105th FoCARS
Foundation Course For Agricultural Research Service

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- Overview of HRM in Indian NARS
- Time Management
- Interpersonal Behaviour & Relationships
- Leadership styles
- Motivation
- Stress: Assessment and Management
- Group Dynamics & Teamwork
- Transactional Analysis
- Creativity and Problem Solving
- Emotional Intelligence
- Groups in Organization
- Presentation Skills
- Ethics in Agricultural Research
Course Coordinators
K. Kareemulla and S. Ravichandran

Support Team
P. Krishnan and P. Namdev
ETHICS IN AGRICULTURAL RESEARCH

P. Ramesh

I. Ethics: Meaning and Origin

Ethics or moral philosophy is a branch of philosophy that involves systematizing, defending, and recommending concepts of right and wrong conduct. The term ethics derives from the ancient Greek word “ethikos”, which is derived from the word “ethos” (habit, "custom"). As a branch of philosophy, ethics investigates the questions "What is the best way for people to live?" and "What actions are right or wrong in particular circumstances?" In practice, ethics seeks to resolve questions of human morality, by defining concepts such as good and evil, right and wrong, virtue and vice, justice and crime. As a field of intellectual enquiry, moral philosophy also is related to the fields of moral psychology, descriptive ethics, and value theory. Three major areas of study within ethics recognized today are:

*Meta-ethics*, concerning the theoretical meaning and reference of moral propositions, and how their truth values (if any) can be determined.

*Normative ethics*, concerning the practical means of determining a moral course of action.

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1 Principal Scientist, HRM Division, NAARM
**Applied ethics**, concerning what a person is obligated (or permitted) to do in a specific situation or a particular domain of action.

II. Ethical Issues in Scientific Research

Research ethics involves the application of fundamental ethical principles to a variety of topics involving research, including scientific research. These include the design and implementation of research involving human experimentation, animal experimentation, various aspects of academic scandal, including scientific misconduct (such as fraud, fabrication of data and plagiarism), whistleblowing; regulation of research, etc. Research ethics is most developed as a concept in medical research. The key agreement here is the 1964 Declaration of Helsinki. The Nuremberg Code is a former agreement, but with many still important notes. Research in the social sciences presents a different set of issues than those in medical research.

The academic research enterprise is built on a foundation of trust. Researchers trust that the results reported by others are sound. Society trusts that the results of research reflect an honest attempt by scientists and other researchers to describe the world accurately and without bias. But this trust will endure only if the scientific community devotes itself to exemplifying and transmitting the values associated with ethical research conduct.

There are many ethical issues to be taken into serious consideration for research. Sociologists need to be aware of having the responsibility to secure the actual permission and interests of all those involved in the study. They should not misuse any of the information discovered, and there should be a certain moral responsibility maintained towards the
participants. There is a duty to protect the rights of people in the study as well as their privacy and sensitivity. The confidentiality of those involved in the observation must be carried out, keeping their anonymity and privacy secure. All of these ethics must be honored unless there are other overriding reasons to do so - for example, any illegal or terrorist activity.

Research ethics is different throughout different types of educational communities. Every community has its own set of morals. In Anthropology research ethics were formed to protect those who are being researched and to protect the researcher from topics or events that may be unsafe or may make either party feel uncomfortable. It is a widely observed guideline that anthropologists use especially when doing ethnographic fieldwork.

Research informants participating in individual or group interviews as well as ethnographic fieldwork are often required to sign an informed consent form which outlines the nature of the project. Informants are typically assured anonymity and will be referred to using pseudonyms. There is however growing recognition that these formal measures are insufficient and do not necessarily warrant a research project 'ethical'. Research with people should therefore not be based solely on dominant and de-contextualized understandings of ethics, but should be negotiated reflexively and through dialogue with participants as a way to bridge global and local understandings of research ethics. Furthermore, it is the researchers’ ethical responsibility to not harm the humans they are studying; they also have a responsibility to science, and the public, as well as to future students.
Scientific Misconduct

Scientific misconduct is the violation of the standard codes of scholarly conduct and ethical behavior in professional scientific research. A Lancet review on Handling of Scientific Misconduct in Scandinavian countries provides the following sample definitions:

Danish definition: "Intention or gross negligence leading to fabrication of the scientific message or a false credit or emphasis given to a scientist"

Swedish definition: "Intentional distortion of the research process by fabrication of data, text, hypothesis, or methods from another researcher's manuscript form or publication; or distortion of the research process in other ways."

The consequences of scientific misconduct can be damaging for both perpetrators and any individual who exposes it. In addition there are public health implications attached to the promotion of medical or other interventions based on dubious research findings.

Motivation to commit scientific misconduct

According to David Goodstein of Caltech, there are motivators for scientists to commit misconduct, which are briefly summarized here:

Career pressure

Science is still a very strongly career-driven discipline. Scientists depend on a good reputation to receive ongoing support and funding, and a good reputation relies largely on the publication of high-profile scientific papers. Hence, there is a strong imperative to "publish or perish". Clearly, this may motivate desperate (or fame-hungry) scientists to fabricate results.
Ease of fabrication

In many scientific fields, results are often difficult to reproduce accurately, being obscured by noise, artifacts, and other extraneous data. That means that even if a scientist does falsify data, they can expect to get away with it – or at least claim innocence if their results conflict with others in the same field. There are no "scientific police" who are trained to fight scientific crimes; all investigations are made by experts in science but amateurs in dealing with criminals. It is relatively easy to cheat although difficult to know exactly how many scientists fabricate data.

Forms of scientific misconduct

The U.S. National Science Foundation defines three types of research misconduct: fabrication, falsification, and plagiarism.

Fabrication is making up results and recording or reporting them. This is sometimes referred to as "drylabbing". A more minor form of fabrication is where references are included to give arguments the appearance of widespread acceptance, but are actually fake, and/or do not support the argument.

Falsification is manipulating research materials, equipment, or processes or changing or omitting data or results such that the research is not accurately represented in the research record.

Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit. One form is the appropriation of the ideas and results of others, and publishing as to make it appear the author had performed all the work under which the data was obtained. A subset is citation plagiarism – willful or negligent failure to
appropriately credit other or prior discoverers, so as to give an improper impression of priority. This is also known as, "citation amnesia", the "disregard syndrome" and "bibliographic negligence". Arguably, this is the most common type of scientific misconduct. Sometimes it is difficult to guess whether authors intentionally ignored a highly relevant cite or lacked knowledge of the prior work. Discovery credit can also be inadvertently reassigned from the original discoverer to a better-known researcher.

**Plagiarism-Fabrication** - the act of taking an unrelated figure from an unrelated publication and reproducing it exactly in a new publication (claiming that it represents new data).

**Self-plagiarism** – or multiple publication of the same content with different titles and/or in different journals is sometimes also considered misconduct; scientific journals explicitly ask authors not to do this. It is referred to as "salami" (i.e. many identical slices) in the jargon of medical journal editors (MJE). According to some MJE this includes publishing the same article in a different language.

**Ghostwriting** – the phenomenon where someone other than the named author(s) makes a major contribution. Typically, this is done to mask contributions from drug companies. It incorporates plagiarism and has an additional element of financial fraud.

Conversely, research misconduct is not limited to not listing authorship, but also includes the act of conferring authorship on those that have not made substantial contributions to the research. This is done by senior researchers who muscle their way onto the papers of inexperienced junior researchers as well as others that stack authorship in an effort to guarantee
publication. This is much harder to prove due to a lack of consistency in defining "authorship" or "substantial contribution".

In addition, some academics consider suppression—the failure to publish significant findings due to the results being adverse to the interests of the researcher or his/her sponsor(s)—to be a form of misconduct as well.

**Bare assertions** – making entirely unsubstantiated claims - may also be considered a form of research misconduct although there is no evidence that cases of this form have ever led to a finding of misconduct.

In some cases, scientific misconduct may also constitute violations of the law, but not always. Being accused of the activities described in this article is a serious matter for a practicing scientist, with severe consequences should it be determined that a researcher intentionally or carelessly engaged in misconduct. However, in most countries, committing research misconduct, even on a large scale, is not a legal offense.

**III. Agricultural Ethics & Sustainable Agriculture**

The focus of ethical concern in the biomedical field is on behaviour that is generally agreed to be right or wrong, such as the misconduct identified by the panel described previously. In a sense, ethical concern in the biomedical field was very inwardly focused. The published literature on agricultural ethics, however, is much more outwardly focused, addressing much more controversial issues, especially the selection of subject matter for research (Thompson, 1988). Sustainable agriculture played a key role in sensitizing agronomists to ethical issues in research and development. The following are some of the ethical issues related to the selection of research projects for sustainable agriculture in the world:
Technologies that damage the environment
Consume inordinate amounts of natural resources
Render small, family farms less able to compete in highly competitive markets
Unduly influenced by private sponsors of research – fertilizer/pesticide/seed companies.
Research on certain subjects, including products or services that might do harm to the environment or make food unsafe
Research on technologies that might cause dislocation among farmers

IV. Ethics in the Conduct of Agricultural Research

This includes how do we develop and test hypothesis, marshall data, draw and report inferences, engage in rational discourse and work with colleagues and students in an ethical manner. The following issues are involved in the ethical consideration of conducting research in agriculture (Don Holt, 1997):

A. Initiating Research
   - Selecting topic for research
   - Designing experiments
   - Collecting and reporting data
   - Analyzing data
   - Drawing and reporting inferences
   - Establishing and maintaining credibility

B. Ethics and Scientific Documents
   - Preparing proposals
   - Proposal budgets
Indirect cost recovery
Peer review
Authorship and shared recognition

C. Whistle – Blowing
A whistle-blower is a person who exposes any kind of information or activity that is deemed illegal, unethical, or not correct within an organization that is either private or public. The information of alleged wrongdoing can be classified in many ways: violation of company policy/rules, law, regulation, or threat to public interest/national security, as well as fraud, and corruption. Those who become whistleblowers can choose to bring information or allegations to surface either internally or externally. Internally, a whistleblower can bring his/her accusations to the attention of other people within the accused organization. Externally, a whistleblower can bring allegations to light by contacting a third party outside of an accused organization. Whistleblowers can reach out to the media, government, law enforcement, or those who are concerned but also face stiff reprisal and retaliation from those who are accused or alleged of wrongdoing.

D. Conflict of Interest
A potential conflict of interest arises when a scientist is in a position to use his position and the influence associated with it for personal gain beyond the contractual compensation associated with the position or to benefit disproportionately within his organization or system.
E. Intellectual Property Rights (IPR)

Increasingly, public institutions and agencies are expanding and improving systems to identify and protect intellectual property generated in their research operations. This represents a significant cultural as well as administrative change in many public institutions, particularly universities. Transferring intellectual property to the public domain, thus making it freely available to all members of the public, is not always in the public’s best interest. Sometimes, in order to assure that useful new information and technology will be commercialized and thus benefit the public, it is necessary to give some individual or group propriety access to it. The following three issues are involved in the intellectual property rights based on the situation:

- Patent and Copyright Infringement
- Ethics and Trade Secrets
- Nondisclosure Agreements

V. Ethics in Research Administration

There are important ethical dimensions to many if not all administrative/management activities and decisions. Administrative issues are important because they often directly affect people’s careers and lives. Administrative decisions often involve large sums of money and long-term commitments. Administrators are entrusted with other people’s money and careers and are expected to manage them ethically. The following issues are involved in the ethical administration of agricultural research:
Ethical Hiring and Termination

It is in the best interest of both public and private institutions and organizations to attract and retain the best employees. In the University setting, it is particularly important to attract and retain outstanding faculty who can and will compete effectively for resources. The process of attracting, hiring and retaining outstanding people is a competitive activity. The general ethical considerations associated with competition apply. It is ethical to compete vigorously within a system of rules and codes that establish the boundaries of ethical behaviour.

It is sometimes necessary to terminate employment of an employee because of wrongdoing or perceived deficiencies in his/her performance. This is a case of weighing the bad effects of on the employee with the bad effects on the organization and other employees if the employee is not terminated.

Nurturing Scientists

It is useful and practical for organizations that hire people into what are expected to be permanent position to nurture their careers. This often involves assigning mentors from among successful, experienced employees. If career nurturing is successful, it will help employees and save the organization money and frustration. Nurturing may involve counseling an employee to seek there, more suitable employment inside or outside the organization.

Fair Evaluation

Agricultural researchers and administrators often find themselves in positions in which they must evaluate the performance of others, or be evaluated themselves. Important decisions, including hiring and
termination, promotion and tenure and salary increments, hinge on evaluation. The following issues are involved in fair evaluation of the employees:

- Activity Reports
- Letters of Recommendations, Support and Evaluation
- Promotion Documents and Decisions
- Job Applications
- Evaluating Administrators/Managers
- Equity and Merit

VI. Ethical Guidelines in Indian Science and Research

- India does not have a statutory body to deal with scientific misconduct in academia, like the Office of Research Integrity in the US, and hence cases of plagiarism are often dealt in ad-hoc fashion with different routes being followed in different cases.

- In most cases, a public and media outcry leads to an investigation either by institutional authorities or by independent enquiry committees.

- The authors responsible for plagiarism have been at the receiving end of some severe punishments including suspension, removal and demotion.

- However, no fixed route has been prescribed to monitor such activities. This has led to calls for establishment of an independent ethics body.

- The Society for Scientific Values is an independent body of scientists with the goal of upholding ethics in the Indian Scientific community. In absence of a statutory body to investigate academic
misconduct, the society has been acting as an independent watchdog over the years.

- The Indian Council of Medical Research (ICMR), in 1980, released a ‘Policy Statement on Ethical Considerations involved in Research on Human Subjects’. This was the first policy statement giving official guidelines for establishment of ethics committees (ECs) in all medical colleges and research centres.


VII. Practical Principles of Ethical Behavior in Scientific Research

1. **Scientific Honesty:** Do not commit scientific fraud, i.e. do not fabricate, fudge, trim, cook, destroy, or misrepresent data.

2. **Carefulness:** Strive to avoid careless errors or sloppiness in all aspects of scientific work.

3. **Intellectual Freedom:** Scientists should be allowed to pursue new ideas and criticize old ones. They should be free to conduct research they find interesting.

4. **Openness:** Share data, results, methods, theories, equipment, and so on. Allow people to see your work, be open to criticism.

5. **The principle of credit:** Do not plagiarize the work of other scientists, give credit where credit is due (but not where it is not due).

6. **The principle of public responsibility:** Report research in the public media when:

   a) The research has an important and direct bearing on human happiness and
b) The research has been sufficiently validated by scientific peers.

References


Further Reading
