

## **GUIDELINES FOR THE PREVENTION, HANDLING AND INVESTIGATION OF MISCONDUCT AND FRAUD IN SCIENTIFIC RESEARCH**

According to the Decree on the Research Ethics Council issued by the Government of Finland (Decree No. 1347/1991), the function of the Council is to further the discussion and public awareness of research ethics as well as to take the initiative in achieving progress regarding the research ethics area. The following guidelines have been drafted under the auspices of the Decree. During the first half of the year 1998 most Finnish universities and research institutions have signed the statements indicating their willingness to follow these guidelines.

### **Background**

During the last few years the international scientific community has been engaged in a lively discussion regarding fraud and misconduct in science and the search for adequate measures to prevent it and limit its serious consequences for science. Competition for status and position in the scientific community has in some cases led to the use of dishonest means for gaining scientific prestige or other benefits.

The first Finnish guidelines in this area were formulated in 1994. Those guidelines provided a foundation for the present guidelines, which share the common objective of ensuring fair treatment of all parties. In developing the guidelines, due weight has been given to international discussion and experience concerning not only the protection of the researcher under suspicion, but also the protection of the informant and the experts involved.

Various difficulties in interpretation have necessitated a more detailed definition of misconduct in science and of fraud in scientific research. Achieving uniform definitions has, however, proven to be problematic. For example, drawing a clear line between misconduct in science and scientific fraud is not always possible. In addition, the differences between various disciplines and between the interpretations of what constitutes good scientific practice make determination of general definitions difficult.

It is in the best interests of society and of the scientific community that all suspected deviations from good scientific practice are thoroughly examined. These guidelines, drafted by the National Advisory Board on Research Ethics for the prevention, handling and investigation of misconduct and fraud within the scientific communities, are particularly pertinent to scientific research performed in Finnish universities and other research institutes. They should also be utilised, when applicable, in regard to research performed at other institutions in Finland. The scientific community should take into account that these guidelines are subject to legislative measures such as legislation on intellectual property, criminal liability, procedures in administrative affairs, public records and all human rights conventions.

### **Definitions**

**Misconduct in science.** The reliability and dignity of scientific research are based on the expectation that researchers comply with good scientific practice. Such good scientific practice consists of adherence to procedures accepted by the scientific community, general conscientiousness and accuracy in the performance of research and presentation of results, appropriate acknowledgement of the work and achievements of others, honest presentation of the researcher's own results and respect for the principles of openness and controlled procedures of science. Each discipline has its own relevant characteristics.

Violations of good scientific practice are regarded as blameworthy; they result in harmful effects upon both the quality of research and the performance of the scientific community. Among other things, violations of good scientific practice include underestimation of the contribution of other scientists in one's own publications, insufficient reference to results achieved earlier, sloppy and therefore potentially misleading reporting of methods or results, inadequate documentation and insufficient preservation of

data, covert duplicate publication and any conscious attempt to mislead the general public with regard to the work of the researcher in question.

**Fraud in scientific research.** Scientific fraud is defined as the presentation to the scientific community of fabricated, falsified or misappropriated observations or results, for example in a presentation held in a scientific meeting, a manuscript written for the publication or a research-grant application. Fabricated observations are invented observations not based on the methods presented in the research report. Fabrication also includes reporting entirely imaginary results based on no actual observations.

Falsification of scientific observations is defined as intentional alteration of data or the presentation of observations in a manner, which alters the end result. Falsification of results means altering or selecting the results of the research in a scientifically unjustifiable manner. Falsification thus also involves the exclusion from a report of results essential to the findings of the research.

Also included in scientific fraud is the adoption of the original research idea, a research plan or research observations of another researcher (misappropriation); or the presentation, either as a whole or in part, of a research plan, a manuscript, article or other text create by another researcher as if it originated from the researcher in question (plagiarism).

In committing scientific fraud, the researcher may also be guilty of an action illegal according to the law.

The definition of fraud in scientific research does not, however, include genuine disagreement in scientific interpretation and in discussion of results.

### **Responsibility for Preventing Misconduct and Fraud in Science**

The responsibility for the prevention of misconduct and fraud in science lies with the scientific community, primarily with the researchers themselves and the directors of the research group or the research unit.

In all scientific organisations the consistent strengthening of good scientific practice is of great importance. One essential is the establishment of quality assessment systems. The teaching of good scientific practice and of research ethics should be included in all academic education, at both the undergraduate and the postgraduate level. In addition, the scientific associations and the research institutions bear the responsibility for maintaining and furthering good scientific practice. The system of peer review applied in scientific publishing also serves to prevent scientific misconduct and fraud.

### **Procedures and Guidelines**

Three principles are essential in order to ensure the fair treatment of all involved parties: impartiality, the hearing of all parties and the promptness of the process. The rector of the university or the director of the research institution makes all decisions as to commencement of the inquiry and the investigation, and is responsible for decision-making throughout the process. In performing these activities, he or she is to take into account the provisions of the Act on Procedures concerning Administrative Affairs (Statute No. 598/1982). In the following, all that applies to universities and their rectors applies also to research institutions and their directors.

**1.** Any suspicion of fraud or misconduct in science must be communicated to the rector of the university in the form of a written notice. The rector has the discretion as to whether suspicions presented in any other form shall receive consideration. In the case of a false accusation, the rector shall decide upon the measures to be taken.

- 2.** The rector decides upon the commencement of an inquiry. In the case of an affirmative decision, this inquiry shall be carried out within the next 60 days following receipt of the written notice. A decision to carry out an inquiry and its grounds must be conveyed immediately to the researcher concerned. The rector is also responsible for collecting necessary background material for the inquiry and for hearing the informant, the researcher concerned and any other persons deemed necessary. These matters shall all be handled in confidence.
- 3.** All parties shall receive notice of the summary of the completed inquiry from the rector of the university, along with the rector's request for responses.
- 4.** If the suspicion of misconduct or fraud proves to be unfounded, the rector of the university makes the decision to terminate the procedure. The informant and the researcher concerned are to be notified of the termination, and notice of it can be published at the request of the researcher accused.
- 5.** If, based on the inquiry, the rector comes to the decision that the researcher has not acted in accordance with good scientific practice but has not been involved in scientific fraud, any further measures will be left to the rector's discretion. If the researcher concerned gives reasonable grounds for requesting an investigation, an investigation must, however, still be undertaken according to the procedures described below.
- 6.** When the inquiry does not remove suspicions of scientific fraud, the rector shall conduct an investigation. The rector invites specialists to form a panel of experts, one of whom to be nominated as the chairperson. This panel must comprise specialists in the discipline in question, judicial experts and other specialists as necessary. Not all of the members of the expert panel can be from the university in question. With regard to bias, the nomination of the panel of experts must comply with the provisions of the Act on Procedures concerning Administrative Affairs.
- 7.** The investigation shall be conducted as speedily as possible. If the panel of experts has not completed the investigation within 120 days of its assignment, it must deliver an explanation to the rector of the university. The rector will then decide on any necessary extension to the term.
- 8.** The rights of the informant and the researcher concerned, as well as the adequacy of the process in general, must be given the highest priority during both the inquiry and the investigation.
- 9.** The final report of the investigation is a public document unless the law on public records includes restrictions. The final report must include:

  - an explanation of the research or activity concerned as well as the grounds for the suspicion
  - a substantiated evaluation by the panel of experts as to whether the researcher in concern has been guilty of scientific fraud or misconduct in science
  - a substantiated evaluation by the panel of experts as to the kind of fraud or misconduct in question
  - a substantiated evaluation by the panel of experts as to the severity, recurrence and the degree of the intention or negligence involved in the activity, as well as a statement of measures of redress suggested
  - an activity report by the expert panel.
- 10.** The rector of the university shall examine whether the investigation has produced grounds for sanctions; he or she will make a decision on implementation of any sanctions.

**11.** In the consideration of possible sanctions, the severity, recurrence and the degree of intention or of negligence involved must be taken into account, as well as the scope of the inappropriate activity.

If the investigation produces the conclusion that the activity under suspicion has been fraudulent, a summary of the investigation report shall be published in a manner considered appropriate by the expert panel. With regard to research results, which have appeared in a scientific publication, an attempt must be made to issue the summary of the investigation report in a manner comparable to that of the publication involved. The summary must include those research results and articles for which the panel of experts have requested a retraction.

In addition to this retraction, potential sanctions may include initiation of criminal proceedings or disciplinary sanctions by public officials as stated in the current law. Additional measures may be provided by legislation governing employment, and may include sanctions on research funding. The rector shall implement these sanctions taking into account the particulars of each case and handling them within the framework of appropriate legislation or administrative regulations.

**12.** If the investigation reaches the conclusion that neither fraud nor misconduct is involved, the rector shall furnish a signed document stating such findings for the use of the researcher concerned. In addition, at the request of the researcher, the findings shall be issued in an appropriate publication.

**13.** The rector of the university shall without delay send to the National Advisory Board on Research Ethics a report of the decision on the commencement of the proceedings and shall send a summary of the inquiry with all possible responses attached. In the case of a false accusation, the rector shall send to the Council the decision on termination of the proceedings. In either case the Council receives a summary of the investigation report, unless otherwise stated in the regulations, on secrecy. If the researcher in question is employed by a research institution other than the university where the case is under investigation (such as the Academy of Finland), and that employment involves scientific research, the summary of the investigation report shall also be sent to that employer.

**14.** If either the researcher in question or the informant is dissatisfied with the proceedings or with the result of the investigation, he or she can request an opinion from the National Advisory Board on Research Ethics. The Council shall deal with the matter without delay and offer a resolution, addressed to the requesting party, the findings of which shall also be sent on to the rector of the university concerned. If the results of the inquiry or the investigation are to give rise to any additional investigation, the National Advisory Board on Research Ethics may discuss this fact with the rector of the university.