

A collection of items including a chessboard, medals, a compass, and glasses. The chessboard is in the top left corner, featuring a red and blue checkered pattern with several pieces. Below it are two medals: one with a red ribbon and a circular emblem, and another with a blue ribbon and a circular emblem. A silver compass is in the bottom left corner. A pair of gold-rimmed glasses is in the center, with a thin metal rod extending from the right lens towards the right side of the page.

ETHICS IN SCIENTIFIC & TECHNICAL COMMUNICATION

Hemanthi Ranasinghe

Sri Lanka

Why Ethics is Important in Science ?

- ◆ The quality of science is manifest in the quality of output of the scientific work.
- ◆ This depends upon the processes that go into the output of work including
 - The quality of scientists
 - Their intellectual abilities, attitudinal changes and manual & other skills
 - Freedom and support they receive from the working environment





Code of Ethics for scientists and scientific institutions

- ◆ Behave in accordance with the highest standards of professionalism
- ◆ Show primarily a concern for the well-being and happiness of all beings
- ◆ Regard fulfillment of the basic needs of people as a primary goal of their work
- ◆ Conduct work with complete honesty and transparency
- ◆ Work towards the achievement of scientific culture among themselves and the people
- ◆ Encourage scientific activity done by fellow scientists and institutions
- ◆ Be bound by the laws of the land

Why reporting is so crucial in science

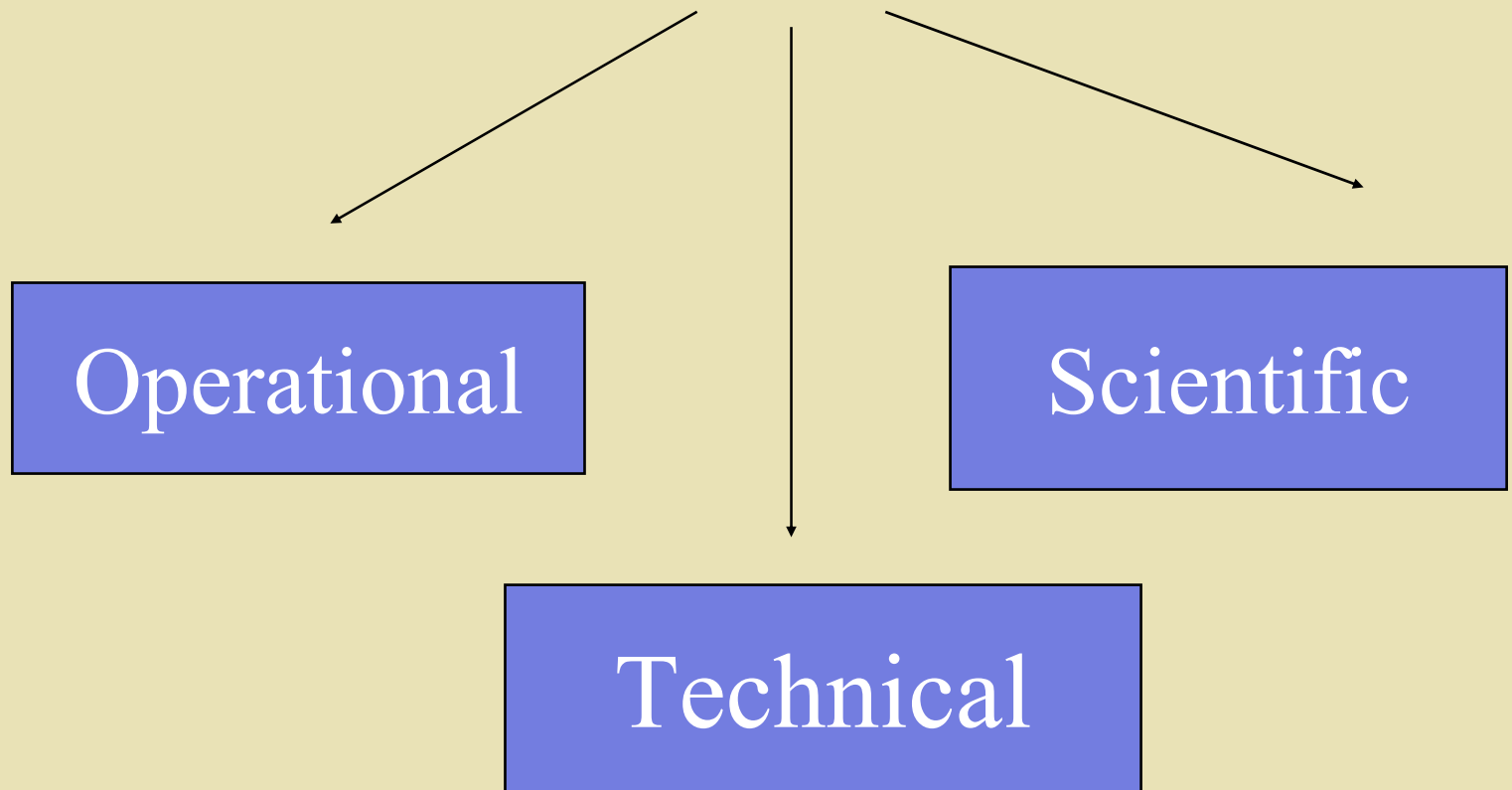


◆ Science is

- Not an individual experience but a social enterprise
- Takes place within a broad social and historical context, which gives substance, direction and ultimately meaning to the work of individual scientists



The Success of Research





◆ Operational Success

- When research objectives are achieved

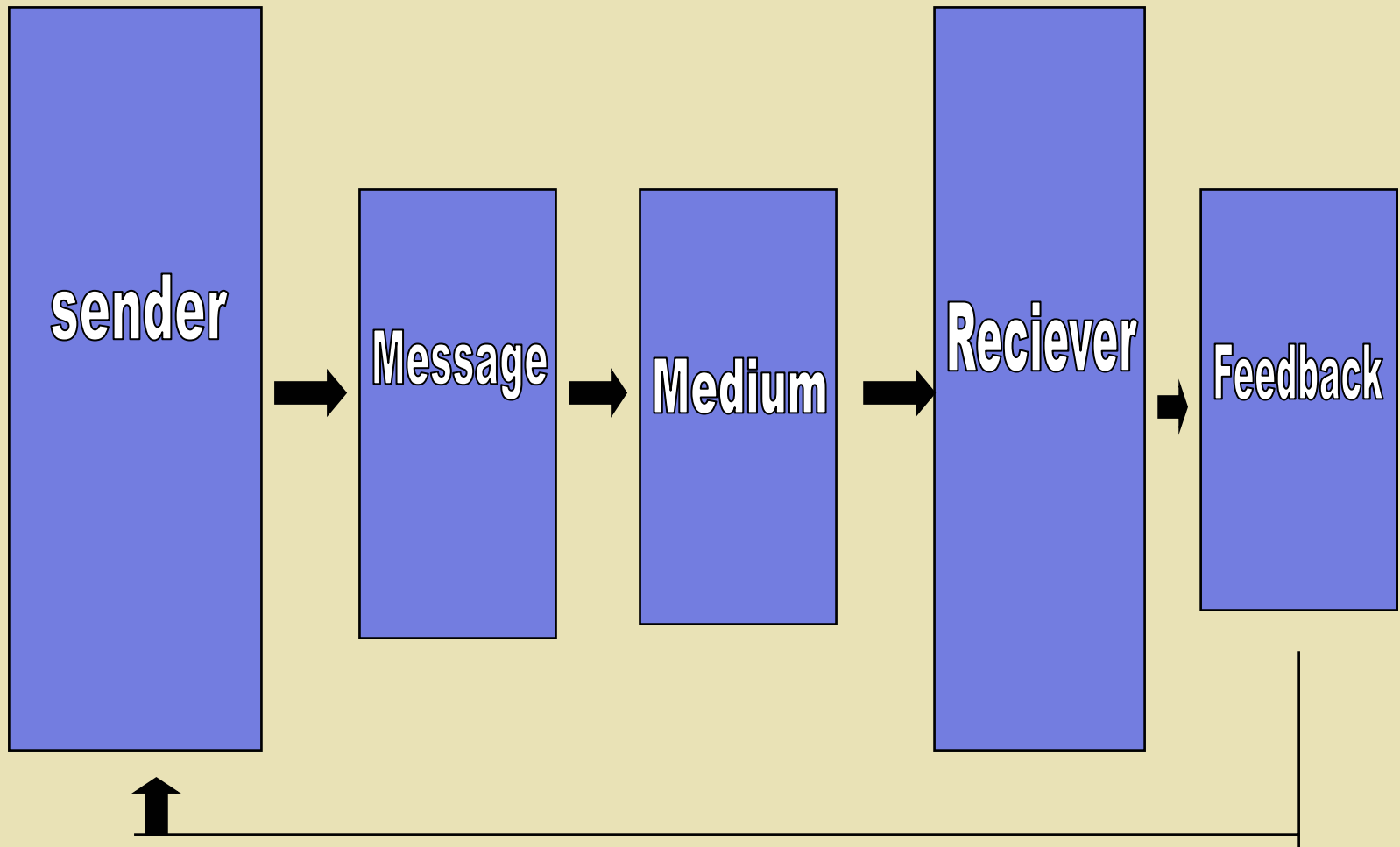
◆ Technical Success

- When researcher's understanding is enhanced
- More comprehensive hypotheses developed
- Lessons learnt from experience

◆ Scientific Success

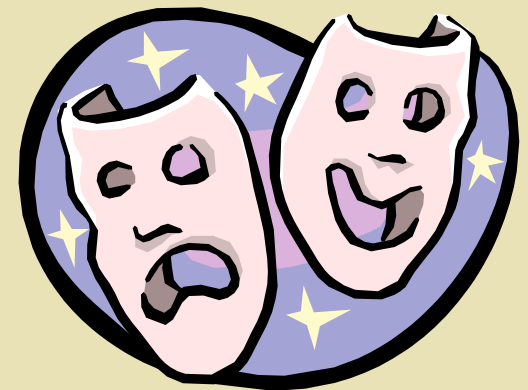
- Issues, processes and findings are made known to the scientific community


A communication model



Types of unethical conduct in scientific and technical communication

- ◆ Errors & Negligence in Science
- ◆ Misconduct in Science





Errors and Negligence in Science

Arise due to

- Haste
- Negligence or carelessness
- Restraint of funds/time etc.
- Need to make a string of publications

◆ Outcomes

- Work published in least publishable units that does not relate the entire research
- Work that does not meet the accepted standards in science
- Duplication of the same research in more than one journal/publication

Consequences

- ◆ Condemnation by peers, superiors for substandard work
- ◆ Other publications of the same author/s will also be measured from the same yardstick.



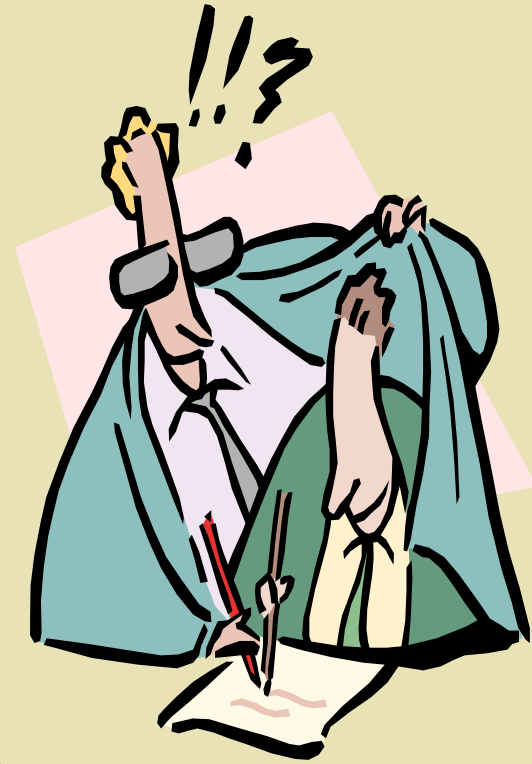


How to deal with this

- ◆ Don't falsify data or state as truth something you know to be false
- ◆ Don't deliberately misrepresent the facts
- ◆ Distinguish between facts and opinions
- ◆ Always check the facts
- ◆ Don't assume that what an 'expert' has said is the truth; experts can make mistakes too
- ◆ Don't use loaded words eg. 'admitted' instead of 'said'
- ◆ Don't sensationalize using loaded words

Misconduct in Science

- ◆ Fabrication of data
- ◆ Falsification of data
- ◆ Plagiarism
- ◆ Duplication
- ◆ Least Publishable units



Falsification

- ◆ To make alternations on research materials, equipment, operations, research records and data in a manner leading to different results
- ◆ Quite similar to the acts arising from errors and negligence in science



Fabrication

- ◆ To produce, report or publish data which are not obtained in the research
- ◆ Making up data or results to suit a hypothesis
- ◆ Often carried out when the differing observations in the results cannot be explained properly



Consequences of Falsification and Fabrication

- ◆ Impacts are both internal and external to the scientific community
- ◆ Can harm the public if the results are used for treatment eg. Medical field..
- ◆ Public loses the faith in science
- ◆ Involves not only scientific community but outsiders including media, courts, private sector etc.



Plagiarism

- ◆ To use someone else's ideas, methods, data, texts or figures without giving due credit including
 - reference
 - permission
 - acknowledgement
- ◆ Omission of the names who significantly contributed to the research/article or involving in unauthorized authorship practice or changing the order of authors without the written consent of all co-researchers/co-authors



Some examples

◆ Cultural differences

- When it is obligatory for the head of a group to put his name on a paper, even if he hasn't done much or perhaps any of the laboratory work

VS

- The actual researchers to publish under their own name and acknowledge the 'boss' by way of a foot not at the end of the paper



Individual vs Team Work



Some concerns.....

- ◆ Should authorship appear according to the contribution in a descending order ?
- ◆ Should all the members of the Team be considered equal and rotate names in the publications ?
- ◆ To list the names of authors in alphabetical order ? (as in some journals)





Consequences of these practices

- ◆ Superiors receive authorship status for work carried out completely by their subordinates.
- ◆ Some subordinates are completely denied authorship credit (eg. Graduate students...)
- ◆ Due to arranging the co-authors names in alphabetical order in some journals, surnames starting with later letters never contribute to them
- ◆ The reader do not have any idea of the contribution of other authors to the work
- ◆ First author's name will be remembered along with the publication if the co-authors are not well known



How can we overcome Plagiarism

- ◆ ‘Authorship is akin to success and achievement. It cannot and should not deteriorate into a bargaining tool or commodity’
- ◆ Neither power not status should be determinants of credit assignment

It is unethical to give co-authorship someone of higher status in ones’ organization unless he makes a substantial contribution to the project



- ◆ Frank and early discussion of the division of credit within research groups as early in the research process as possible and preferably at the very beginning

In multiple authored publications, the contribution of each author should be explained in a footnote.

- ◆ Authorships should not be given out of gratitude or deference to persons of higher status

Who should be considered as authors ?

- ◆ Those who had contributed in the generation of ideas, planning and conducting the research
- ◆ Paid personnel below the doctoral level who are part of the research team are entitled to the same credit as doctoral-level participants.
- ◆ The persons whose contribution also includes planning the study or writing it up



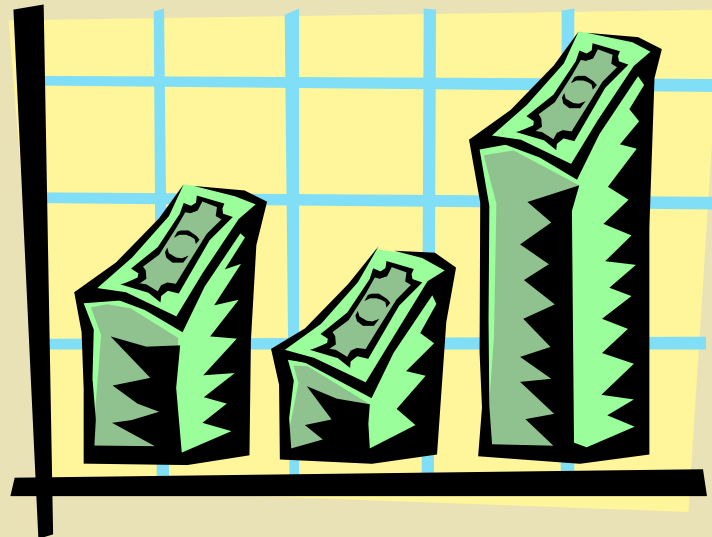
Who are not authors but deserve credit for their contribution ?

- ◆ Those whose activities that do not affect the scientific character of the study eg. Computer programmers, data analysts, clerks etc.
- ◆ Colleagues who provides assistance for a small portion of the study which requires his professional skill.



Least Publishable Units

- ◆ To produce multiple publications by dividing research results into groups in a manner to damage the integrity of the work



Duplication


- ◆ To publish (or submit for publication) the same research results in more than one journal



How do we classify a case as an 'unethical conduct'

- ◆ Such incident should have been committed deliberately or as a result of a serious negligence
- ◆ The claim has to be examined by the Investigation Commission and must be proven with concrete and sufficient evidence





The role of the Scientific Organisation in the promotion of ethics

- ◆ All organisations should have its own ethics committee and publications issues should be dealt with by them
- ◆ Research system should act to these pressures
 - Institutions must revise their own policies
 - Foster awareness of research ethics, ensure that researchers are aware of policies in place
- ◆ Researchers should be aware of the extent of which ethically based decisions will influence their success as scientists



Sanctions of proven unethical conduct in TUBITAK

(The Scientific and Technical Research
Council of Turkey)



- ◆ All the ongoing projects of a researcher, whose unethical conduct has been verified by the Council would be cancelled
- ◆ Decision to be cancelled will be notified to all institutions, the principle investigator and other researchers of the cancelled project work
- ◆ No assignment or support in connection with the Council will be given to those convicted by an unethical conduct charge for a period of. 5 years as of the date of decision



- ◆ The convicted cannot make publications in the journals and books of Council and cannot make any presentations in the journals and books of the Council
- ◆ Any published article where violation of publication ethics has been verified will be retracted and the decision will be published in the journal together with its justification
- ◆ Previous Council supported projects and the publications in the council journals of those who are proved to have violated publication ethics may be subjected to investigation if deemed necessary



- ◆ Authors who are convicted by publication ethics violation and the nature of violation shall be notified in writing to the institutions, they work for or are members of and to the journals concerned (for the purpose of announcement of duplication)



Code of ethical communication in scientific and technical information

- ◆ Use language and visuals with precision
- ◆ Prefer simple, direct expressions of ideas
- ◆ Satisfy the needs for information not my own need for self expression
- ◆ Hold oneself responsible for how well the reader/audience understands
- ◆ Respect the work of colleagues
- ◆ Strive continually to improve ones professional competence
- ◆ Promote a climate that encourages the exercise of professional judgments and that attracts talented individuals to careers in technical communication

Through our ethical actions let us be
A Light to the World !

