

First Name: _____ Last Name: _____

Student ID #: _____

PSC 041

Research Methods in Psychology

SS1 2022

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.

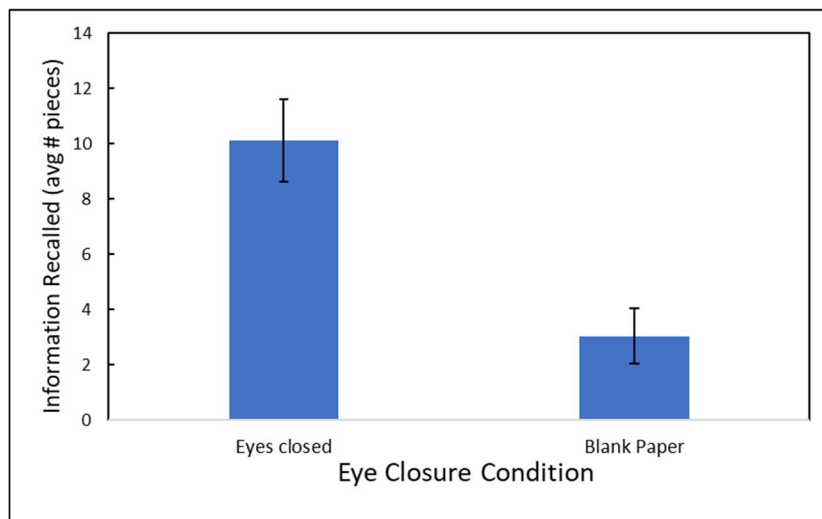
Adapted from: Vredeveldt, A., Hitch, G. J., & Baddeley, A. D. (2011). *Eyeclosure helps memory by reducing cognitive load and enhancing visualization. Memory & Cognition, 39*(7), 1253-1263.

Thanks to the foibles of human memory, eyewitness evidence is notoriously unreliable. One attempt to help improve recall was to interview the witness in a situation that matches the original crime context as closely as possible. Now researchers have tested a simpler technique for improving eyewitness memory - getting them to close their eyes.

Ninety-six undergrads signed up for what they thought was a study into "social interactions". A research assistant took participants in groups of four for a walk around a Chicago block with a clipboard taking note of people they saw. All groups were taken for a walk around the same time of day during sunny weather. While walking, two of the "participants" (who were actually confederates that are part of the research team) started arguing and insulting each other. The altercation ended with one of the participants knocking the other's clipboard to the ground and storming off. The researchers ensured each of the staged arguments was caught on film so that the participants' answers could be checked for accuracy.

After they'd witnessed the public spat, the participants were led away to another street location that closely resembled the scene of the incident. During the five-minute walk, the research assistant engaged the participants in conversation to ensure that the participants did not replay the event in their heads. The participants were not yet aware that they would be asked to recall the incident or that the incident had been staged. When they arrived, they were asked to recall everything they could about the event. In each walking group, at random one participant was instructed to close their eyes during the recall (and were reminded appropriately if they opened them at any point during the task); the other was asked to stare at a blank sheet of paper on their clipboard (and were reminded appropriately if they looked away).

Overall, participants who closed their eyes recalled more useful (and verified) information ($M = 10.11$, $SD = 1.53$) about the argument than those in the blank paper condition ($M = 3.02$, $SD = .97$), $t(84) = 8.32$, $p = 0.005$. There were, of course, many useful pieces of information that could have been recalled. 5 people dropped out of the blank paper condition, stating that they felt awkward and uncomfortable to stare at a clipboard as people walked by. No one dropped out of the eyes closed condition.



Predictor Variable

Thinking about the Predictor / Independent Variable: Eye Closure 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**

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 connected participants to an eye-tracker machine, but otherwise gave no instructions. A research assistant made note of where participants looked while trying to remember the information. All other aspects of the study were the same.

5 pts

5. How was this new Predictor / Independent Variable measured? (fill in the box)

☐ **Observation**

☐ **Physiological**

☐ **Self-Report**

☐ **It was manipulated**

- 10 pts 6. Does the new predictor variable (Eye Movements) have stronger or weaker construct validity than the original predictor (Eye Closure Condition)? Explain your reasoning in a few sentences.

Outcome Variable (Original Prompt)

Considering the outcome / dependent variable: Memory Accuracy

Partial operational definition: : Total number (0-#) of accurate pieces of info recalled

- 5 pts 7. The Outcome / Dependent Variable is (fill in the box)
- ☐ **Categorical** ☐ **Continuous**
- 5 pts 8. How was the Outcome / Dependent Variable measured? (fill in the box)
- ☐ **Observation** ☐ **Physiological**
☐ **Self-Report** ☐ **It was manipulated**

- 10 pts 9. Evaluate the **construct validity** of the Outcome / Dependent 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.)

Evaluate Internal Validity (Original Prompt)

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 equal 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, 'Weather Conditions' **is not a confound** because...

5 pts 13. To establish _____ reliability, the researcher reminded participants to either close their eyes or look at the blank paper.

☐ **Test-retest**

☐ **Counterbalancing**

☐ **Manipulation check**

☐ **Split half**

☐ **Alternate forms**

☐ **Interrater**

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

☐ **between groups**

☐ **within group**

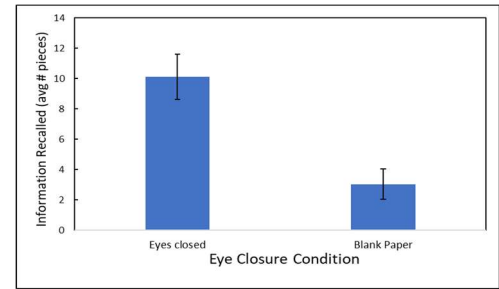
5 pts 15. Explain how you know whether it was between groups or within group.
ProTips: Use specific vocabulary and include specific details from this study.
Indicate how many levels of the predictor variable each participant experienced.

Summarize the findings

5 pts

16. The error bars for the eyes closed and the blank paper condition _____ 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 and at least two levels of the predictor variable have different values for the outcome.

- | | |
|----------------------------------------------------|-----------------------------------------------------|
| <input type="checkbox"/> less than 0.05; is | <input type="checkbox"/> less than 0.005; is |
| <input type="checkbox"/> less than 0.05; is not | <input type="checkbox"/> less than 0.005; is not |
| <input type="checkbox"/> greater than 0.05; is | <input type="checkbox"/> greater than 0.005; is |
| <input type="checkbox"/> greater than 0.05; is not | <input type="checkbox"/> greater than 0.005; is 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.
2.5 points each.

18. Why is random assignment important in experimental research?

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

19. In experimental research, we _____ the independent variable and _____ the dependent variable.

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

20. A researcher wants to know whether wearing sunglasses improves driving performance. To design a counterbalanced within groups design, the researcher could
- ☐ 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.
 - ☐ 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.
 - ☐ None of these
-

Research assistants in a social psychology lab observe altruistic behavior in a group of undergrads after watching a video about a non-profit business and then again after watching a video about a video about Jeff Bezos's success.

21. The researcher is concerned that testing effect is posing a threat to internal validity in this study. Let's fix that.
- ☐ Recruit only business majors to be participants in this study.
 - ☐ Ask the students to select which video they would prefer
 - ☐ Gather data from all of the participants in the same room at the same time watching the non-profit video and then watching the Bezos video.
 - ☐ Randomly assign the students to two order conditions. One condition watches the non-profit video first, the other condition watches the non-profit video second.
22. This is a(n) _____ design.
- | | |
|-----------------------------------------|----------------------------------------------|
| <input type="checkbox"/> matched pairs | <input type="checkbox"/> concurrent measures |
| <input type="checkbox"/> block design | <input type="checkbox"/> within group |
| <input type="checkbox"/> post-test only | <input type="checkbox"/> between groups |
| <input type="checkbox"/> Latin square | <input type="checkbox"/> factorial |
23. 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
- | | |
|--------------------------------------------------|----------------------------------------------------|
| <input type="checkbox"/> self-report. | <input type="checkbox"/> double-blind technique |
| <input type="checkbox"/> single-blind technique. | <input type="checkbox"/> a counterbalanced design. |

An experimenter wants to know if sleep duration affects attention span. 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 cognitive battery (combo of multiple surveys and test) measuring the time it takes to complete, restlessness and distracted behaviors before thanking them and giving them a gift card to a nearby coffee shop.

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

24. On each night of the week, 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.

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

25. 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 strengthens internal validity by preventing a(n) ___ effect.

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

26. 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.

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

27. The participants in both groups go through the cognitive battery once at 6am. This strengthens internal validity by eliminating a(n) ___ effect.

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