GEN-8001: Take control of your PhD journey

Academic integrity and the transparency of science

Helene N. Andreassen, PhD
Aysa Ekanger, PhD

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Academic integrity: reliability, honesty, respect, accountability

(European Code of Conduct for Research Integrity, 2017)
What are your expectations considering today’s seminar?
What do you hope to learn from it?

*Spend 3 minutes writing down some keywords or phrases on paper. Keep these in mind as we go along.*
About this seminar

Outline
• The whys of transparency in science
• The whys of producing and using scholarly sources correctly
• The whys of engaging with society

Objectives
• Carry out research with academic integrity
• Identify questionable research practices
• Explain correct use of sources in an academic publication
• Explain the purpose of open science
What are the purposes of scientific research?
Fundamental principles of research integrity

• Reliability
  in ensuring the quality of research,
  reflected in the design, the methodology, the analysis and the use of resources.

The European Code of Conduct for Research Integrity, 2017
Fundamental principles of research integrity

• Reliability
• Honesty

in developing, undertaking, reviewing, reporting and communicating research in a transparent, fair, full and unbiased way.
Fundamental principles of research integrity

• Reliability
• Honesty
• Respect

for colleagues, research participants, society, ecosystems, cultural heritage and the environment.

The European Code of Conduct for Research Integrity, 2017
Fundamental principles of research integrity

• Reliability
• Honesty
• Respect
• Accountability

for the research from idea to publication,
for its management and organisation, for training, supervision and mentoring,
and for its wider impacts.

The European Code of Conduct for Research Integrity, 2017
Fundamental principles of research integrity

- Reliability
- Honesty
- Respect
- Accountability
Transparent research

• Available for scrutiny:
  • Study design and methodology
  • Data collection procedures
  • Data management
  • Data analysis procedures, code
• Reporting standards
A taxonomy of openness

Open science

Transparent research

Open access

Open research data
Open Access to scientific publications

• No paywalls:
  • open to scrutiny of many more peers
  • available for stakeholders
• Fewer re-use restrictions:
  • can be shared, translated, mined
• Maximum dissemination
Open Data

• Shared openly
  • Provided there are no issues wrt sensitivity, security, commercial interests

• Available for study replication
• Enables data reuse
• For greater reproducibility of science
Publishing your own research data

Can you share your data?

Would you be hesitant to share your data? Why?
Research misconduct
The trinity of scientific misconduct

- **Plagiarism**
  - Copying without attribution

- **Fabrication of data**
  - Invention of data or cases

- **Falsification of data**
  - Distortion of data or results

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Consequences for careers
(and thereby the whole scientific enterprise)

Distortion of scientific knowledge

A waste of human and financial resources
Possible risk to human health

Consequences for careers
(and thereby the whole scientific enterprise)
Questionable research practices

Duplicate publishing
Redundant publishing
Salami slicing
Text recycling

(Roig, 2013)
Falsification & fabrication of data: Jon Sudbø

• *Overlege* at Radiumhospitalet, *Associate professor* at University of Oslo
• Eminent oncologist
• 2006 scandal:
  • Sudbø’s *Lancet* article from 2005 is based on fabricated data: 500 fictional patients
  • Data fabrication and falsification from late 1990s
• Consequences:
  • 13 articles retracted
  • PhD degree (from 2001) revoked
  • Doctor authorization revoked

• Lex Sudbø
The Norwegian Research Ethics Act

• Forskningsetikklov, 2017
• Previous act – «Lex Sudbø»

• Researchers must follow recognized ethical standards
• Institutions must educate and inform researchers about recognized ethical standards
The Norwegian national research ethics committees

- General guidelines for research ethics
- Subject-specific guidelines
- [https://www.etikkom.no/en/](https://www.etikkom.no/en/)
Using sources
# Citing research data

(Altman & Crosas, 2013; Starr & Gastl, 2011)

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<th>Description</th>
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<td>Unique string that identifies the dataset (doi, handle)</td>
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<tr>
<td>Author</td>
<td>The researcher(s) having produced the data and are authors of the corresponding journal article</td>
</tr>
<tr>
<td>Title</td>
<td>Name of the dataset</td>
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<tr>
<td>Publisher</td>
<td>Name of the archive</td>
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<tr>
<td>Year of publication</td>
<td>Moment when the data are made available (in the case of embargo, use moment when the embargo period is over)</td>
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<tr>
<td><strong>Version</strong></td>
<td>If dataset changes, the version number changes</td>
</tr>
<tr>
<td><strong>Type of data</strong></td>
<td>e.g. dataset, corpus, picture archive</td>
</tr>
<tr>
<td>Related identifier</td>
<td>Full dataset in the case of subset use</td>
</tr>
</tbody>
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Plagiarism

What are the essential elements?
"Plagiarism is defined as submitting someone else's work as your own."

(Carroll & Zetterling, 2009)
"Plagiarism occurs when someone

1. uses words, ideas, or work products
2. attributable to another identifiable person or source,
3. without attributing the work to the source from which it was obtained,
4. in a situation in which there is a legitimate expectation of original authorship,
5. in order to obtain some benefit, credit, or gain which need not be monetary."

(Fishman, 2009, p. 5)
2016: 35 of the cases concerned plagiarism.
Recommendation: Teach and evaluate the student’s use of sources throughout the course of study.

Knowledge and skills need to mature.
Expectations and requirements increase as the student gets to higher levels.
Degrees of seriousness?

- **Genuine misunderstanding**
  - Work is not the student's own. Student does not know the rules.

- **Misuse**
  - Work is "not OK", student makes mistakes. Student knows the rules.

- **Misconduct**
  - Student attempts to deceive. Student knows the rules.

(Adapted from Carroll & Zetterling, 2009)
Exercise

Where do you draw the line for correct source use?
How to avoid plagiarism

Be honest and clearly state what sources you have used and how you have used them.

Main types of source citation

• Direct quotes (definitions, formulas)
• Indirect quotes (must be far from original)
• Summaries
How to avoid plagiarism II

Think learning first

• Understand what you read

• Practice remembering and explaining to yourself

• Write from memory and check later for accuracy and too-close paraphrasing
Rigorous science looks at all the evidence
(Novella, 2011)

Use more than one source and avoid cherry picking!
Search for consensus, variation, controversial findings ...

How to avoid cherry picking? Know the whys and hows of literature searches!
Evaluate your sources carefully to ensure that you build your research on solid work.

Relevant – credible – objective – verifiable – scientific
“A good reason for avoiding the use of secondary sources in academia is that messages that pass through several links have the unfortunate tendency to become modified or altered along the way, as in the whisper game.”

(Rekdal, 2014a)
“Such an academic shortcut implies placing complete and blind trust in the authors of the secondary source; that they have got the quote or the general message, and the reference, correct.”

(Rekdal, 2014b)
Shortcuts: A balancing problem?

Expectations to do good research. Expectations to get maximal credit and be visible in the right circles.

**How to balance strategy and ideals?**

Awareness of our two roles and the choices we have to make, as well as the consequences.

– the good scientist
– the good academic

(Carter, 2015)
Shortcuts: A more profound problem?

A narrative of individual impurity
The scientist is an actor behaving according to his own goals and values, instilled by the activity of science itself → Selfish motives
➢ Self-regulation enhanced by training in ethics and codes of conduct

A narrative of institutional failure
The scientist is part of a greater self depending on funding and recognition, organized into a strict hierarchy → Pressure from above
➢ Protection of whistle-blowers and stronger fines and penalties

A narrative of structural crisis
Science as an arena with the traditional values, discovery, recognition and cooperation, shifting → Publication, exploitation and competition
➢ Make science more transparent, recognize the tensions within it, discuss its values and interests with the wider public

(Sovacool, 2008)
The researcher and the society
Bilingualism

Early studies and myths
- delayed language acquisition
- confusion and mixing of languages
- negative effect on cognitive development

Possible negative effect
Language in a minority situation not transmitted to children at home.

Language is a symbol of cultural and personal Identity.

(Jones & Lorenzo-Hubert, 2008)
Recent research
-metalinguistic awareness similar or better
-better at problem solving in (non-) verbal tasks requiring controlled attention
-delayed onset of Alzheimer’s

Possible positive effect
Language in a minority situation transmitted to children at home.

I feel that being able to speak my mother tongue connects me to my culture more closely.
(Prof. A. Sorace)
Getting out of the bubble

- How could researchers explain their work to the society?
- Is it the individual’s responsibility to inform society?
- How can misconceptions be avoided?
- What about controversies?
- In which situations would you react?

*Turn to the person next to you and spend 10 minutes discussing these questions.*
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How can we carry out research with academic integrity?
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helene.n.andreassen@uit.no
aysa.ekanger@uit.no

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References


Fishman, T. (2009). “We know it when we see it” is not good enough: Toward a standard definition of plagiarism that transcends theft, fraud, and copyright. Paper presented at the 4th Asia Pacific Conference on Educational Integrity (4APCEI), University of Wollongong NSW Australia. http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1037&context=apcei


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