December 4. [An article on ethics and the responsibility of science.]

Ziman J. (2000). *Real Science. What It Is, and What It Means*, 399 pp. Cambridge: Cambridge University Press. [A text on ethics and the responsibility of science.]

Biographical Sketch

Kathinka Evers completed her Ph.D. in science and logic at the University of Lund, Sweden, Balliol College, Oxford University, and the Research School of Social Sciences, Australian National University. She was a visiting lecturer at various Chinese universities in 1992, a research fellow and visiting professor in the Department of Philosophy, University of Tasmania, associate fellow at Balliol College, Oxford University, research fellow at the Human Rights Centre, University of Essex, and visiting professor on the Chair Condorcet at the École Normale Supérieure in Paris. Dr. Evers has completed postgraduate courses in theory of science and ethics at the Norwegian University for Sports and Physical Education, Oslo. Between 1997 and 2002, she has been focusing on her position as executive director for the Standing Committee on Responsibility and Ethics in Science (SCRES), established by the International Council for Science (ICSU). Her present position, since 2003, is research director at Uppsala University, Uppsala, Sweden. Currently, Dr. Evers' main areas of research are bioethics such as cloning and genetically modified organisms, ethical and philosophical issues in the brain sciences, sociopolitical responsibility of science, and the formulation of international ethical guidelines for science.