

First Name: _____ Last Name: _____

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PSC 041

Research Methods in Psychology

WQ 2024

Unit 3 Exam Version B

Research Summary

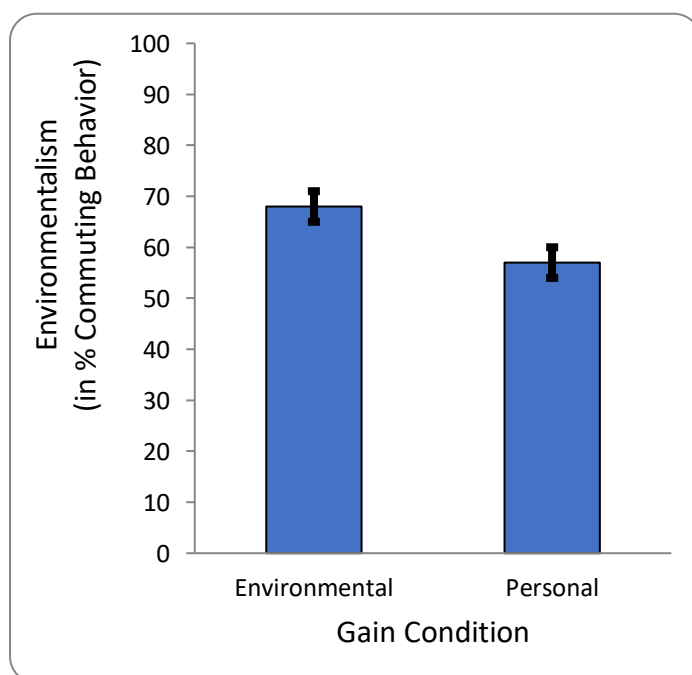
For multiple choice questions, fill in the box to indicate your selection. Do not make stray marks in other boxes. For short answer questions, try to write on the lines and stay in the space provided.

McNeill, I. M. & Unsworth, K. L. (2017). Increasing pro-environmental behaviors by increasing self-concordance: Testing an intervention. *Journal of Applied Psychology*, 102(1), 88–103.

A psychological trick to turn people green: show how environmentalism will help their own goals

How do you get people to act in a climate friendly manner? The received wisdom is to push the basic message that climate change is real, humans have a hand in it, and we must mitigate it through action. But this approach hits a wall when people are disposed against that goal ideologically or because they simply don't care enough. New research in the *Journal of Applied Psychology* suggests another strategy: encourage environmental behaviors by linking them to goals that are already personally important.

Researchers worked with a corporation to investigate this question. The corporation was planning to reduce the size of its parking lot and was looking for ways to encourage their employees to see this as a positive change. The 183 employees who always commuted in private vehicles were randomly assigned to hear one of two scripts about this change. In one condition, environmental gain reasons were emphasized with the participants being given reasons around saving the environment (e.g., benefits of reduced traffic density and increasing energy efficient vehicles). In the other condition, personal gain reasons (e.g., saving money, encouraging exercise, more time to read during commute) were used to emphasize why the parking lot was changing.



Three months after the change was made, the researchers gathered data on the commute behavior of the employees. At the end of the day, the researchers watched the employees leave the building and recorded which employees left in personal cars and which were using alternate means of transportation (e.g., bicycle, bus, or carpool). They gathered data on all but four of the original participants – three had left the company and one was on sick leave. These four participants had all heard the personal gain script. The proportion of employees still driving personal cars was significantly lower in the personal gain condition (57%) than in the eco-benefits condition (68%), $\chi^2 = 4.02, p = .02$.

Predictor Variable

Considering the predictor / independent variable: Gain Condition

- 10 pts 1. How did the researchers operationally define the predictor / independent variable? Describe it using your own words. *Be sure to include the levels or values and indicate how the codes will be interpreted.*

- 5 pts 2. The Predictor / Independent Variable is (fill in the box)

☐ **Categorical**

☐ **Continuous**

- 5 pts 3. How was the Predictor / Independent Variable measured? (fill in the box)

☐ **Observation**

☐ **Physiological**

☐ **Self-Report**

☐ **It was manipulated**

- 5 pts 4. Is this a causal or associative claim? (fill in the box)

☐ **Causal**

☐ **Associative**

- 20 pts 5. Evaluate the **construct validity** of the predictor / independent variable.
ProTips: Give an overall evaluation. Think about the face validity, the procedure, and the method-match to inform your decision. Use specific vocabulary. Be sure to only discuss this one variable.

Outcome Variable

Considering the outcome / dependent variable: Environmentalism

Partial operational definition: The researchers recorded whether each participant left work in a personal vehicle or in any other form of transport.

- 5 pts 6. The Outcome / Dependent Variable is (fill in the box)
- ☐ **Categorical** ☐ **Continuous**
- 5 pts 7. How was the Outcome / Dependent Variable measured? (fill in the box)
- ☐ **Observation** ☐ **Physiological**
☐ **Self-Report** ☐ **It was manipulated**

Use this information only for the next two questions:

Another researcher wants to extend this finding using different methods to address the same research question. This researcher contacted each participant and asked them to estimate how many days over the last month they thought they drove to work in a personal vehicle and how many days they remembered using any other form of transport.

- 5 pts 8. How was this new Outcome / Dependent Variable measured? (fill in the box)
- ☐ **Observation** ☐ **Physiological**
☐ **Self-Report** ☐ **It was manipulated**
- 5 pts 9. The new outcome variable (month estimate) has ____ construct validity than the original outcome (commuting behavior) because it has a ____.
- ☐ **stronger; worse method match**
☐ **weaker; worse method match**
☐ **stronger; better method match**
☐ **weaker; better method match**

Evaluate Internal Validity

ProTip: Use specific vocabulary and include details from the study. Have they started with equivalent groups? Have they ruled out everything else? Think about history, testing, mortality, maturation, and selection effects.

15 pts 10. For this research summary, there is **an attrition/mortality effect** because...

15 pts 11. For this research summary, 'prior exposure to ecological information' **is not a confound** because...

5 pts 12. To establish ____ reliability, the researcher had two assistants recording commuting behavior.

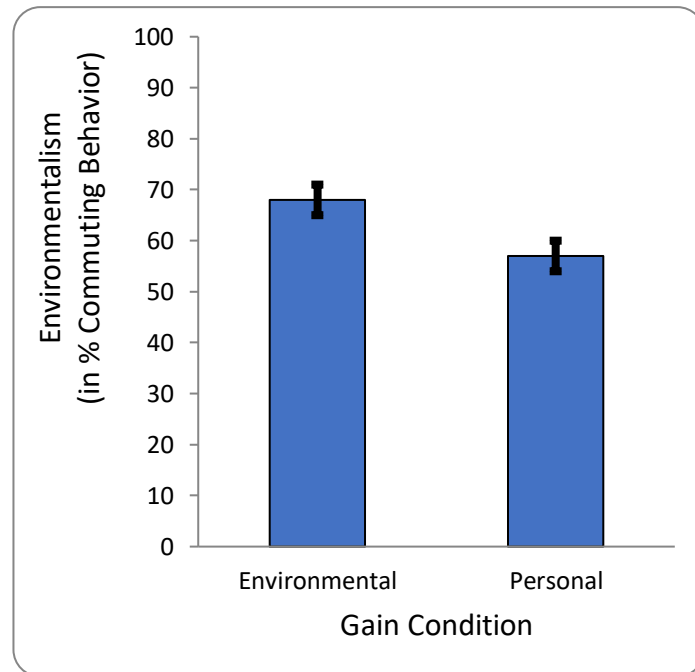
- ☐ **Test-retest**
- ☐ **Split half**
- ☐ **Alternate forms**

- ☐ **Interrater**
- ☐ **Counterbalancing**
- ☐ **Manipulation check**

5 pts 13. This research design was (fill in the box)

- ☐ **between groups**
- ☐ **within group**

Summarize the findings



5 pts 14. The error bars ____ overlap. Therefore, there likely ____ a real relationship between the variables.

- ☐ do not; is
- ☐ do not; is not
- ☐ do; is
- ☐ do; is not

5 pts 15. The p value is _____. Therefore, there ____ a statistically significant relationship between the variables

- | | |
|--|---|
| <input type="checkbox"/> less than 0.05; is | <input type="checkbox"/> less than 0.5; is |
| <input type="checkbox"/> less than 0.05; is not | <input type="checkbox"/> less than 0.5; is not |
| <input type="checkbox"/> greater than 0.05; is | <input type="checkbox"/> greater than 0.5; is |
| <input type="checkbox"/> greater than 0.05; is not | <input type="checkbox"/> greater than 0.5; is not |

5 pts 16. Does this interpretation follow from this study: "Being told about the ways you might personally gain causes less change in behavior than being told about environmental gains." Why or why not?

Multiple Choice. Select the single best answer. Indicate your choice by filling in the box to the left of your selection. Avoid making stray marks in other boxes.
2 points each.

17. In experimental research, we _____ the dependent variable after having _____ the independent variable.

- | | |
|---|--|
| <input type="checkbox"/> manipulate; controlled | <input type="checkbox"/> control; measured |
| <input type="checkbox"/> manipulate; measured | <input type="checkbox"/> manipulate; manipulated |
| <input type="checkbox"/> measure; manipulated | <input type="checkbox"/> measure; measured |

18. A researcher wants to know whether wearing sunglasses improves driving performance. To design a between group design, the researcher could

- ☐ randomly assign half the drivers to a sunglasses condition and half to a no-sunglasses condition.
- ☐ have all drivers first drive without sunglasses and then with sunglasses.
- ☐ have half the drivers first drive without sunglasses and then with sunglasses and have the other half first drive with sunglasses and then without sunglasses.
- ☐ None of these

Use this information for the following three questions: A developmental psychologist has research assistants observe aggressive behavior in a group of second-grade children after seeing a non-aggressive cartoon and then again after seeing an aggressive cartoon.

19. This is a(n) _____ design.

- | | |
|---|--|
| <input type="checkbox"/> post-test only | <input type="checkbox"/> within group |
| <input type="checkbox"/> matched pairs | <input type="checkbox"/> Latin square |
| <input type="checkbox"/> block design | <input type="checkbox"/> concurrent measures |

20. If neither the children nor the research assistants in the above example knew the purpose of the study or the type of cartoon viewed, this would be

- | | |
|--|--|
| <input type="checkbox"/> a counterbalanced design. | <input type="checkbox"/> double-blind technique. |
| <input type="checkbox"/> self-report. | <input type="checkbox"/> single-blind technique. |

21. The researcher is concerned that maturation is posing a threat to internal validity in this study. Let's fix that.

- ☐ Recruit third-grade children as well and have them join the second graders in this study.
- ☐ Ask the children to select which cartoons they would prefer to watch
- ☐ Gather data from all of the children in the same room at the same time while they watch the same cartoons in the same order.
- ☐ Randomly assign the children to two order conditions. One condition watches the aggressive cartoons first, the other condition watches the aggressive cartoons second.

22. Why is random assignment important in experimental research?

- ☐ It eliminates internal validity
- ☐ It ensures that the measured variable is assigned to the correct group.
- ☐ It ensures that the manipulated variable is assigned to the correct group.
- ☐ It ensures that the experimental and control groups are equivalent.
- ☐ It ensures that the confounding variables are assigned to the control group.
- ☐ It ensures that the confounding variables are assigned to the experimental group.

23. Which threat to internal validity describes differences in the duration of the study?

- | | |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/> Selection | <input type="checkbox"/> Testing |
| <input type="checkbox"/> History | <input type="checkbox"/> Attrition |
| <input type="checkbox"/> Maturation | |

24. Which threat to internal validity describes differences in when the data was gathered?

- | | |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/> Selection | <input type="checkbox"/> Testing |
| <input type="checkbox"/> History | <input type="checkbox"/> Attrition |
| <input type="checkbox"/> Maturation | |

25. Which threat to internal validity describes differences in how often the outcome variable was measured?

- | | |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/> Selection | <input type="checkbox"/> Testing |
| <input type="checkbox"/> History | <input type="checkbox"/> Attrition |
| <input type="checkbox"/> Maturation | |

26. p _____

- ☐ indicates the direction and strength of a relationship between two continuous variables.
- ☐ compares two group averages.
- ☐ indicates statistical significance if it is < 0.05 .

27. r _____

- ☐ indicates the direction and strength of a relationship between two continuous variables.
- ☐ compares two group averages.
- ☐ indicates statistical significance if it is < 0.05 .

An experimenter wants to know if sleep duration affects mood. He recruits 80 participants from the community and randomly assigns them to either an 8-hour or 6-hour sleep condition. He invites all participants to spend a night in the sleep lab so that he can monitor their state of consciousness and time their sleep. His sleep lab has ten rooms, so he schedules ten participants on each Monday-Thursday nights for two consecutive weeks. Each participant is shown to their own sleep lab bedroom. Those in the 8-hour condition are asked to go to bed and try to sleep at 10pm. Those in the 6-hour condition are asked to go to bed and try to sleep at midnight. He wakes up all the participants at 6am and ask them to complete a mood inventory before thanking them and giving them a gift card to a nearby coffee shop.

Using the above scenario, for each of the following issues and solutions, identify the threat to internal validity that has been addressed or would be introduced.

28. The participants in the 8-hour group are asked to arrive at the lab at 8pm. The participants in the 6-hour group are asked to arrive at the lab at 10pm. This weakens internal validity by introducing a(n) ____ effect.

<input type="checkbox"/> History	<input type="checkbox"/> Testing
<input type="checkbox"/> Selection	<input type="checkbox"/> Attrition
<input type="checkbox"/> Maturation	

29. Many participants assigned to the 6-hour group find it hard to stay awake until midnight and end up getting more than 6-hours of sleep. These participants are eliminated from the study. This weakens internal validity by introducing a(n) ____ effect.

<input type="checkbox"/> History	<input type="checkbox"/> Testing
<input type="checkbox"/> Selection	<input type="checkbox"/> Attrition
<input type="checkbox"/> Maturation	

30. The participants in the 8-hour group fill out the mood survey when they first arrive and again at 6am. The participants in the 6-hour group just fill out the mood survey at 6am. This weakens internal validity by introducing a(n) ____ effect.

<input type="checkbox"/> History	<input type="checkbox"/> Testing
<input type="checkbox"/> Selection	<input type="checkbox"/> Attrition
<input type="checkbox"/> Maturation	

31. On Monday and Tuesday nights, the participants were in the 6-hour group. On Wednesday and Thursday nights, they were in the 8-hour group. This weakens internal validity by introducing a(n) ____ effect.

<input type="checkbox"/> History	<input type="checkbox"/> Testing
<input type="checkbox"/> Selection	<input type="checkbox"/> Attrition
<input type="checkbox"/> Maturation	