

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Student ID #: \_\_\_\_\_

PSC 041

Research Methods in Psychology

WQ 2023

### Unit 3 Exam Version B

### Research Summary

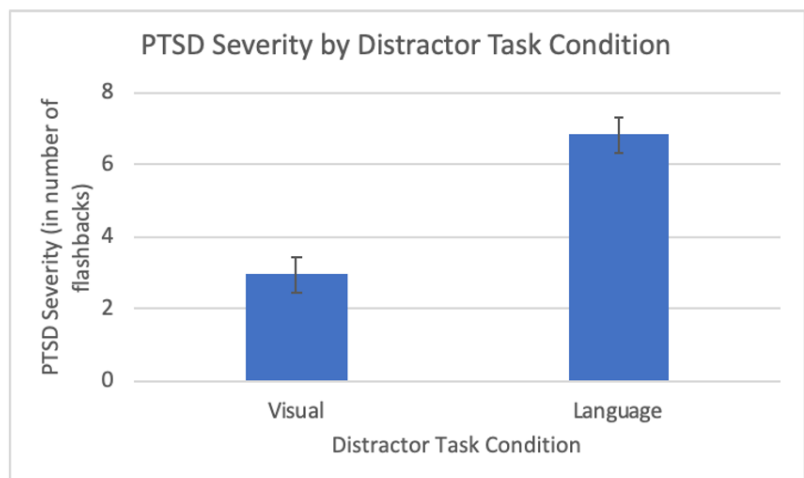
For multiple choice questions, fill in the box to indicate your selection. Do not make stray marks in other boxes. For short answer questions, try to write on the lines and stay in the space provided.

**Adapted from:** Holmes, E. A., James, E. L., Coode-Bate, C. D. (2009). Can playing the computer game “Tetris” reduce the build-up of flashbacks for trauma? A proposal from cognitive science. *PLoS One*, 4 (1), 1-6.

There might be a way to prevent the occurrence of post-traumatic stress disorder (PTSD) after a trauma. The key lies in disrupting the memory soon after a traumatic event. After an event, there is a window of time where the memory trace is being formed. If the limited attentional resources are distracted during this window, the consolidation process is interrupted, and a weaker memory trace is formed. Because visual flashbacks are the most prominent symptom in PTSD and because our working memory treats visual-spatial tasks differently than language (verbal) tasks, the researchers are wondering if different types of distraction will have different effects on the severity of PTSD.

Forty college students (aged 18-22) came into the lab together and watched traumatic films depicting real-life serious injury. The participants were then randomly assigned to two groups and were escorted to one of two different rooms. In one room, twenty participants were asked to engage in a visual-spatial task. In the other room, the other twenty participants were asked to do a language task. For the visual task, the participants played the video game Tetris for 20 minutes; for the language task, they listened to a story for 5 minutes.

A week later, each participant was contacted via text and asked a series of questions about any flashbacks they might have experienced. The participants were asked to estimate the total number of flashbacks they had experienced. Participants who took part in the visual-spatial task described fewer flashbacks ( $M = 2.93$ ,  $SD = 0.43$ ) than the group that did the language task ( $M = 6.81$ ,  $SD = 0.57$ ),  $t(38) = 2.50$ ;  $p = .01$ .



## Predictor Variable

Considering the predictor / independent variable: Distractor Task Condition

5 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**

10 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: PTSD Severity

*Partial operational definition: The experimenters asked participants to estimate how many traumatic flashbacks they had experienced.*

- 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 asked each participant a 'fit bit' on their wrist for a week. The 'fit bit' recorded the participant's heart rate. Periods of heightened heart rate were coded as flashbacks.

- 5 pts 8. How was this new Outcome / Dependent Variable measured? (fill in the box)
- ☐ **Observation** ☐ **Physiological**  
☐ **Self-Report** ☐ **It was manipulated**

- 10 pts 9. Does the new outcome variable have stronger or weaker construct validity than the original outcome? Explain your reasoning in a few sentences.

---

---

---

---

---

---

---

---

---

---

### Evaluate Internal Validity

In the next two questions, describe how a threat to internal validity has been solved or why an effect might influence one group differently than the other. You may include evidence for either strengths or weaknesses.

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**, evaluate **one** aspect of **internal validity**.

---

---

---

---

---

---

---

15 pts 11. For **this research summary**, evaluate **one more** aspect of **internal validity**.

---

---

---

---

---

---

---

15 pts 12. For this research summary, 'sensitivity to traumatic films' **is not a confound** because...

---

---

---

---

5 pts 13. To establish reliability of the outcome variable using \_\_\_\_, the researcher had two different versions of the questions and some participants were asked both versions.

- |   |  |
|---|--|
| <input type="checkbox"/> <b>Test-retest</b>     | <input type="checkbox"/> <b>Interrater</b>         |
| <input type="checkbox"/> <b>Split half</b>      | <input type="checkbox"/> <b>Counterbalancing</b>   |
| <input type="checkbox"/> <b>Alternate forms</b> | <input type="checkbox"/> <b>Manipulation check</b> |

5 pts 14. This research design was (fill in the box)

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

5 pts 15. Explain how you know whether it was between groups or within group.  
ProTips: Use specific vocabulary and include specific details from this study.  
Indicate how many levels of the predictor variable each participant experienced.

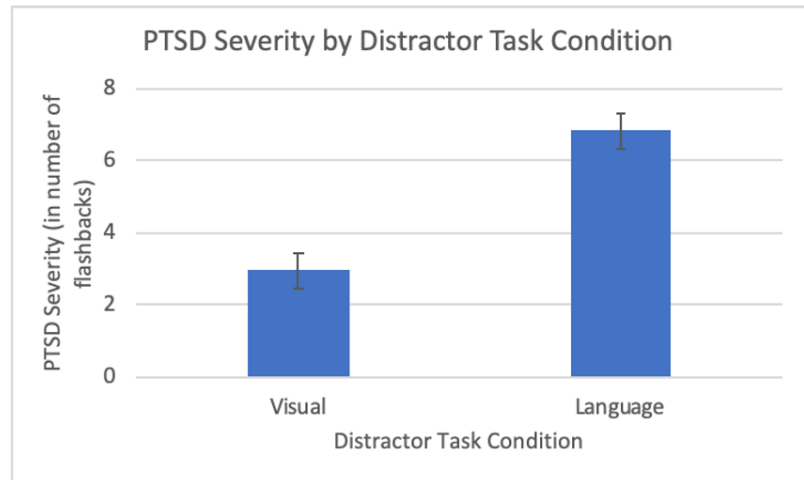
---

---

---

---

## Summarize the findings



5 pts 16. The error bars \_\_\_\_\_ overlap. Therefore, there likely \_\_\_\_ a real relationship between the variables.

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

5 pts 17. The  $p$  value is \_\_\_\_\_. Therefore, there \_\_\_\_ a statistically significant relationship between the variables

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

5 pts 18. Does this interpretation follow from this study: "Being visually distracted causes an decrease in the number of flashbacks" 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.

19. 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       |
20. 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.

21. This is a(n) \_\_\_\_\_ design.
- |   |  |
|---|--|
| <input type="checkbox"/> post-test only | <input type="checkbox"/> Latin square        |
| <input type="checkbox"/> matched pairs  | <input type="checkbox"/> concurrent measures |
| <input type="checkbox"/> block design   | <input type="checkbox"/> between groups      |
| <input type="checkbox"/> within group   | <input type="checkbox"/> factorial           |
22. 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"/> single-blind technique. |
| <input type="checkbox"/> self-report.              | <input type="checkbox"/> double-blind technique. |
23. 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.

24. 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.

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.

25. 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"/> Maturation | <input type="checkbox"/> Attrition |
| <input type="checkbox"/> Selection | <input type="checkbox"/> Testing    |                                    |

26. 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"/> Maturation | <input type="checkbox"/> Attrition |
| <input type="checkbox"/> Selection | <input type="checkbox"/> Testing    |                                    |

27. 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"/> Maturation | <input type="checkbox"/> Attrition |
| <input type="checkbox"/> Selection | <input type="checkbox"/> Testing    |                                    |

28. 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"/> Maturation | <input type="checkbox"/> Attrition |
| <input type="checkbox"/> Selection | <input type="checkbox"/> Testing    |                                    |