Ethical Research

prof. Gerald Q. Maguire Jr.
School of Information and Communication Technology (ICT)

KTH Royal Institute of Technology
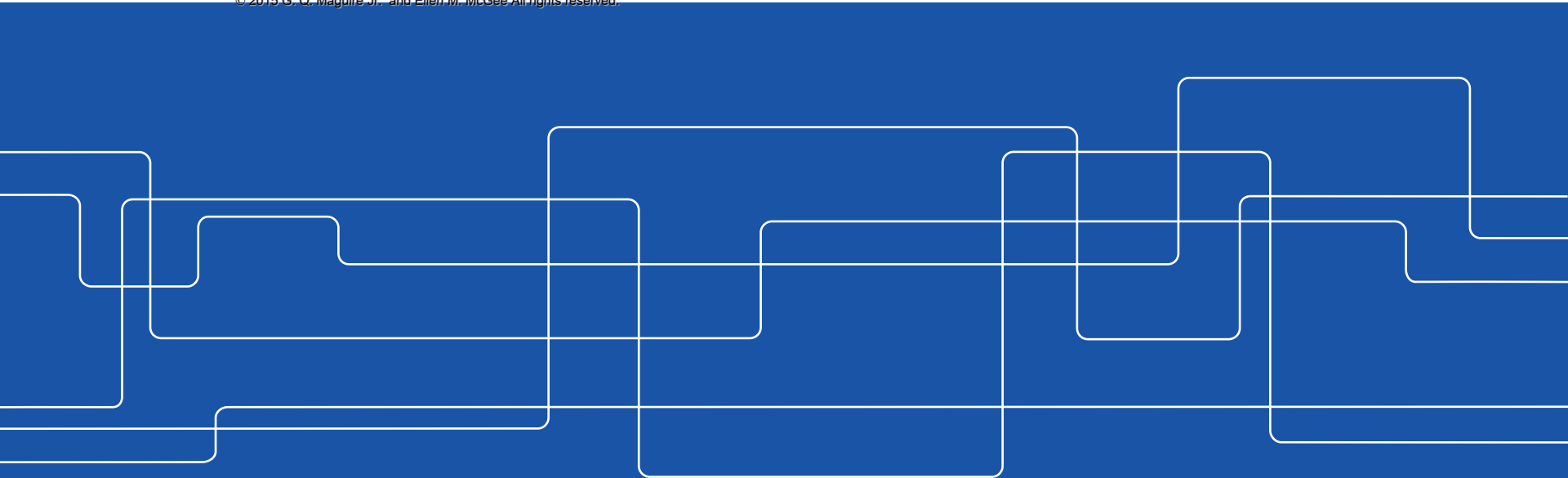http://people.kth.se/~maguire

Ellen M. McGee, Ph.D.
Retired Professor, Long Island University

Goals of this lecture

1. What is research?
2. Why should we do or not do research?
3. How can we conduct our research in an ethical manner?
4. Misconduct
5. Authorship
6. Intellectual Property Rights (IPR)
7. Privacy

What is Research?

"In the broadest sense of the word, the definition of research includes any gathering of data, information and facts for the advancement of knowledge."

[Shuttleworth2008]

Important questions

- Why do research?
  - To achieve knowledge, truth
  - To refute falsehood
- How to do research?
- What to research?

We will leave aside the questions of **where** to do research, **when** to do research, **who** does research, and **how** to fund research – to your discussion sections.

The "Why" of research

"ethical research begins with a coherent, valid, and sensible research design" and the research needs to establish a "worthwhile purpose for the project – the *why* of research"

Heidi A. McKee and James E. Porter in *The ethics of Internet research: a rhetorical, case-based process* [McKee 2009] (pg. 142)

The objective should be to develop new knowledge/understanding, to have some benefit to society/research subjects, and/or gain useful knowledge.

⇒ This means that you need more than personal interest/gain!

Research Ethically

- Accountability
- Fairness
- Trustworthiness
- To Establish Collaborative Values

The Centre for Research Ethics & Bioethics (CODEX) has an extensive collection of information on research ethics:
http://www.codex.vr.se/en/forskningsetik.shtml

What to research:
Evaluating Ethics of a Research Proposal

- Do you want to be involved?
- Is this a project with which you want to be associated?
- What if project involves something that you find personally repugnant?
- How to formulate hypothesis testing to avoid causing harm

Surveys

- Computer and internet based research should comply with basic norms of research with human subjects

- In US need Institutional Review Board (IRB) approval, including classroom projects if results may be published (including as a masters or doctoral dissertation) or if study includes a vulnerable group
- Types
  - Questionnaire or Interview
  - Internet – email or from site

Kate Kelley, et al. 'Good practice in the conduct and reporting of survey research' [Kelley 2003] emphasizes the importance of a single clear & explicit research question; the ethical issues of confidentiality and informed consent; and the importance of developing a good survey instrument *not* just collecting & analyzing data

(CASRO) Code of Standards and Ethics for Market, Opinion, and Social Research:

Council of American Survey Research Organizations (CASRO) Code of Standards and Ethics for Market, Opinion, and Social Research is divided into the following parts:

The Principles of Market, Opinion, and Social Research

I. Responsibilities to Research Participants

Research Participation may be Active or Passive

A. Privacy and Confidentiality

B. Transparency and the Avoidance of Harassment

C. Privacy Laws and Regulations

D. Children, Young People, and Vulnerable Populations

E. Special Considerations for Online and Mobile Research

II. Responsibilities to Clients

III. Responsibilities in Reporting to Clients and the Public

IV. Responsibility to Subcontractors and Interviewers

http://www.casro.org/?page=TheCASROCode2014

European Society for Opinion and Market Research (ESOMAR)

- Guidelines
    - ESOMAR/GRBN Guideline for Online Sample Quality
    - ESOMAR Data Protection Checklist
    - ESOMAR/WAPOR Guideline on Opinion Polls and Published Surveys
    - ESOMAR Guideline for Conducting Mobile Market Research and Other Resources
- Guideline on Social Media Research
- Guideline for Online Research
- Distinguishing Market Research From Other Data Collection Activities
- Passive Data Collection, Observation and Recording
- Interviewing Children and Young People
- Customer Satisfaction Studies

https://www.esomar.org/knowledge-and-standards/codes-and-guidelines.php

Active Agent Technology
Ethical Issues in Data Collection

Assess potential for risk – physical, psychological, social, economic, legal

Special populations – mentally incompetent, minors, prisoners

Is the type of data considered sensitive (medical, political, sexual)

See "Handling personal information" at
http://www.codex.vr.se/en/manniska3.shtml

Ethical Standards in Data Collection

Requires affirmed, informed, consent

ESOMAR has a extensive set of guidelines for "Using Online identification and tracking technologies in Research"

https://www.esomar.org/knowledge-and-standards/codes-and-guidelines/guideline-for-online-research/using-online-technologies-in-research.php

Heidi A. McKee and James E. Porter in *The ethics of Internet research: a rhetorical, case-based process* [McKee 2009] provide a lot of useful guidance when collecting data in chatrooms, discussion forums, from blogs & social networks, in massively multiplayer online games (MMOGs), …

Do not collect data that you do not actually need.

Ethical Issues in Data Analysis

- How to protect anonymity
  - In survey research, investigators disassociate names from responses during coding and recording
  - In qualitative research, inquirers uses pseudonyms for individuals
- How long to keep data?
- Who owns the data?

Scientific Misconduct

Scientific misconduct is the violation of the standard codes of scholarly conduct and ethical behavior in professional scientific research

According to Peggy Fischer, Office of Inspector General, National Science Foundation in New Research Misconduct Policies [Fischer 2001] :

"Research Misconduct is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.

- **Fabrication** is making up results and recording or reporting them
- **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,
- Policy defines "research" and "research record" "

Countries need to develop systems to deal with misconduct
$\Rightarrow$ In Sweden national medical research council committee to deal with scientific misconduct established in 1997 [Nylenna 1999]

Fanelli's report of scientific misconduct

Daniele Fanelli in **How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data** [Fanelli 2009] reported that:

> "A pooled weighted average of 1.97% (N = 7, 95%CI: 0.86–4.45) of scientists admitted to have fabricated, falsified or modified data or results at least once – a serious form of misconduct by any standard – and up to 33.7% admitted other questionable research practices. In surveys asking about the behaviour of colleagues, admission rates were 14.12% (N = 12, 95% CI: 9.91–19.72) for falsification, and up to 72% for other questionable research practices."

These questionable practices included "dropping data points based on a gut feeling", and "changing the design, methodology or results of a study in response to pressures from a funding source".

Note that this paper is based upon "The final sample consisted of 21 surveys that were included in the systematic review, and 18 in the meta-analysis."

Plagiarism

- Publication guidelines of scientific journals extensive and detailed on authorship

- Avoid wrongful appropriation of another's ideas, words, or processes.

- Avoid stealing source code …
  For information on computer code plagiarism see [Cosma2008]

Authorship

Authors must have made a significant contribution to the research-conception, design, conduct, analysis, and/or interpretation of the scientific work.

Gift authorship is unethical

Ghost authorship – when someone other than named author writes (common in the pharmaceutical field)

Publish data only once

At a university, faculty advisors should discuss publication credit standards with students (helpful to have this in writing)

Avoid Conflicts of Interest

In order to assure objectivity disclose any conflicts of interest, particularly financial.

Intellectual Property Protection

Products of the Mind:

- **Copyright** - "original works of authorship in any tangible medium of expression."
- **Patent** – machines, inventions, and processes
- **Trademark** – brand names and product symbols
- **Trade secrecy protection** – proprietary corporate information

Major international agreements in intellectual property law [Franklin2013]:

- Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPS")
- Berne Convention for the Protection of Literary and Artistic Works
- Hague Agreement Concerning the Deposit of Industrial Designs
- International Convention for the Protection of New Varieties of Plants
- Madrid Agreement Concerning the International Registration of Trademark
- Paris Convention for the Protection of Industrial Property
- Patent Cooperation Treaty
- Trademark Law Treaty
- Universal Copyright Convention

Primary organizations are the World Intellectual Property Organization (**WIPO**), the UN Educational, Scientific, & Cultural Organization (**UNESCO**), and the UN Conference on Trade and Development (**UNCTAD**).

Hacking

- Is it akin to stealing?
- What if nothing is changed or removed?

Web site RankMYHack.com - evidence of Web site hacks
[Reisinger 2011] [Yin 2011]

Privacy Issues

- email - Google scans - advertising
- workplace spying
- surveillance cameras in public spaces
- GPS in cars
- cellphone tracking
- website data collection

What you cannot promise!

"…, a researcher cannot promise that no one outside the research group will ever have access to the material or information collected in the course of the study. There are many situations in which access to research material is justified and necessary."

Section 4.4.5 on page 69 of [*Good research practice 2011*]

Data Mining

Data mining extracts *implicit patterns* in databases

"… privacy laws as well as informal data protection guidelines have been established for protecting personal data that are

- *explicit in databases* (in the form of specific electronic records)
- *confidential in nature* (e.g., data involving medical, financial, or academic records),
- exchanged between or across databases.

However, virtually no legal or normative protections apply to personal data manipulated in the data mining process, where personal data is typically

- *implicit* in the data
- *nonconfidential* in nature
- *not exchanged* between databases" [Tavani 2011] p.145

See also: Kelly Shermach, 'Data Mining: Where Legality and Ethics Rarely Meet [Shermach 2006]

Data archiving, preservation, sharing, and re-use

Swedish Research Council and other funding organizations are promoting openness, transparency, data re-use, …

However, the Swedish constitutional requirements for public access, openness, and transparency is some times in conflict with requirements to protect personal integrity (see Section 4.1 of [*Good research practice 2011*])

Zoran Slavnic in his article 'Towards Qualitative Data Preservation and Re-Use—Policy Trends and Academic Controversies in UK and Sweden' points to fact that the Swedish National Data Service (SND) is storing data even though under The Personal Data Act (PUL) it would not be legal for this data to be used for any purpose other that that for which it was originally collected! [Slavnic 2013]

See also CODEX - rules and guidelines for research
http://www.codex.uu.se/en/forskningagande.shtml

Data ownership

"But in any type of research, the collected material is not the private property of the researcher or research group, something they own and can do with as they wish. It must be stored and archived according to the general regulations issued by the various authorities, primarily the Swedish National Archives."

Section 4.2 , pg. 66 of [*Good research practice 2011*]

In general this material belongs to your employer.

"Ultimately, KI is responsible for all research conducted at the university and is the legal "owner" of the raw/primary data. Lärarundantaget (the teachers' exception) gives researchers at Swedish universities and higher education facilities the right to their own results, but not their own raw data. The researcher's right to his/her own results and thoughts are of importance for intellectual property (IP) issues and prospective patents."

Cecilia Björkdahl's 'Research documentation at Karolinska Institutet: A handbook' [Björkdahl 2010]

References

[Björkdahl 2010]   Cecilia Björkdahl, 'Research documentation at Karolinska Institutet: A handbook.' Karolinska Institutet, Jun-2010 [Online]. Available: https://kiedit.ki.se/sites/default/files/h9_handbok_forskningsdokumentation.pdf . [Accessed: 08-Aug-2015]

[CODEX 2015]   Centre for Research Ethics & Bioethics (CODEX), 'CODEX - rules and guidelines for research', 12-Jan-2015. [Online]. Available: http://www.codex.uu.se/en/forskningagande.shtml. [Accessed: 08-Aug-2015]

[Cosma 2008]   Georgina Cosma and Mike Joy, 'Towards a Definition of Source-Code Plagiarism', IEEE Transactions on Education, vol. 51, no. 2, pp. 195–200, May 2008. DOI: 10.1109/TE.2007.906776

[Fanelli 2009]   Daniele Fanelli, 'How Many Scientists Fabricate and Falsify Research? A Systematic Review and Meta-Analysis of Survey Data', PLoS ONE, vol. 4, no. 5, p. e5738, May 2009. DOI: 10.1371/journal.pone.0005738 Available from: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0005738

[Fischer 2001]   Peggy Fischer, New Research Misconduct Policies, National Science Foundation, Office of Inspector General, 25 October 2001. https://www.nsf.gov/oig/_pdf/presentations/session.pdf

[Franklin 2013]   Jonathan Franklin, 'International Intellectual Property Law.' American Society of International Law, 08-Feb-2013 [Online]. Available: http://www.asil.org/sites/default/files/ERG_IP.pdf

[Kelley 2003]   Kate Kelley, Belinda Clark, Vivienne Brown, and John Sitzia, 'Good practice in the conduct and reporting of survey research', International Journal for Quality in Health Care, vol. 15, no. 3, pp. 261–266, May 2003. DOI: 10.1093/intqhc/mzg031

References

[McKee 2009]   Heidi A. McKee and James E. Porter, The ethics of Internet research: a rhetorical, case-based process. New York: Peter Lang, 2009.

[Nylenna 1999]   M. Nylenna, D. Andersen, G. Dahlquist, M. Sarvas, and A. Aakvaag, 'Handling of scientific dishonesty in the Nordic countries. National Committees on Scientific Dishonesty in the Nordic Countries', Lancet, vol. 354, no. 9172, pp. 57–61, Jul. 1999.

[Shermach 2006]   Kelly Shermach, 'Data Mining: Where Legality and Ethics Rarely Meet | Consumer Security | E-Commerce Times', ECT News Network, Inc., 25-Aug-2006. [Online]. Available: http://www.ecommercetimes.com/story/52616.html. [Accessed: 23-Jul-2015]

[Shuttleworth 2008]   Martyn Shuttleworth, "Definition of Research", 3 Oct 2008. Definition of Research. Retrieved Jul 23, 2015 from Explorable.com: https://explorable.com/definition-of-research

[Tavani 2011]   Herman T. Tavani, Ethics and technology: controversies, questions, and strategies for ethical computing, 3rd ed. Hoboken, N.J: John Wiley & Sons, 2011.

[Good research practice 2011] Swedish Research Council's expert group on ethics, Good research practice. Stockholm, Sweden: Swedish Research Council (Vetenskapsrådet), 2011, ISBN: 978-91-7307-194-9 [Online]. Available: https://publikationer.vr.se/en/product/good-research-practice/