Icebreaker – Tag yourselves

OVER IT STEVE
- slowly crumbling under the pressure
- doesn't see the point of exams anymore
- hasn't seen the sun in ages
- lives off Red Bull, coffee and two minute noodles

EMOTIONAL AMY
- is prone to mood swings
- takes naps because they're so stressed
- studies for 30 minutes but then takes a break for five hours
- desperately in need of a good cry

LAST MINUTE LUKE
- unpredictable sleep schedule
- crams all their notes the night before an exam
- makes everyone else stressed because they're so chill
- always forgets to bring their pens in a clear pencil case

FED UP DANIEL
- grumbles a lot
- is mad that they have multiple exams on the same day
- has studied way too much that their brain is mush
- just wants everyone to leave them alone

RESPONSIBLE JANE
- makes neat and organised notes
- has done all the past papers
- complains that they haven't studied enough but then finds the exam easy
- somehow still finds the time to exercise

"THIS IS FINE" LYDIA
- smiles but is internally screaming
- goes to the library to study but gets no work done
- on the verge of a mental breakdown
- can't stop eating chocolate

Research Design

- Two fundamental/overarching approaches:

  - What is going on? (descriptive design)

  - Why is it going on? (explanatory design)

Research Design

- What is going on? (descriptive design)
  - What is the unemployment rate in "x" country?
  - Is the level of social inequality increasing or declining across the Midwest?
  - Who in Chicago is more likely to be apprehended and convicted of crimes?
- Why is it going on? (explanatory design)
  - Why is the eviction rate in the Bronx highest out of all the boroughs?
  - Why do NYC schools "remain some of the most segregated in the country"?
  - How does personality affect an individual's choice of career?

Research Design

1. Purpose
2. Research Question
3. Literature Review
4. Hypothesis/Expectation
   - Operationalization of variables
5. Method
   a) Type of Study (Experiment? Cross-sectional? Time series?)
   b) Data/evidence
6. Analysis
7. Conclusion

Research Question(s)

- What question am I trying to answer?
  - Research question framework:
    - What is the relationship between x and y?
    - How does x affect y?
    - What factors contribute to x, y, z?
    - Who is affected by x, y, z, (and where)?
    - How is x distributed in y location? Who has access to x?
    - Why does x occur in y communities/areas?
- What is the sociospatial relationship between poverty and school diversity in NYC?
- Why does poverty affect school diversity in NYC, and in which communities?

Research Question(s)

- Be specific about the parameters of your question
- What context is the question being asked in?
- Previous example question:
  - What is the sociospatial relationship between poverty and school diversity in NYC?
  - What parameters/details might need to be specified?

Hypothesis/

- Answer to your research question
- Example structure:
  - The location of x increases y.
  - x is related to y in communities, based on z.
  - X is distributed unevenly across communities in y location, disproportionately affecting z.
- What is the sociospatial access to day care centers in NYC?
  - Day care access is distributed unevenly across communities in NYC, disproportionately affecting single mothers.

Expectation

Explanatory Research

Why are school buses often significantly delayed in NYC?

a.) Direct causal Relationship

| Heavy Traffic | → | School bus delays |

b.) Indirect causal relationship

| Urban population growth | → | More drivers/cars on the roads | → | Heavy Traffic | → | Traffic accidents | → | School bus delays |

Operationalization

- Concepts -> Operational Definitions

How are you going to measure your concept?

Examples of Concepts:
- Gentrification
- Sustainable
- Personality
- Economic security
- Race
- Impactful/Successful

Operationalization

- Concepts -> Operational Definitions

Research Question: How has the unemployment rate changed in the US during the 20th century?

Concepts:
1. Conception of an abstract idea or phenomenon
   - Unemployment - how do we define it?

Research Question: How does personality affect a person's career choices?

Concepts:
   - Personality
      - Extroversion

Operationalization

- Concepts -> Operational Definitions

Research Question: How are boys socialized into traditional gender roles?

Concepts:

1. Conception of an abstract idea or phenomenon

General Interest: ➔	Key Concept: ➔	Conceptualization: ➔	Operationalization:
Boys' socialization	Masculinity	Behaviors prescribed for men in society	Chores assigned to male children

Operationalization

- Concepts -> Operational Definitions

Research Question: What is the relationship between neighborhood walkability in NYC and health? ([Built Environment and Health Research Group](#) at Columbia)

Concepts:
1. Conception of an abstract idea or phenomenon
   - Mental image of neighborhood = conceptualization of the idea of a neighborhood
   - Your turn: What is your conceptualization of "Neighborhood"? "Walkability"? "Health"?

Operationalization

- Concepts -> Operational Definitions

Conceptualization of "neighborhood":
- A bundle of spatially distributed attributes
- A community
- Group memberships of households within a specific area

Indicators of a neighborhood:
- Gated community
- School district
- Resident-perceived
- Administrative boundaries may be consistent with the notion of a neighborhood

Operationalization

- Concepts -> Operational Definitions

Conceptualization of "walkability":

Indicators of a walkability:
- Density: attributes of interest per geographic area
- Diversity: land use mix
- Design: layout of the street grid
- Destination accessibility: availability of destinations to travel to such as stores
- Distance to transit: physical distance to public transportation

Operationalization

- Operational definitions -> Measure(s) of the concept

Measuring neighborhood:

- Zip code

Measuring walkability (walkability variables):

- Density: population density
- Diversity: residential, office, retail, education, and entertainment
- Design: intersection density
- Destination accessibility: the ratio of retail building floor area to retail land area
- Distance to transit: subway stop density
- Also: safety? Aesthetics?

Measuring health: BMI (NYC Community Health Survey)

Method

- Case Study
  - Detailed, in depth investigation into a specific location/phenomenon/person/etc at a specific point in time
- Cross-sectional
  - Investigation into an area/population (group or aggregate space) at a specific point in time
- Longitudinal
  - Investigation into the same area/population (group or aggregate space) over many points in time
- GIS
  - Can be any of the 3 above + investigating over/across space

Data/Evidence

- Qualitative
  - Collection and analysis of categorical data
    - Interviews
    - Focus groups
    - Oral histories
    - Narratives
- Quantitative
  - Variables measured numerically (interval, ratio) or converted to a numerical scale (ordinal)

Example: Affordability

Exercise

- Discuss your final project proposal
  - What is your research question?
  - Hypothesis/expectation?
  - How will you operationalize the concepts of your topic?