Ethical responsibilities: Researchers and their Peers

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INTRODUCTION

The question I wish to address here is how does professional ethics apply to research scientist? Bearing that question in mind, it might be helpful to distinguish –in no sense whatsoever separate– the concepts of profession, academic profession and scientist as an academic.

Profession - A profession is usually characterized as a personal dedication to tasks requiring specialized knowledge of an intellectual nature within the context of a broad cultural formation as well as a long academic preparation. A professional is also recognized for his/her expertise and skill. Ideally a professional dedication entails a disinterested service to an identifiable common good. A professional also strives to be autonomous in his/her field of competence, as well as self-regulative regarding the legal, technical, academic and moral aspects of the profession.

Academic profession - Academics may be non professionals in the sense lawyers, medical doctors or psychologists are. These have grouped themselves together to regulate admission into their respective profession, to promulgate ethical standards and to discipline their members (a code of ethics).

Academics are not members of a self-regulating profession; however, they do consider themselves to be members of a profession with strong service ethics and special moral responsibilities, and as such they constitute a community with goals in common. Thus, in general, the promotion of ethical scholarship is the responsibility of everyone who is associated with the scholar process in some way. While an individual scholar must bear the primary responsibility for his/her work, the burden for fostering ethical scholarship falls on the institution as a whole together with scholar works.

Academic ethics entails the integration of responsibilities: to scholarship, to colleagues, to students, to academic institutions, to other institution (industrial, commercial, governmental), and to society. (Science, for example, does not, however, operate in a social or political vacuum. Policy decisions may be based on a social or political work, especially in areas concerned with health, education, energy, and the environment; furthermore, citizens support scientific research through their tax. For these reasons, society at large cannot tolerate scientific fraud.)[1]

We shall now focus our attention to the ethical responsibility of scholars toward his/her colleagues. As a colleague, a scholar has obligations deriving from common membership within the community of scholars. He/she respects and defends the free inquiry of his/her associates. In the exchange of criticism and ideas he/she shows due respect for the opinion of others. He/she acknowledges his/her academic debts and strives to be objective in his/her professional judgment of colleagues. He/she accepts his/her share of faculty responsibility for the governance of his institution.

An ethics presupposing a social contract comes into being. But, before speaking of the ethical responsibility of a scientist specifically towards his/her colleagues, it would be worth to identify what is understood by science –i.e., the nature and goals of scientific work, for a definition of the goals of science usually helps to determine rights/duties, the responsibilities of the scientist academic profession as a community with a common task.

[1] Schmaus, Warren. "Fraud and the Norms of Science". Science, Technology, and Human Values. Massachusetts, J. Wiley. Fall, 1983.

DEFINITION OF SCIENCE

Instead of defining science principally in terms of method or what scientists do, science is here understood as a particular kind of knowledge characterized by special social qualities: highly reliable, consensual, and public. Thus, science is the product of collective human enterprise which scientists make individual contributions to, purified and extended afterwards by mutual criticism and intellectual cooperation. As a collective human enterprise, science demands intellectual honesty, independent judgment, courage fortitude, life of academic freedom, and justice. Here we have ethical values which are hardly distinguishable from the methodological norms of scientific research. Hence, an ethical scientist must, first of all, be scientifically competent.

I acknowledge the long tradition of this view. Bacon's definition of the goals of science is still relevant on this point. Science –according to Bacon– must establish/extend the power and dominion of the human race over the universe. To do so, the scientist must cultivate liberty, be a gentleman of independent means, and seek the "good name" achieved by talent and protected by integrity and an overriding commitment to the quality and trustworthiness of work one is personally associated with.

Michael Polanyi spoke of the intense personal experience of scientific inquiry, which was necessarily undertaken by community of free/dedicated men; Karl Popper, in turn, saw science as the embodiment of intellectual honesty, realized through the principle and practice of criticism.

Robert Merton saw in the ethics of science the realization of the highest standards of civilized human behavior. Merton believed that this moral norm achieved said goals. These norms are shared only among members of the scientific community –not by society at large. They include, apart from the norm of disinterestedness: organized skepticism –or "the temporary suspension of judgment and the detached scrutiny of beliefs in terms of empirical and logical criteria"–; universalism –or the principle that claims that truth is not be judged on the basis of the "personal attributes of the authors"–; and communism –i.e., the common ownership of intellectual property, on which the author's claims are "limited to that of recognition and esteem." Zukerman holds that norms of organized skepticism are violated by "dogmatism and shoddy work"; universalism, by *ad hominem* arguments; communism, by plagiarism and secrecy; and disinterestedness, by fraud.[2]

All three identified the main dangers for science: according to Polanyi, it lay in bureaucratic direction control; Propper suggested it was in dishonesty latent in the denial of criticism; whereas for Merton, it lay in inherent conflict between the norms of co-operative scientific endeavors and those of lay society state (inner vs. outer values).

Yet, it is unlikely that the ideological bases for such a scientific ethics might continue to be found in religion/philosophy, nor its practical roots in the refinement of the code of conduct of an elite clan. Therefore, the ethical bases of future excellence in science must lie in some others ideals and experience; perhaps in humanitarian commitment, necessarily interpreted in a much more sophisticated fashion than ever before.

Zukerman appears to consider the norms of science as contractual obligations that result from accepting a position as a scientist. However, she characterizes this social contract as existing only among members of the scientific community. If these norms are to be considered special moral rules unique to a scientist –according to Goldsman's criterion– they must be able to override the moral rules that apply to everyone. And, as we have seen, they can do so only when scientists cease to be able to perform a professional function upon which

[2] Schamus, *op.cit.*, pp. 12-15.

society places a high moral value. To determine whether this is the case, it may be helpful to think of scientists as participants in a larger social contract among all members of society.[3]

On this model, the professional in general –and the academic professional in particular– by choosing to enter the profession, becomes responsible as an implied trustee for its collectively-held assistance. The assets are contributions to systematic disciplinary knowledge based on the profession, i.e. its concepts, methods, establishing results, developing theories and opening problems. As a co-trustee he/she shares in the traditional trustee's responsibilities: to preserve, to develop productively, and to make available in usable form.

But ethics is more than mere compliance with the law or regulation inherent to a scientific community of work; it is also –and, in my view, predominantly so– a matter of virtue and character. Ethics is fundamentally a question of moral integrity based on inner correction which withstands critical rational deliberation.

Let us now, then, distinguish internal from external reward, and healthy competition from unhealthy competition. Then, we shall examine specific problems and related issues such as the sense of intellectual property, the role of peer review, fraud plagiarism, and the conflict of interest.

MacIntyres's notion of a practice provides a framework in terms of how we may approach the question of what is wrong with scientific fraud. To begin with, let us examine first the differences between *internal* and what MacIntyre calls *external goods*. One difference MacIntyre points is that internal goods "can only be identified and recognized by the experience of participating in scientific work. Those who lack relevant experience are incompetent thereby as judges of internal goods."[4]

External goods may be obtained without participating in the practice, without accepting the standards of excellence and goals of the practice in question. One place to look for internal goods or reward is the "relevant experiences" of scientists. For example, there is the satisfaction the scientist derives from solving difficult puzzles. There is also the feeling of being part of a long tradition, of "standing on the shoulders of giants". There may be a search for beauty or harmony or order. And there is the satisfaction of attaining the highest degree of excellence possible. Six motives or internal rewards could be identified for players of this game: curiosity, the delights of ambiguity and uncertainty; the contest with nature; an escape from the boredom and crassness of everyday experience; aesthetic pleasure and the sheer joy that comes from exercising the intellect.

The above can be interpreted as the "existential days" of doing scientific work. These internal rewards are to be contrasted with such external rewards as money, prestige, power, and fame. Why are these external rewards presumably lesser in value? Because, in MacIntyre's view, they are objects of competition. If one person is rewarded with them, someone else will be denied them. They are limited and socially arranged rewards, contingent upon other circumstances, such as the existence of institutions that control and distribute them. Internal rewards are self-caused and external rewards are other-caused and hence, dependent upon the whims of others.

The problem of fraud/data forgery or manipulation is directly related to this difference between internal and external rewards. If the rewards system of science is structured as Zuckerman believes it to be –i.e. a competitive situation in which the rewards are institutionally-granted external rewards– then fraud, far from being controlled, will be seen by some as a possible strategy for success. Insofar as scientist believe science to be a source of

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[3] Zyckerman, H. "Norms and Deviant Behavior in Science". Science, Technology, and Human Values. Massachusetts, Wiley. Winter, 1984, pp. 7-13.

[4] As quoted on the list: "Social Deviance or Failure of Virtue". Science, Technology, and Human Values. Massachusetts, Wiley. Fall, 1985, p. 10.

external reward, to that extend the willingness to cheat is increased. The costs of being discovered as a cheat are great, but if the internal rewards of science fail, fraud should be an expected result.

If internal rewards are universally sought and external rewards are of secondary importance, then, the incidence of fraud in science and elsewhere would surely be reduced. I am not naïvely suggesting that external rewards and punishments should be abandoned; rather, I believe that they are not sufficient to deter fraud and that they may, at times, increase its likelihood.

In order to access the concrete situation in which fraud is not merely possible but also tempting, let us identify the trauma research-scientist. Although the fact of being at the "cutting edge" of a discovery sounds rather exciting, scientists' lives are often full of stress, anxiety, even guilt over their projects; with long periods of pressing demands, exhausting and often frustrating labor, interposed with occasional moments of euphoria.

The world of research is characterized by a constant search for funding, where scientists submit any number of proposals each year. Funding opportunities may come from agencies with specific guidelines and expectations. Rarely does a research grant come with "no strings attached". Research specialists must, then, make choices as to whether to pursue unknown areas out of curiosity (basic research) or to construct their research designs towards the many sources (suppose it is the Department of Defense and you are a pacifist).

Other sources of anxiety at the possibility of fraud come from the realization that your "colleagues" might get there first, The inexorable (relentless) pace of the entire research enterprise makes it almost impossible to even keep up with the pressure to succeed quickly in order to gain the reward of precedence.

"Life at the edge" is replete with criticism and peer evaluation. New discoveries must stand up to professional confirmation first and public scrutiny later. There is always the chance that you newly found theory be either incorrect, incomplete or invalid. Must "stay with it" until they witness breakthrough may find "life on the edge" to be quite stimulating.

The lab-chief system encourages not only careerism but also cynicism because, due to its structure and organization, it tends to force a disjunction between the two goals of scientists: the pursue of truth and the desire for credit.

Science may, in one sense, be a community, but in another, it is a celebrity system. The social organization of science is designed to foster the production of an elite in which prestige comes not just from the merit of work but also because of one's position within the scientific hierarchy. Members of the scientific elite control the reward system of science and, through the peer review system, have a major voice in the allocation of scientific resources. The celebrity system interferes with the normal mechanisms for communal evaluation of results, for it gives undue prominence and immunity from scrutiny to the work of the elite.

Fraud reveals not only the socio-logical structure of science but also scientific methodology. Fraud and self-deception generate incorrect data that pose a challenge to the self-corrective mechanism of science, in particular, to the verification of scientific results.[5]

The presence of a strong rational element in science has been taken to mean that it is the only significant element of scientific thought. However, creativity, imagination, persistence as well as many other non rational elements also constitute essential parts of the scientific process, together with other, less vital, qualities such as ambition, envy and the propensity of deception which also play a role. The existence of fraud in science proves non rational elements at work, both on the part of the individual who fakes data and on the part of the community accepting them.

[5] Ibid.

PLAGIARISM: TENSION BETWEEN THE ETHICS OF INNOVATION AND COMPETITION

Plagiarism, or the copying of some else's innovation, is an interesting and somewhat difficult dilemma in that is sets up and ethical conflict. There is, on the one hand, the norm of innovation stating that copying some else's work and then selling it as our own (perhaps not even attributing to the innovator any credit for the innovation) is a heartless, unfair and dishonest thing to do. We call it "plagiarism" and tend to regard it as a kind of theft. In some instances, the law agrees with the assessment.

On the other hand, there is a norm of competition in business that has historically favored allowing a manufacturer to produce imitations of successful products. The public's interest is served when there are many competitors producing desirable products, for prices are likely to be lower.

Now, different kinds of serious dishonesty in science vary greatly in the extent to which communities of scientists classify them. Of course, it is no accident that data forgery and data manipulation (fudging) are considered the capital crimes of science, more serious even than plagiarism and far more serious, for example, than claiming sole authorship in an actually collaborative research. Such judgments of seriousness are not randomly made. From an utilitarian theoretical perspective, the introduction of fraudulent evidence is more seriously at odds with the institutional goal of extending certified knowledge than is the publication of plagiarized by reliable evidence. "Plagiarism is a peccadillo compared to the mortal sin of fabrication. Knowledge of cancer may be advanced by a plagiarized report of new evidence: it is gravely damaged by fabricated evidence, whether the claim of authorship is authentic or phony." And both are taken to be more serious than the misallocation of credit for research done in collaboration. According to a deontological or Kantian perspective on duty, however, fraud, plagiarism, dishonest claims to credits and even dishonest use of research funds are all equally serious symptoms of dishonesty.[6]

[6] Ibid.

CONFLICT OF INTEREST

Many academics object that the patenting of university research results conflicts with the values of academia. Moreover, they argue such patenting has the potential to "distort" researchers to engage in research not because of its potential but to supplement their incomes. Nowadays, most universities actively encourage faculty members to patent their work doing so, in part, because universities themselves often claim rights to a portion of the royalties. Indeed, the academic mores of the early 20th century, as described by Weiner, seem quaint and old fashioned.

Weiner raises several important questions. Is there any conflict with academics patenting their research? Does the prospect of being able to patent research "distort" the academic research process? Is it necessarily bad if such a conflict exists and if research does not get distorted?

Is it really at odds with academic altruism about "pure" research for a scholar to patent an invention and then to limit its use in order to maximize the profit from those already licensed?

We must be reminded that intellectual property exists only to be available for others. Even if a scientist does his/her research in physical isolation from colleagues, his/her task is eminently social in nature. He/she depends on others, not merely for training in his/her craft, but also for the information without which he/she could do no work at all; and his/her property becomes valuable only through the explicit assessment of colleagues rather than through market.

Is it unethical for an academic research to develop a trade in secrecy and deliberately avoiding public knowledge to ensure its commercial value? It would be hard to say that no conflict exists. It would be nice if every academic would generously dedicate all of his/her valuable ideas to the public domain. Many, of course, do so and have no second thoughts. But even if such conflict exists, is it appropriate to coerce such generosity by ostracizing those who choose to patent?[7]

Scientists who wish to claim published papers as intellectual property must also accept the responsibilities entitled by such property rights. A scientist must be held accountable for any claims published under his/her name, even in articles with several authors. If a scientific paper has been accepted on the strength of the reputation of a senior author who may have actually contributed little –or nothing– to the actual research, then this practice can raise even more serious problems than fraud, insofar as such negligence on the part of senior authors might allow not only intentionally misleading but even erroneous results, reported by junior colleagues, to find their way into print. As Ward Pigman and Emmet Carmichael stated a generation ago, "Certainly no one should be granted authorship of any type merely because he has seniority or is in charge of a laboratory. The case of Phillip Feling and Vijay Soman at Yale University illustrates what can happen when this last rule is violated."

[7] Werner, Charles. "Patenting and Academic Research". Science, Technology, and Human Values. Massachusetts, J. Wiley. Winter, 1987, pp. 50-51.

PEER REVIEW

It is sometimes argued that the process of peer-review is suitable only for determining priorities in the allocation of research funding and publication and that it is less well designed for ferreting out fraud or inadequate research. Neither does peer review always give consistent results: the same research studies have been judged differently by the same adjudication.

Nevertheless, peer review of scientific research by a scientist is deemed to be essential to the scientific process. As scientists often argue, "peer review may be imperfect but it is the best system we have at the moment".

The value of referees on intellectual work is tied up with his/her reputation on the specific field and that of the journals he/she is more closely associated with. His/her own purposes are served by helping to ensure that creation of property in his/her own field is accomplished in a orderly manner, that the shares in property are allotted fairly through the acknowledgment of previous work, that the value of the property be fairly recognized also through the acknowledgment of previous work, and that the value of the property of all the members of the group is possible to determinate. The referee him/herself must be committed to something more than the mere proper practice so that the control/direction be effective. That is, he/she must be free from undue pressure and self-serving interests (either money or social prestige). A referee must be a leader of high, noble ideals.

Steneck points out that review aims to ensure adherence to standards that the peers in the field hold in common. One such standard in science is the perceived need to adhere to proper scientific method, which can be traced to two fundamental objectives: the desire to ensure that science advances as rapidly and as efficiently as possible, and the need to maintain the credibility of science, in itself essential for securing public support, for unethical behavior can stand in the way of achievement in uncovering fraud.[8]

What happens when conflicting interests arise, when unethical behavior compromises only one objective and disclosure might compromise the other? Here come across the issue of whistle-blowing. Consider, by way of example, the plight of a graduate student who believes that the research he/she is doing for a major professor is fraudulent. Should said research be found to be fraudulent, support could be terminated and the graduate student may be put out of a job. With peer view, therefore, the dictates for action regarding fraud are not always obvious.

Both psychological and bureaucratic impediments to reporting fraud are an inherent part of peer review. The heads of laboratories can persuade themselves that they are best served by keeping potential problems "at home", thus preserving perhaps the reputation of the laboratory and its funding. In some cases of fraud, this attitude has led to questionable decisions about how best to pursue an act of alleged misconduct. Similar attitudes may be found at the institutional level or even within funding agencies; it is not easy to admit a mistake –even if it is someone else's error– and most researchers are reluctant to criticize or accuse colleagues who may also be longtime friends. Thus, although fraud can be detected through peer review, it is not necessarily the only nor even the best means to ensure proper behavior in research.

Reliance on peer review also tends to assume that the only major problems that need consideration are those directly relating to the practice of science. From the standpoint

[8] Steneck, Nicholas. "The University and Research Ethics". Science, Technology, and Human Values. Massachusetts, Wiley. Fall, 1984, p. 12.

of scientist, this might be the case; however, from the standpoint of the public who supports and is affected by science, other ethical issues can be raised which may, in the long run, be of greater consequence than misconduct.

We must now recall that academics need not be professionals in the same sense as lawyers, medical doctors or psychologists are. These have grouped themselves together to regulate admission into their respective professions, to promulgate ethical standards, and to discipline their members. Academics are not members of a self-regulating profession; however, they do consider themselves to be members of a profession with a strong sense of service and special moral responsibilities.

I have no ultimate answer to offer on the question of whether academics have the duty to report the misconduct of their colleagues and students to the pertinent authorities. My objective now is simply to inspire fellow academic professionals to think seriously about the issue. Do we want to impose a professional or a legal duty upon members of the profession to report misconduct or do we want to leave the decision to individual discretion? What do we think of "whistle-blowers"? Forced reporting often smacks of totalitarianism. One need only think of the McCarthy era for a parade of horror, a period in which an academic was asked to inform on another. Forced reporting may imply important first amendment rights, such as the right not to speak –rights now secured but only after years of painful litigation.

On the other hand, we would never have disclosed Watergate or the Iran-Contra scandal were it not for whistle-blowers. Recent examples of fraudulent research and plagiarism by academics were uncovered only because of the persistence of other academics. If we are to encourage or require such reporting, are we prepared to protect those persons who come forward either from job harassment or from allegations of defamation that may follow? How are we to distinguish whistle-blowing as morally permissible from the mere disclosure for the sake of revenge out of jealousy or sensationalism?

Then, assuming there is a duty to report, to whom must one make the report? Is it sufficient to alert one's head of department or the university administration? Should one also inform law enforcement authorities, state licensing bodies, or prospective employers?

There is also the question of what must be reported. The Himmel court exempted privileged information. The law recognizes that lawyers, medical doctors, and the clergy have a privilege not to disclose information given to them in confidence. The AAUP "Statement on Professional Ethics" requires that privilege for professors and students. Yet the law in general does not recognize a professor-student privilege for confidential communications. Can we then speak realistically of confidentiality in communication if it is given no legal protection? If legal protection is to be given, how much should be given? When should professor-student communications be deemed confidential?

Finally, we also need to consider what sort of information should trigger disclosure. Should disclosure to appropriate authorities be made whenever a colleague or a student has done something wrong or only when conduct concerns illegal activities involving moral turpitude? Should one report misconduct based upon mere suspicion or, at the other extreme, only when one is morally certain that a wrong has been committed?[9]

At this point there only remains the following to be added: Ethics is not just existential commitment to a set of values nor a legal capacity, but more so a critical reflection, an assessment of the proper objectives of scientific work and of the responsibilities towards a society that trusts and places its hope in scientific integrity and in the pursuit of truth.

[9] Perspectives - Cep. Illinois Institute of Technology - Chicago. August 1989, p.7.