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PSC 041 Research Methods in Psychology WQ 2023

Unit 3 Exam Version A

Research Summary

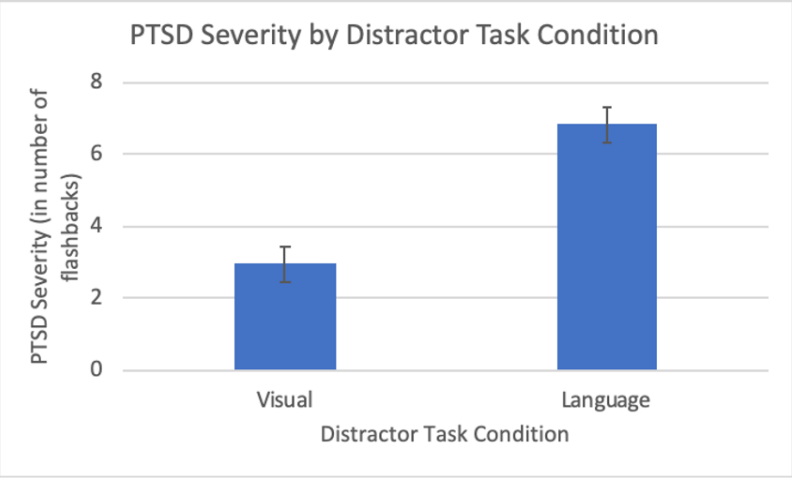
For multiple choice questions, fill in the box to indicate your selection. Do not make stray marks in other boxes. For short answer questions, try to write on the lines and stay in the space provided.

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.

Sixty 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, thirty participants were asked to engage in a visual-spatial task. In the other room, the other thirty participants were asked to do a language task. Both tasks lasted for 10 minutes. For the visual task, the participants played the video game Tetris; for the language task, they listened to a story.

Each participant was then given a journal and asked to write about each flashback they experienced from the traumatic films over the next week. They were asked to carry the journals with them and record the flashbacks as soon as they occurred. Participants who took part in the visual-spatial task recorded fewer flashbacks (M = 2.93, SD = 0.43) than the group that did the language task (M = 6.81, SD = 0.57), t(58) = 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 had participants use a journal for a week to document every time they experienced a traumatic flashback.

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 participants at the end of the week and asked them how many flashbacks they had experienced during the week.

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, 'prior traumatic exposure**" is not a confound** because…

5 pts 13. To establish reliability of the outcome using ____, the researcher could have asked the participants 10 questions about the flashbacks and compared each participant's responses on the even questions to their responses on the odd questions.

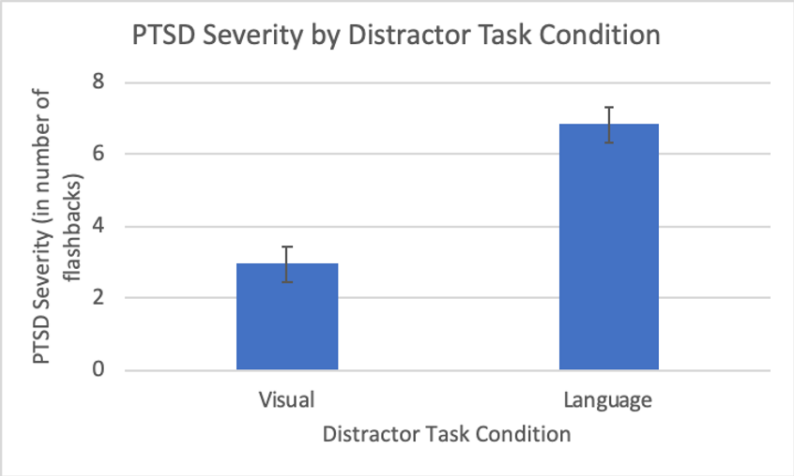
- ☐ **Test-retest**
- ☐ **Split half**
- ☐ **Alternate forms**
- ☐ **Interrater**
- ☐ **Counterbalancing**
- ☐ **Manipulation check**

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

- ☐ **greater than 0.05; is**
- ☐ **greater than 0.05; is not**
- ☐ **less than 0.05; is**
- ☐ **less than 0.05; is not**
- ☐ **greater than 0.5; is**
- ☐ **greater than 0.5; is not**
- ☐ **less than 0.5; is**
- ☐ **less than 0.5; is not**

5 pts 18. Does this interpretation follow from this study: "Being visually distracted causes an increase 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 independent variable and _____ the dependent variable.
    - ☐ manipulate; control
    - ☐ manipulate; measure
    - ☐ measure; manipulate
    - ☐ control; measure
    - ☐ manipulate; manipulate
    - ☐ measure; measure

20. A researcher wants to know whether wearing sunglasses improves driving performance. To design a counterbalanced within groups 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: Research assistants in a developmental psychology lab observe pro-social behavior in a group of toddlers after seeing an adult modeling helping behavior and then again after seeing an adult modeling antisocial behavior.

21. This is a(n) _____ design.
    - ☐ matched pairs
    - ☐ block design
    - ☐ within group
    - ☐ post-test only
    - ☐ Latin square
    - ☐ concurrent measures
    - ☐ between groups
    - ☐ factorial

22. If neither the toddlers nor the research assistants in the above example knew the purpose of the study or the type of behavior modeled, this would be
    - ☐ single-blind technique.
    - ☐ double-blind technique.
    - ☐ a counterbalanced design.
    - ☐ self-report.

23. The researcher is concerned that maturation is posing a threat to internal validity in this study. Let's fix that.
    - ☐ Recruit older children to be participants in this study.
    - ☐ Randomly assign the toddlers to two order conditions. One condition watches the helping behavior first, the other condition watches the helping behavior second.
    - ☐ Ask the toddler's parents to select which behavior they would prefer
    - ☐ Gather data from all of the toddlers in the same room at the same time watching the helping behavior first and then watching the antisocial behavior.

24. Why is random assignment important in experimental research?
    - ☐ It ensures that the confounding variables are assigned to the experimental group.
    - ☐ It ensures that the confounding variables are assigned to the control group.
    - ☐ 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 eliminates internal validity

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. On each night, five participants from the 8-hour group and five participants from the 6-hour group were scheduled to be at the sleep lab. This strengthens internal validity by eliminating a(n) ___ effect.
    - ☐ History ☐ Maturation ☐ Attrition
    - ☐ Selection ☐ 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.
    - ☐ History ☐ Maturation ☐ Attrition
    - ☐ Selection ☐ Testing

27. The participants in both groups fill out the mood survey once at 6am. This strengthens internal validity by eliminating a(n) ___ effect.
    - ☐ History ☐ Maturation ☐ Attrition
    - ☐ Selection ☐ Testing

28. Some of the participants in the 8-hour group refused to go to bed at 10pm stating that this was far early than their usual bedtime. They were then included in the 6-hour group. This weakens internal validity by introducing a(n) ___ effect.
    - ☐ History ☐ Maturation ☐ Attrition
    - ☐ Selection ☐ Testing