
CS4040: Research Ethics

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Contents

- What is research ethics?
- General principles
- Research ethics at Aberdeen University

Research Ethics

- Conducting research in an ethical fashion
- Of course ethics applies to many more things than research!
 - But focus on research here

Bad Research Ethics (1)

- Tuskegee Syphilis Study (USA)
 - US Public Health Service
 - Studied progression of syphilis in 399 black men for 40 years (1932-1972)
 - *Research question*: What happens to people with syphilis over a period of decades
 - Subjects not told had syphilis or treated!
 - Penicillin effective cure from 1947
 - Subjects died, as did wives and children

Poor Research Ethics (2)

- Milgram experiment (psychology)
 - Subjects told to give electric shocks to people (confederates)
 - No real shocks, but confederates acted like they were in pain
 - *Research question*: how far will people go when “just following orders”
 - Subjects under a lot of emotional stress
 - Not appropriate for research subjects

Dubious Research Ethics (3)

- Facebook manipulated news feeds
 - Removed positive words (eg “love”) from one group of users
 - Removed negative words (eg “hurt”) from another group
 - *Research question*: does this impact emotional state?
- Subjects did not agree to participate or even know about the experiment

Ethical Approval

- In 2025, academic research projects need *ethical approval* if they involve people
 - Applies to student research projects
- *Ethics committee* responsible for ensuring that research is ethical.
 - Details vary by country, institution, field

Principles of Ethical Research

1. Informed consent
2. No coercion
3. Protection from harm
4. Personal information protected
5. Benefits outweigh costs
6. Report results honestly

Informed Consent

- Subjects should understand the research and agree to participate
 - Research explained in understandable way
 - Typically via a consent form in CS research
 - Readable! Not like Terms and Conditions
 - Consent from guardians for people (eg, children) who cannot give consent
 - Get consent BEFORE experiment

Informed Consent

- Sometimes not possible
 - Experiment requires deception (eg Milgram)
 - Subjects don't engage sufficiently to provide informed consent
 - Eg, A/B testing of different colours on website
- Ethical approval still possible, not easy
 - BPS has guidelines on ethics of deception
 - No good guidelines on ethics of A/B testing
 - *Advice*: get informed consent if at all possible!

No Coercion

- Subjects cannot be forced or pressured to take part in an experiment
 - Nazis experimenting on concentration camp
- Subjects free to withdraw from experiment at any time
 - Experimenter cannot pressure them to stay
 - Even if not enough time to recruit replacements

Protection From Harm

- Research should not harm people
- Medicine: clinical trials of new drugs may have unexpected nasty side effects
 - Many protocols, regulations, etc
- Computing: avoid experiments that harm people
 - Don't stress/upset subjects

Protection from Harm

- Third parties should also be protected
- Example: evaluation of medical decision support system should not harm patients
 - Even if system makes mistakes
 - Detect mistakes before they impact patient care

Personal Information

- Personal information cannot be published
 - Part of data protection
- We can publish aggregate statistics
 - Sufficient for evaluation
- Anonymise names and personal details
- Comply with data protection laws

Personal Information

- Sometimes aggregate information is not very anonymous
 - Don't report results by gender if only one subject is female
 - Don't report results by full UK postcode
 - OK to use partial postcode (eg, AB24)

Cost-Benefit

- If any of above principles broken, researchers need to show that the benefit of the research outweighs cost
 - Research involving deception
 - Research (eg, new drugs) that could harm someone
 - Etc
- Researchers also need to minimise harm
 - Tell truth as soon as possible
 - Screen drugs for harmful side effects

Report Results Honestly

- Don't fabricate results or otherwise lie!
 - Disciplinary offense, for staff as well as students
 - Destroys academic careers
- Don't "tweak" results to make them look a bit better

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Ethical analysis

- Tuskegee Syphilis Study (USA)
 - No informed consent
 - Subjects and third parties (wives and children) were harmed
 - Costs (eg, dead/disabled children) higher than benefits

Poor Research Ethics (2)

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Analysis

- Milgram experiment (psychology)
 - No informed consent before study
 - Subjects debriefed afterwards
 - Subjects coerced to stay if wanted to quit
 - Subjects were harmed psychologically
 - Cost-benefit is debatable
 - Most subjects felt benefits outweighed cost

Dubious Research Ethics (3)

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 - *Research question*: does this impact emotional state?
- Subjects did not agree to participate or even know about the experiment

Analysis

- Facebook manipulated news feeds
 - No informed consent before study
 - No debriefing afterwards
 - Subjects maybe harmed psychologically?
 - Subjects in no-positive group made unhappy?
 - Extent not clear, much less than Milgram
 - Cost-benefit dubious for society?
 - I cannot read Facebook's defense because I don't have a Facebook account

Research Ethics at Aberdeen

- Ethics committees must approve research with ethical concerns
- Computing Science under College of Physical Sciences ethics committee
 - Name may change
 - I am a member (CS rep)
 - <https://ehudreiter.com/2017/08/21/ethics-ab-testing/> (example of issue)

Ethical application

- <https://www.abdn.ac.uk/staffnet/research/support/research-support/research-governance/ethical-approval-for-research/>
- Checklist (do you need ethical approval)
 - Forms (if you need approval)
- UG students email docs to Prof Reiter
 - Annex A, B, C, and (D or E)
 - Use email, not worktribe
 - Email Reiter, not copsethics

Procedure

- Fill out checklist
- If answer YES to any checklist question, fill out and ethical approval form
- I will approve, approve subject to changes, or reject

Changes

- Most common requests
 - Changes to consent form/procedure
 - Provide more details about human subjects (how many, how recruited, etc)
 - Don't publish info because not anonymous
 - Eg, gender breakdown if only one girl

NHS Ethics

- Experiments which involve NHS (patients or employees) must be ethically approved by NHS
- Much more detailed and time-consuming than usual procedures!
 - *Advice*: avoid if possible!

Ethical Approval Timeline

- Approve straightforward projects quickly
 - Generally within 2-3 weeks
 - Goal, not guarantee
 - Within 1 week for UG projects
- Complicated ethics takes longer
 - Deception, possibility of harm, etc
 - Can easily take several weeks or month
 - Plan accordingly!

Ethical approval is required!

- If you do an experiment that requires ethical approval, you must obtain it
 - Human subjects, sensitive data, etc
- You **will fail** if your project requires ethical approval and you do not have this