

researcher use very similar approaches. To prevent participants from figuring out the hypothesis, both researchers may use (a) few levels of the independent variable, (b) placebo treatments, and/or (c) gradual variations in the levels of the independent variable.

11. Unlike single-*n* researchers, quasi-experimenters cannot keep relevant nontreatment factors from varying.
12. Quasi-experimenters must explicitly rule out the eight threats to internal validity: history, maturation, testing, instrumentation, mortality (attrition), regression, selection, and selection by maturation interactions.
13. Instrumentation can be ruled out by using the same measure, the same way, every time.
14. You can rule out mortality (attrition) threat to your study's validity if you can prevent participants from dropping out of your study.
15. You can probably rule out regression if participants were not chosen on the basis of their extreme scores or if your measuring instrument is extremely reliable.
16. The time-series design is very similar to the A-B single-*n* design. The main differences are that the time-series design (a) studies more participants, (b) does not control the variables necessary to establish a stable baseline, and (c) doesn't isolate participants from history the way the single-*n* design does. Because of its lack of control over environmental variables, it is vulnerable to history effects.
17. The nonequivalent control-group design resembles the simple experiment. However, because participants are not randomly assigned to groups, selection is a serious problem in the nonequivalent control-group design.
18. Although quasi-experimental designs are not as good as experimental designs for inferring causality, they are more versatile.

KEY TERMS

A-B design (p. 569)

baseline (p. 573)

carryover effects (p. 576)

covariation (p. 565)

law of parsimony (p. 601)

maturation (p. 573)

multiple-baseline design (p. 578)

nonequivalent control-group design (p. 597)

pretest-posttest design (p. 588)

quasi-experiment (p. 583)

reversal design A-B-A design A-B-A reversal design (p. 575)

single-*n* design (p. 569)

spurious relationship (p. 566)

stable baseline (p. 572)

temporal precedence (p. 566)

testing (p. 575)

time-series design (p. 590)

EXERCISES

1. Suppose that the means for the treatment and no-treatment conditions are the same. If so, which requirement of establishing causality has not been met?
2. If the study does not manipulate the treatment, which requirement of establishing causality will be difficult to meet?
3. If participants are not randomly assigned to condition, which requirement for establishing causality will be almost impossible to meet?
4. Compare and contrast how single-*n* designs and randomized experiments account for nontreatment factors.
5. What arguments can you make for generalizing results from the single-*n* design?
6. How do the A-B design and the pretest-posttest design differ in terms of
 - a. procedure?
 - b. internal validity?
7. How does the single-*n* researcher's A-B-A design differ from the quasi-experimenter's reversal time-series design in terms of
 - a. procedure?
 - b. internal validity?
8. Design a quasi-experiment that looks at the effects of a course on simulating parenthood,

- including an assignment that involves taking care of an egg, on changing the expectations of junior-high school students about parenting. What kind of design would you use? Why?
9. An ad depicts a student who has improved his grade-point average from 2.0 to 3.2 after a stint in the military. Consider Campbell and Stanley's "spurious eight." Is the military the only possible explanation for the improvement?
 10. One study found that students who had been held back a grade did worse in school than students who had not been held back. Based on this evidence, some people concluded holding students back a grade harmed students.
 - a. Does this evidence prove that holding students back harms their performance? Why or why not?
 - b. If you were a researcher hired by the Department of Education to test the assertion that holding students back harms them, what design would you use? Why?



WEB RESOURCES

1. Go to the Chapter 14 section of the book's student website and
 1. Look over the concept map of the key terms.
 2. Test yourself on the key terms.
 3. Take the Chapter 14 Practice Quiz.
2. Read the interactive story that reviews different threats to internal validity.
3. Consider an alternative to using quasi-experiments by reading "Web Appendix: Field Experiments."