Experimental designs generally control for threats to internal validity (see other handout)

- pre-test-posttest control group design
- posttest only control group design
- Solomon four-group design
- alternative treatment design with control group

Randomization and matching are methods of making experimental and control groups comparable.

Sometimes it is not possible to randomly assign participants to experimental or control groups; in these cases it may be possible to use quasi-experimental designs to work toward establishing cause and effect.

Quasi-experimental designs provide some control for threats to internal validity

- nonequivalent comparison groups design

  *nonequivalent comparison group designs can be improved by 1) using multiple pre-tests and 2) using switching replications*

- simple interrupted time-series design

- interrupted time-series with a nonequivalent control group time-series design

Pre-experimental pilot studies do not minimize threats to internal validity (see other handout)

- one-shot case study
- one-group pretest-posttest design
- posttest-only design with nonequivalent groups
Additional threats to the validity of experimental and quasi-experimental findings exist:

measurement bias

research reactivity—experimental demand characteristics and experimental expectations

diffusion or imitation of treatments--control groups provide intervention increasingly similar to experimental group

compensatory equalization, compensatory rivalry, or resentful demoralization

attrition (experimental mortality)—can be minimized through 1) reimbursement, 2) avoiding procedures that disappoint or frustrate participants, and 3) utilizing tracking methods

Practical pitfalls exist for experiments and quasi experiments, but can be addressed (see pages 270-273). Pitfalls include:

fidelity of intervention—degree to which the intervention is actually delivered as intended

contamination of control condition (e.g., control participants receive part of experimental intervention

resistance to case assignment protocol (e.g., control group participant moves to experimental group)

client recruitment and retention

Qualitative techniques can be used to avoid or alleviate practical pitfalls (see page 274)