

Practice MC

1. In an experiment of the effects of running on stress levels, one group of participants is testing after running on a treadmill for 20 minutes. A week later, the same group of participants is tested after resting on a bed for 30 minutes. This is an example of a _____ design.
 - a. Single subjects
 - b. Between subjects
 - c. Within subjects
 - d. Matched groups

2. A between subjects experiment comparing 4 treatment conditions produces 20 scores in each treatment condition. How many scores were obtained for each participant?
 - a. 1
 - b. 4
 - c. 20
 - d. 80

3. If a between subjects experiment produces 50 scores in treatment 1, and 50 scores in treatment 2, then the experiment must have had
 - a. 50 participants
 - b. 100 participants
 - c. 25 participants
 - d. 200 participants

4. A major concern in a between subjects design is that:
 - a. Practice may affect individuals' scores
 - b. Fatigue may affect individuals' scores
 - c. The different groups may not be as similar as possible
 - d. Each treatment is administered to only 1 group of participants

5. A researcher is conducting an experiment comparing 3 treatment conditions. If the researcher uses a between-subjects design, there will be ___ score(s) for each participant, but with a within-subjects design, there will be _____ score(s) for each participant.
 - a. 1, 1
 - b. 1, 3
 - c. 3, 1
 - d. 3, 3

6. In a within subjects experiment, individuals may have extreme scores in the first treatment condition and then have less extreme scores in the second treatment condition even when there is no real difference between the two treatments. In this case, the change in scores is due to:

- a. History effects
- b. Instrumentation
- c. Maturation
- d. Regression toward the mean

7. In a within subjects design, the term “participant attrition” refers to the possibility that

- a. The scores may differ from one treatment to another because of outside events
- b. The scores may differ from one treatment to another because of changes in the measuring instrument
- c. The scores may differ from one treatment to another because the participants gain experience in each treatment
- d. Some individuals in the study may leave without completing all of the treatment conditions

8. The appropriate statistical test for a within-subjects design with 2 levels of the IV and a ratio or interval scale DV is

- a. Independent sample t-test
- b. Chi-square test
- c. One-way ANOVA
- d. Dependent sample t test

9. Although non-experimental and quasi experimental designs resemble true experiments, they contain _____ and cannot _____

- a. Threats to internal validity; generalize to other situations
- b. Threats to external validity; generalize to other situations
- c. Threats to internal validity; establish causal relationships
- d. Threats to external validity; establish causal relationships

10. Differential design is classified as:

- a. Correlation
- b. Experimental
- c. Quasi-experimental
- d. Non-experimental

11. A one group pretest-posttest design (O X O) design is considered:

- a. An experiment
- b. A non-experimental design
- c. A non-equivalent groups quasi-experimental design
- d. A time series quasi-experimental design

12. A problem with longitudinal designs is that results may be distorted by

- a. Cohort effects
- b. Participant attrition
- c. Differential history effects
- d. Assignment bias

13. How many independent variables are there in a 2 X 2 X 2 X 2 factorial design

- a. 2
- b. 4
- c. 16
- d. 8

14. A prison psychologist measures depression for a group of prisoners each day for 1 week before and 1 week after the psychologist begins a series of group therapy sessions. This is an example of a(n) _____ design

- a. Time series
- b. Interrupted time series
- c. Equivalent time samples
- d. One-group pretest-posttest design

15. A research study comparing problem solving ability for girls versus boys under three different levels of temperature could be described as a _____.

- a. 2 X 2 design
- b. 2 X 3 design
- c. 2 X 2 X 3 design
- d. None of the above

15. The following data show the means for 4 treatment conditions as well as the overall means for the columns and rows. For these data, what numbers are compared to assess the main effect of Factor A?

	A1	A2	
B1	M = 20	M = 60	M = 40
B2	M = 30	M = 70	M = 50
	M = 25	M = 65	

- a. 30; 70
- b. 20; 30
- c. 40; 50
- d. 25; 65

16. The following data represent the means for each treatment condition in a 2-factor experiment with 2 levels of each factor. What pattern of results is shown in the data?

	A1	A2
B1	M = 20	M = 40

B2

M = 30

M = 50

- a. Main effects for both factors and an interaction
- b. Main effects for both factors and no interaction
- c. Main effect for Factor A, no main effect for Factor B and an interaction
- d. Main effect for Factor A, no main effect for Factor B, and no interaction

17. A factorial study that measures depression before and after treatment for a treatment group and a control group is an example of a _____

- a. Between subjects design
- b. Within-subjects design
- c. Repeated measures design
- d. Mixed design

18. A stable level within a phase is defined as

- a. a set of observations that cluster around a horizontal line when graphed
- b. a set of observations that cluster around a line sloping up to the right when graphed
- c. a set of observations that cluster around a line sloping down to the right when graphed
- d. a set of observations that cluster around a vertical line when graphed

19. Typically, the results from a single-subject research study are evaluated using

- a. descriptive statistics such as the mean and standard deviation
- b. inferential statistics such as those used in hypothesis testing
- c. Visual inspection of a graph
- d. Consensus among at least three researchers

20. In the ABAB design, a major ethical concern is about

- a. Waiting for a series of initial baseline observations before administering treatment
- b. Administering the treatment immediately after the initial baseline phase
- c. Removing the treatment after it has already shown to be effective
- d. Reintroducing the treatment after it has already shown to be effective

Short answer:

Describe what a placebo control condition is. Why would you use one?

Your research buddy just finished an experiment comparing the effects of caffeinated drinks on memory. Your friend used a within-subjects design and had all participants complete a memory task

after taking Redbull (caffeine), and then 1 week later, had the same participants complete a memory test after consuming a placebo drink (no caffeine). Results showed that participants' memory was improved in the placebo condition relative to the caffeine condition.

What is the independent variable?

What is the dependent variable?

Do you have any concerns about this study? If yes, what?

Based on those concerns, what would you recommend to your friend?

The administrators at Weight Watchers want to increase membership sales. They want to design an advertising campaign that will appeal to both men and women. They have two ideas in mind, one campaign that emphasizes feeling good and another that emphasizes looking good. You have been recruited to design an experiment to shed light on the matter.

What is the correct name of this factorial experiment?

Identify the factors and levels present in the experiment.

Identify the DV.

Identify the main effects and interactions you will be examining in this study.

Sheila runs a dating agency for male executives. She's interested finding out what type of client females are more willing to date. She keeps count of how many dates each of the men go on. The men are categorized according to their age (young / mature), the type of car they drive (sporty / luxury) and what they do on a first date (coffee, movie, or dinner). You have been recruited to design an experiment to shed light on the matter.

What is the correct name of this factorial experiment?

Identify the factors and levels present in the experiment.

Identify the DV

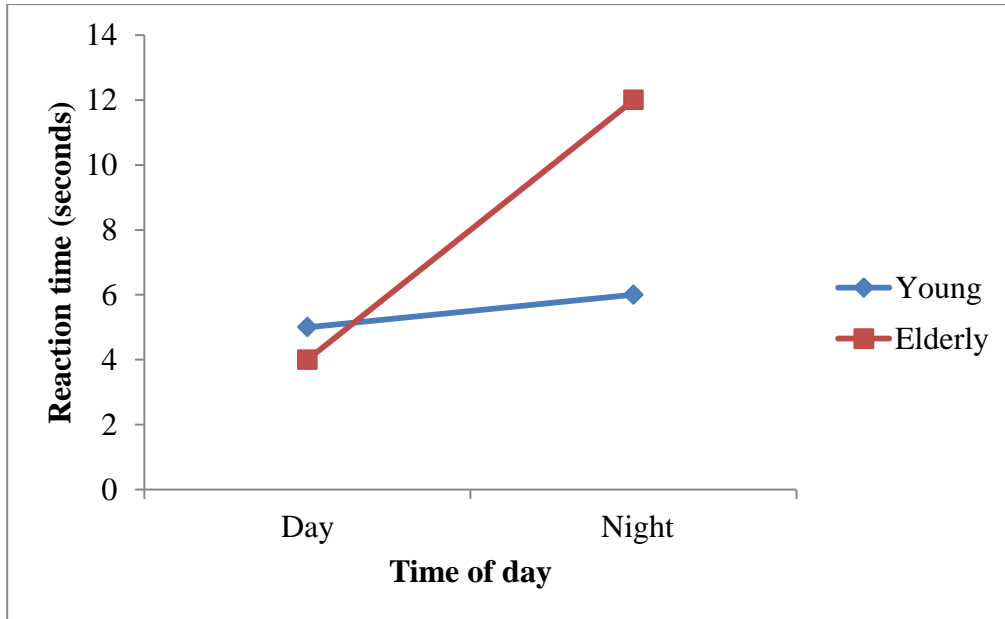
Identify the main effects and interactions you will be examining in this study.

A researcher is interested in driving ability in the elderly compared to young adults and whether or not driving ability changes according to time of day. To test this research question, 20 young adults (aged 30 to 40) completed a simulated driving test under 2 conditions; light (to mimic daytime) and dark (to mimic nighttime). Importantly the order (day, night) was counterbalanced. A total of 20 elderly adults (aged 70 to 80) completed the same task; that is a simulated driving test under 2 conditions; light (to mimic daytime) and dark (to mimic nighttime). The order (day, night) was counterbalanced. In the driving test, participants drive along the country roads. The researcher measured reaction time to press on the brakes after an animal suddenly appears on the road in front of the car.

What is the correct name of this factorial experiment?

Identify the factors and levels present in the experiment.

Identify the DV



Here is the data. What effects do you see? What recommendations would you make based on these results?