Experimenter Bias

- If experimenters know what experimental condition each subject is in, they could record results inaccurately to agree with their experimental hypothesis.
- Experimenters could treat participants differently (other than the IV manipulation) in each condition and bias the results.

Controlling Experimenter Bias

- Experimenters need to be trained to behave consistently with all participants, regardless of which experimental condition they are in.
- Use a double-blind method where neither the experimenter nor the participant know which condition they are in.
- Automate the delivery of instructions to participants and the recording of their responses.

Experimental Procedure Checks

- Research proposals
  - Allow informed others to evaluate the proposed experiment.
- Pilot studies
  - Trial run of the experiment helps debug the procedural details.
- Manipulation checks
  - Assessing if the IV actually changed as planned.

Debriefing

- Revealing the purpose of the experiment to the participants after the experiment is over.
  - Experimenters can find out what the participants were thinking during the experiment which could help interpret their data.
  - Debriefing serves an educational function for the participants.
  - Debriefing serves an ethical function.

Final Steps in Conducting Research

- Researchers must analyze and interpret the data generated by their experimental procedure.
- Researchers should tell others about their findings.
  - Present results at professional meetings.
  - Publish results in professional journals.

Research Designs

- True experimental research designs significantly reduce threats to internal validity.
- Quasi-experimental research designs fail to reduce critical threats to internal validity.

Threats to Internal Validity

- ***History*** effects - events between pretest and posttest change the DV rather than the IV
- ***Maturation*** - changes over time change the DV
- ***Testing*** - taking the pretest changes the posttest
- ***Instrument decay*** - changes are due to measurement errors rather than changes in the IV
- ***Statistical regression*** - extreme scores, when measured again are closer to the mean
- ***Mortality*** - changes are due to participants dropping out of the experiment.

Single-Subject Research Designs

- Only a few participants are studied at a time, usually for extended periods.
- Each participant usually gets all levels of the independent variable (but not always).
- Dependent variable changes are the behavioral changes in each participant.
- Research procedures are more flexible during the experiment.

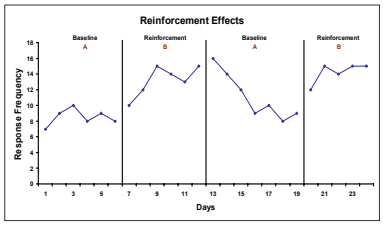
Single-Subject Research Designs

- All single-subject designs must control for sequence effects and the effects of extraneous variables changing during the experiment.
- They must show that changes in the independent variable are closely followed by changes in the dependent variable.
  - Reversal Designs (ABAB)
  - Multiple-Baseline Designs

The ABAB Reversal Design

- "A" phase (baseline)
- "B" phase (independent variable manipulation)
- "A" phase (return to baseline)
- "B" phase (return to the independent variable manipulation)

The ABAB Research Design Graph



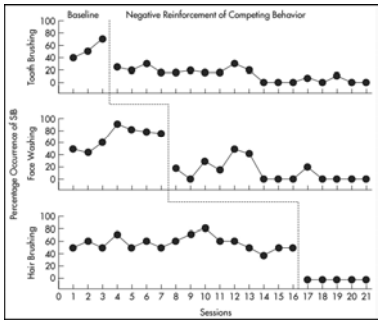
Example Exam Question: Draw an ABA Graph with the Following Data

- Baseline data (A) = 4,3,5,2,4,
- Intervention phase (B) = 7,8,5,9,6,
- Return to baseline (A) = 5,4,5,3,3

The Multiple-Baseline Design

- Minimum of three conditions where the independent variable will be changed (i.e. across participants, settings or behaviors)
- Independent variable changes are introduced sequentially across each condition while the baseline is maintained in the unchanged conditions.
- Changes in the dependent variable should be seen in each condition when the change is made but not in the other condition baselines.
- Usually display three graphs grouped with baselines coordinated with each other and interventions separated by a "stair-like" dotted line.

The Multiple-Baseline Graph



Example Exam Question: Draw a Multiple Baseline Graph of the Following Data

- Graph 1: A=3,4,5,4 B=5,6,5,8,7,8,9,5
- Graph 2: A=3,4,5,3,4,3 B=8,7,9,6,5,9
- Graph 3: A=4,5,3,4,5,2,4,3,4 B= 7,9,8

- Label Label the X-axis "Weeks" (1-12)
- the Y-axis "Hours of study"
- Graphs 1=home, 2=library, 3=cafeteria