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# Fabrication and Falsification

## TRANSCRIPT

Research Ethics Online Course

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1. Scientific misconduct is defined as an intentional deception. Both words are important - being intentional indicates that the person is aware of the fact that what is being done is against the rules and they choose to do what they are doing. Deception indicates that what is presented is not what should be truthfully presented. The audience, be it other researchers, the public or the funding body, is given a reason to believe something that is not a true account of the people involved, the methodologies used and/or the results presented. The audience is deceived essentially with a story that does not tell what has actually happened.
2. The audience, be it other researchers, the public or the funding body, is given a reason to believe something that is not a true account of the people involved, the methodologies used and/or the results presented. The audience is deceived essentially with a story that does not tell what has actually happened.
3. The reasons for scientific misconduct are various. You can probably recognise many of these as factors in your own research thinking as we are all influenced by
  - i. Time pressures, juggling multiple tasks and looming deadlines.  
The pressure to publish quickly and in a high impact journal is familiar to most researchers
  - ii. The pressure to take steps to advance your career can be great at times.
  - iii. The pressures for funding are increasingly ever present in the research work and with short term funding cycles the great expectations for results can be significant
  - iv. Pressures of other aspects of your life, the desire for pleasure, other pursuits, family commitments affect most researchers.
  - v. Lastly there might be internal or external pressure to become famous either within the research community or in society at large.
4. Anecdotal evidence suggests research misconduct is quite common. In 2009 Fanelli complete a meta-analysis on misconduct experiences and that suggests that over 70% of researchers have observed questionable research practises and over 30% admitted to variety of questionable research practises themselves. Most commonly the questionable practises include “dropping data points based on a gut feeling”, and

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“changing the design, methodology or results of a study in response to pressures from a funding source”.

5. Research practice forms a continuum. At one end we have misconduct and at the other end we have good research practice. Most of us know when we are clearly in the black of misconduct and when we are in the white of good practice. The true ethical challenges are formed in the grey area in the middle when we are not sure if this is quite ok or not. Every research field has their own grey area and they are a source of continuing ethical discussion and sometimes debate. This lecture focuses on defining the black area so that no one is left with any misunderstanding of what that is and discusses some examples of finding yourself in the grey area.
6. Fabrication is an invention of data, data sets or research results that are recorded or reported in other words, reporting non-existent data. While this could mean inventing a data set in its entirety, fabrication is usually more subtle than that and include practises like:
  - i. Running experiments and reporting n+1 experiments
  - ii. Running a data analysis three times in an hour and reporting data readings 1hr, 1 day and 1 week from the event
  - iii. Reporting 15 informants when in reality data set comprises of 15- x informants
  - iv. Completing informed consent forms for the subjects in the study
  - v. Presenting results from methodology A, while the study was carried out using methodology B
7. Falsification is a deliberate distortion or omission of undesired data or results i.e. selective reporting of data. Examples of this include
  - i. Manipulating images or data presentation
  - ii. Using specifically selected sub-sets of very large data sets
  - iii. Qualitative data (interviews, questionnaires)
  - iv. Statistical interpretation and presentation
  - v. Explaining research conditions and methodologies
  - vi. Selective reporting
8. The grey area around falsification is usually easy to recognise in your own field. So stop and think what are the areas of risk for you and your colleagues? Is it the use of statistics in a way that distorts the real findings, is it dealing with such large datasets that with careful selection almost anything could be proven to be true, is it rich qualitative data that would allow your subjective interpretation to influence analysis greatly or could it be managing research conditions in a way that allows you to get the results you want while claiming to have had a different set-up or methodology? Listen to senior researchers in your field and ask them, they can probably identify the risk quite easily - every research area has their unique pattern and risk factors.

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9. It is everyone's responsibility to know what constitutes misconduct and make choices to avoid it. If you see practises that are suspicious, ask about them and make sure you are not involved in anything you do not quite understand. When comes to the grey area, the importance is on ongoing dialogue within the community to explore and define the boundaries of good research practice. The boundaries are not fixed and as new methodologies develop and society changes, the rules and boundaries for research also need to be re-visited. Transparency and openness around our methodology is the best way to guarantee we are doing the right thing.