More Experimental Design

PSY 4433

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External Validity

- this form of validity is about how well your study *generalizes* both to other studies and to the general public
    - experiments can provide useful information about a relationship
    - not necessarily the best for generalizing
    - this goes along with the concept of efficacy, which is how well a study does in a controlled environment
- real-world interventions and field studies provide better external validity
    - also establish effectiveness

Pros & Cons of Control Methods

- holding constant
  - limits generalization
  - too much control
  - standardizes the experiment
- randomization
  - accounts for influences of extraneous variables
  - may not fully account for all extraneous variables
  - random assignment *should* account for these variables

Control Conditions & Manipulation Checks

- experimental condition
  - group that gets the experiment/stimuli
- control condition
  - group that gets either no stimuli, a limited stimuli, or a placebo

No-Treatment Control Conditions

- instances where the control group does not get any stimuli/condition
- Ex: Drug trials
  - participants in the control group don't get any drug/placebo
- Issues
  - do not control for participant expectancies
  - ethical considerations about not providing anything to participants of control groups

Placebo Control Conditions

- **placebo** is an inert medication (sugar pills) or a fake treatment, which should have no medicinal effect
    - can produce positive or helpful effects based on expectations
    - **nocebo** is a inert substance that can cause negative or harmful effects based on expectations
- **placebo effect** is when the mind/psyche is having an effect on the body
    - psychosomatic effect on participants

Placebo Control Conditions

- generate serious questions about interpretation
  - is the observed effect due to the treatment or because the placebo effect
- **outcome research** investigates effectiveness of a treatment
  - concerned with the outcome of the treatment than any part of the treatment
- **process research** is focused on the components of the treatment
  - what is actually working in an experiment/intervention

Placebo Control Conditions

- **placebo control conditions** are when participants receive a placebo instead of the actual treatment
    - tests to see how much of the effect was due to the treatment vs the placebo effect
    - can then compare the no-treatment control group to see if there was an effect on the outcome from the placebo
- Controlling for extraneous variables & control group
    - control group = either no treatment or placebo
    - controlling for variables = accounting for external factors that could influence your experiment
    - **internal validity** is the support for the cause-effect relationship and that your sample is representative of the population

Manipulation Checks

- additional measure to assess how participants perceived the manipulation
    - also measures the direct effect of the manipulation
    - makes sure that IV has the desired effect on DV
- other manipulation checks should be included in your surveys
    - You should have a question that is EXTREMELY straightforward
    - Ex: *Small passage*. Click on the year 2022.

Manipulation Checks

- two ways to check the manipulation

1. Explicit measure of the IV
    - include an additional
2. Embed specific questions about the manipulation in the survey after participating
    - Did you enjoy participating?
    - What do you think was the purpose of the experiment?
    - Did you suspect that you were being deceived?

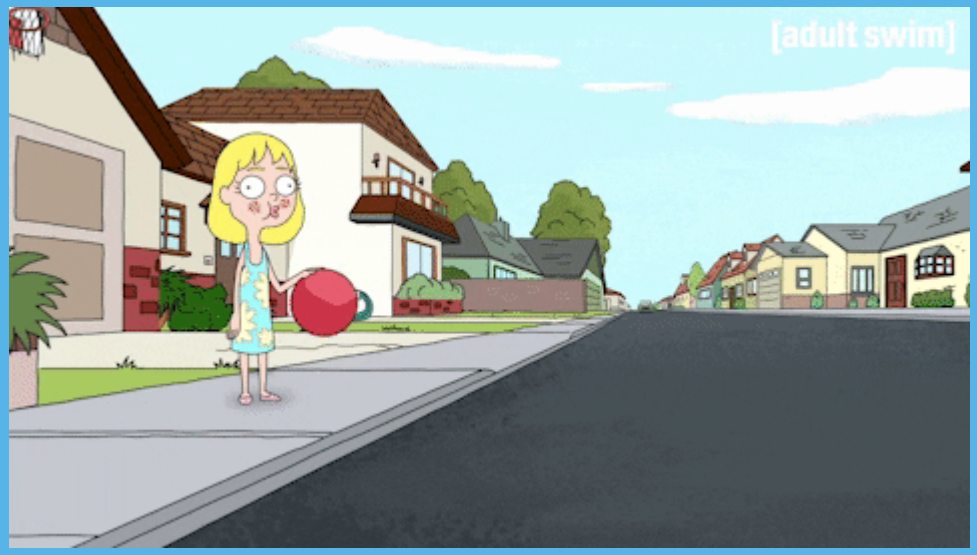
Manipulation Checks

Most important scenarios for manipulation checks

1. Participant Manipulations
    - want to double check that your manipulation/treatment group is getting at the construct that you were interested in measuring
    - Ex: wanting to study stress but find out participants had low levels of stress with a self-report measure
2. Subtle Manipulations
    - the manipulation may be subtle, such as changing a small detail in the design
    - Ex: changing the words in a short story with uncommon synonyms

1. Placebo Controls
    - asking about a placebo can check that participants thought the drug/treatment was real
2. Simulations
    - check to see if participants perceive and respond to the simulation (real-world environement of an experiment)

Simulations



Simulations

- **simulation** is a creation of conditions/treatments in an experiment that simulate or duplicate the natural environment
    - Ex: flight simulators are not real-world scenarios but are supposed to train pilots to be prepared for the real world
- **mundane realism** is superficial changes to the physical environment to make experiments seem less like lab settings and more like the real world
- **experimental realism** is more concerned with the psychological aspects to a simulation
    - participants become immersed in the environment; forget they're in an experiment

Simulation Example

- Stanford Prison Experiment
  - guards, prisons, even Zimbardo (warden) started to believe their roles
  - made the basement of a building feel like a real prison

Field Studies

- **field studies** takes an experimental design and puts it in a place that participants perceive is the natural environment
- Some great examples of field studies are *bystander apathy*
    - participants helping others (confederates) in a public setting

Pros & Cons of Simulations & Field Studies

- get more generalizable findings because they are in real-world scenarios
- loses control (internal validity) over the situation because real-world
    - no control over participants who are being observed

Extra

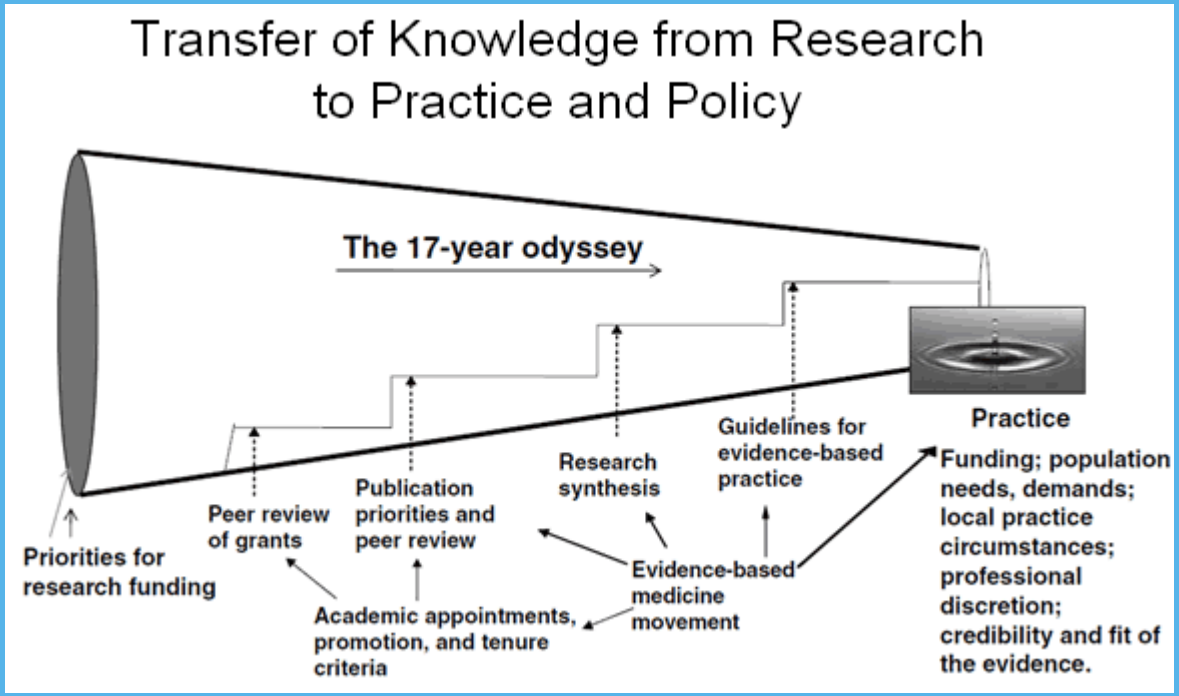
- a more real-world experience would be creating an intervention
    - an "experiment" in a completely real-world scenario
- from these interventions, you can then move into creating a program
    - often referred to as an **Evidence-based Program**
    - programs that have been tested in controlled lab settings and translated into practical models
- these can be programs that are used in communities, schools, businesses, etc.

Dimension	
Reach	Number, percentage and representativeness of eligible patients who participated in the intervention. •Is the intervention reaching the target population? Those most in need?
Effectiveness	Intervention effects on targeted outcomes, •Does the intervention accomplish its goals?
Adoption	Number, percentage and representativeness of participating settings and providers. •To what extent are those targeted to deliver the intervention participating?
Implementation	The extent to which the intervention was consistently implemented by staff members.
Maintenance	The extent to which an intervention becomes part of routine organizational practices, and maintains effectiveness.

Glasgow, www.re-aim.org

- Implementation Science & Dissemination
  - studying no longer participants but how programs are delievered

Extra


Transfer of Knowledge from Research to Practice and Policy
The 17-year odyssey
Practice
Guidelines for evidence-based practice
Research synthesis
Publication priorities and peer review
Peer review of grants
Priorities for research funding
Evidence-based medicine movement
Academic appointments, promotion, and tenure criteria
Funding; population needs, demands; local practice circumstances; professional discretion; credibility and fit of the evidence.

Extra

- Steps
  - Basic Research (correlational studies)
  - Applied Research
  - Experimental Studies
  - Intervention Studies/Simulations/Field Studies
  - Systematic Reviews/Meta-Analyses/Synthesis of Evidence
  - Evidence-Based Programs
  - Used in Real World