Responsible Conduct of Research: Doing Science Right!

Acknowledgements - slide content

Emy Cardoza (she/her)

Senior Director, Global Inclusion Education and Strategic Partnerships

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Room format

Small groups

Any food allergies!

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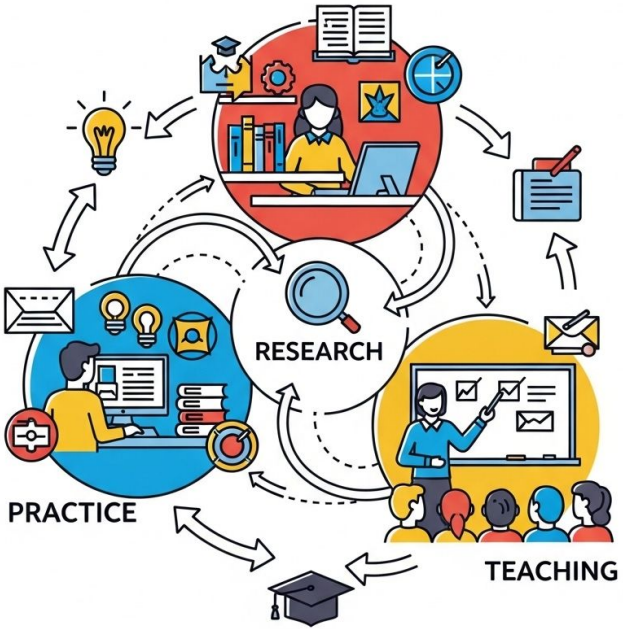
What is research?

What is research?

- Systematic investigation to establish facts and reach new conclusions.
- It's about asking questions and finding answers using a structured approach.
- Lots of examples in CCL IGNITE - practitioners who also do research: “clinician scientists”



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Reflection

What does it mean to have a safe research environment?

What is an “ideal” research environment?

Ethical Principles / Research Integrity

- Respect - Informed consent
- Beneficence - risk:benefit ratio
- Voluntary - no coercion or obligation
- Confidentiality
- CCL IGNITE - Human subjects research, guidelines exist for animal welfare

Why be responsible?

Why does research integrity matter?

- **Builds Trust:** People need to trust that your findings are true and reliable.
- **Ensures Accuracy:** Flawed research can lead to wrong conclusions, wasting time and resources.
- **Protects People:** Especially important when research involves human participants.
- **Maintains Scientific Integrity:** It's about upholding the values of honesty, objectivity, and respect in all scientific endeavors.

Principles in Action - 1

Dr. G proposed a research study to assess reaction time and neck strength in a high school girls soccer team before and after heading practice.

- How should they seek informed consent?

Principles in Action - 2

Dr. G proposed a research study to assess reaction time and neck strength in a high school soccer team before and after heading practice.

- **How should they evaluate beneficence?**

Principles in Action - 3

Gaurav would like to assess how individuals with acquired vision loss from conditions like (cataracts, diabetic retinopathy and macular degeneration) navigate obstacles in real world conditions. He would like to use wearable devices to test walking along subway stairs and along 64th st outside the Lighthouse Guild in Manhattan.

- **How can balance risk versus benefit in his study?**

Case Study 1 - JH

- **JH is a research assistant in a clinical trial of exercise for diabetes. She forgot to measure the patient's blood pressure before they started the exercise program (which is what they were supposed to do in the protocol).**
  - She feels bad. She writes down the blood pressure from the previous day.
  - **What are your thoughts? Is this ok? What are JH's options?**

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Research Misconduct

Fabrication: Making up data or results. (e.g., inventing survey responses).

Falsification: Changing or manipulating data or results to make them look better or support a specific idea. (e.g., deleting "bad" data points).

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Research Misconduct Consequences

What are the consequences for JH?

- Personal:
- Professional:
- Institutional:

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Data accuracy

What are some steps the research team can take to prevent research misconduct and ensure data accuracy?

Case Study 2 - NR

- NR signed a consent to participate in a 6-week nutrition and physical activity study. The study offers $600 in research honorarium. She decided to have elective surgery 2 weeks after she started the study.
  - What are your thoughts?
  - Is $600 appropriate? Too much? Too little? Is it coercive (forcing a decision)

Informed Consent

- Can be withdrawn any time
- Reimbursement can be coercive / perceived as coercive

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Case Study 3 - KL

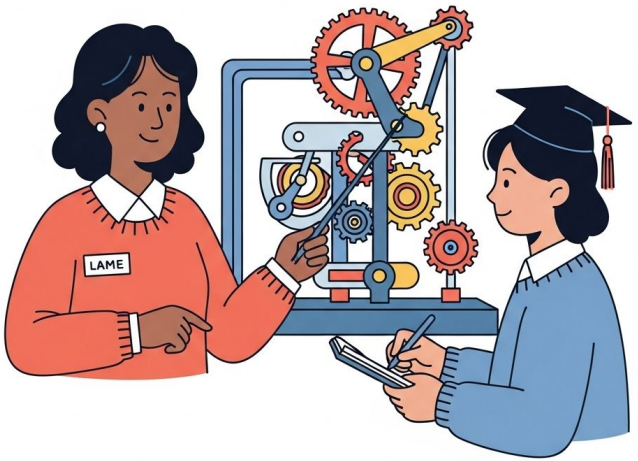
- KL and GH are students in a rehabilitation research course. They work on an assignment together and decide they want to publish their findings as a manuscript in a peer-reviewed scientific journal.
- **Who gets to be first author?**

Guidelines for authorship

1. ICJME Guidelines, https://www.icmje.org/
2. **What is plagiarism?**
   a. **Can they use their assignment?**
   b. They had a 2000 word paper and needed to make it 1000 words. **They asked ChatGPT to edit work. What are your thoughts?**

Case Study 4 - SR

- Dr. Taylor. A really smart professor at a university. She studies how kids' brains grow and learn.
- "Playful Minds" Company: A small company that makes educational toys.
- Maya: Dr. T's student, who helps her with her research.



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Dr. Taylor loves thinking about how kids learn. In her spare time, she spent two years inventing a new toy. She patented it and made a deal with a toy company called "Playful Minds”. They would make and sell the toy. Every time a toy sold, Dr. T would get a payment (like a royalty). She also bought a small part of the company, so if the company did well, she'd make even more money.

Soon after the toy started selling, Dr. T had an idea for a new research study at her university. She wanted to test if the toy really made kids smarter than other regular building toys. Her plan was to have some middle school students play with the toy for a few months, and other students play with a different toy. Then, they'd test all the kids to see if their thinking skills had improved. Maya, her student, was excited to help, as it was perfect for her own school project.

Your turn

- **What's the Problem Here?** Dr. T wants to prove her toy is great, but she also makes money if it sells well. How might this create a problem for her research?
- **What Could Dr. T Do?** Dr. T told everyone about his money deal. Is that enough? What else could she do to make sure the research is seen as fair and honest?
- **What About Maya?** Maya is Dr. T's student. How might this situation make her job harder or more complicated? What should she think about?

Your turn

- **What changes or protections can the university or research team institute to maximize benefits and minimize harm / risks / bias?**

Conflict of interest /

- **Disclosure** is key
- Many options for mitigation, Bias kills research integrity
- **Intellectual property**
  - Copyright
  - Patent
  - Creative commons license (CC BY NC ND)

Case study 5 - PL

PL is a research assistant / recruitment coordinator on a project at the NYU Physical Therapy Department (380 2nd Ave) studying the effects of exercise in diabetes. She calls people in the Kips Bay / Gramercy area because she thinks it will make it easy / convenient for them to participate.

- **What are your thoughts?**

Case study 6 - Sam

Sam is a research assistant working on a rehabilitation research study. He is finishing up coursework and would like to apply to DO and PA school in the next cycle. The study tests whether a remote intervention to increase physical activity is effective in people with diabetes. Sam's responsibilities include calling participants once a week. They fill out a physical activity log together. He gets along very well with Mr. C, a study participant who is also born and raised in Brooklyn, like Sam. Their conversations last 30 minutes to an hour. They have a special bond. Imagine you're a research assistant on the same study. **Do you see any issues here?**

Defining Bias

Explicit Bias

Explicit bias refers to intentional, consciously articulated beliefs that result in discriminatory attitudes and behaviors towards others.

Implicit Bias

Implicit bias refers to unconscious assumptions, often based on stereotypes, which may improperly influence judgments about other people or their work

Institutional Bias

Institutional bias refers to policies and practices of an institution that may make it more difficult for some members of certain groups to succeed.

Office of Science and Technology Policy. (2016). “Reducing the Impact of Bias in the STEM Workforce.” https://www.si.edu/content/OEEMA/OSTP-OPM_ReportDigest.pdf

Bias is powerful!

- **Placebo!**
  -
- **Nocebo!**
  -

Take home message - expectation is powerful

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Bias is powerful!

- **Placebo!**
  - “Sugar pill effect”. A research group wants to study the effect of beet juice on muscle soreness after exercise. An example of a placebo effect is when individuals enrolled in the sham control group in a clinical trial report benefit.
- **Nocebo!**

Take home message - expectation is powerful

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Bias is powerful!

- **Nocebo!**
  - In a clinical trial, individuals with low back pain were randomized into two groups: one getting wearable nerve stimulation and the other getting sham nerve stimulation. The sham device was placed on the same location as the study device (outside of leg). The study device turned on for 10 minutes at an intensity twice the threshold perceived by the participant. Then sham device turned on for 30 seconds and an intensity lower than the threshold perceived by the participant. Individuals in the sham group report WORSENING pain.

Take home message - expectation is powerful

Pain expectation - which is worse?

- (“You are going to feel a big bee sting; this is the worst part of the procedure”)
- (“We are going to give you a local anesthetic that will numb the area and you will be comfortable during the procedure”).

Pain expectation

"Women at term gestation requesting labor epidural analgesia or non-laboring patients presenting for elective cesarean delivery under spinal anesthesia were randomized to either a common description of the pain experience from local anesthesia injection ("You are going to feel a big bee sting; this is the worst part of the procedure") or a more reassuring description ("We are going to give you a local anesthetic that will numb the area and you will be comfortable during the procedure"). Immediately after the local anesthetic injection, an observer blinded to the study design was called into the room for assessing patients' pain. **Those women in labor informed to expect pain like a bee sting during the local anesthetic injection (nocebo group) rated pain significantly higher than those receiving the procedure along with gentle positive words (38)**."

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Microagressions are bias

- “You look so young!” / You’re too pretty to be in science / You’re too skinny to be a therapist
- You’re really good with computers. Can you put this application together?

Examples in the Classroom/Lab

STUDENT → STUDENT

- Speaking over each other/only responding to comments made by certain peers
- Assigning administrative (less visibility, less creative) tasks
- Making assumptions about ability or comments about accommodations

STUDENT → FACULTY/PI

- "You don't look like a professor"
- Questioning credentials based on identity or making assumptions about scholarship
- Rating faculty lower when they don't ascribe to stereotypical traits

FACULTY/PI → STUDENT

- Singling out students based on identity
- Mispronouncing student names or misgendering; mixing up two students who share an identity
- Only calling on particular students
- Making derisive comments or forgetting about accommodations

What should you do?
What can you do?

Considerations for Responding

PERSONAL COMMITMENTS

Consider the following:

- Importance of the issue/relationship
- Your emotions and ability to respond in a manner that aligns with your values
- Potential risks: How you want to be perceived now and in the future

INTERPERSONAL DYNAMICS

Consider the different social positions:

- Role in organization
- Social identities
- Social connections
- Personal influence in team/group

COMMUNITY/TEAM NORMS

- How does this community/team typically handle conflict?
- How can we ensure this experience is productive? How do we maintain working relationships?

FORMAT

- Timing: In the moment or after the incident
- Audience: Entire group vs. one-on-one
- Setting: Meeting, office, informal gathering

Responding When You Enact a Microaggression

Engage in self reflection:

- Understand yourself as someone with **your own cultural conditioning and biases**
- Understand and make sense of your own emotions
- Work to **understand your actions and their impact**

Apologize by expressing remorse for your actions, not the other person's reactions.

Repair the relationship, which may include making amends and rebuilding trust over time.

Seek ways to change your behavior and continue your education.

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Adapted from Kenji Yoshino and David Glasgow, *Say the Right Thing* and Derald Wing Sue and Lisa Beth Spanierman, *Microaggressions in Everyday Life, Second Edition*

Responding When You're on the Receiving End of a Microaggression

Self care / Process at your own pace

- Process with a trusted mentor, friend, or colleague
- Trust your gut reaction
- Recognize that the microaggression is more about the other person's unexamined bias than it is about you or your actions
- Avoid internalizing the message

Take actions that work for your needs

- Naming the incident or directly addressing the other person may be healing
- **Calling In versus Calling Out** (Selena Rezvani - Quick Confidence)

Adapted from Derald Wing Sue and Lisa Beth Spanierman, *Microaggressions in Everyday Life, Second Edition*

Helpful Response Phrases

- **Say something short and sharp:** “Excuse me?” “Ouch!”
- **Emphasize the impact on you:** “That didn’t land well with me because….”
- **Affirm their intentions / value:** “I know you meant that as a joke but I found it off-putting because…”
- **Appeal to shared values:** “That language isn’t appropriate in this classroom / clinic.”
- **Educate:** “I feel differently about that issue. Can I share my perspective?”
- **Model what they could have said:** “I think *they* weren’t finished speaking.”
- **Ask them to explain their views:** “Can you help me see how you came to see things that way?”
- **Paraphrase or repeat what they said:** “So you’re suggesting _____, is that right?”

Adapted from Kenji Yoshino and David Glasgow, *Say the Right Thing*

RCR Wrap up

- What did you learn? (list 1-2 most valuable things)
- What should I include more of?
- What should I include less of?