WHICH MNEMONICS DO COLLEGE STUDENTS RECALL, EXPLAIN, AND APPLY?

Megan Mocko, University of Florida
Amy Wagler, The University of Texas at El Paso
Larry Lesser, The University of Texas at El Paso
Wendy Francis, The University of Texas at El Paso

BACKGROUND

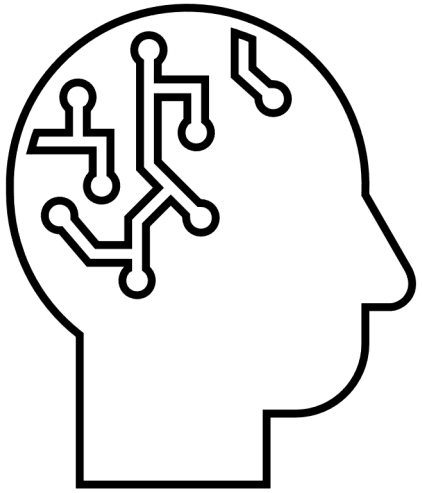
"In particular, students thought that mnemonics increased learning, motivation, and fun and should be provided more by other instructors."

(Stadler & Olson, 2011)

BACKGROUND

"Since nearly ¾ (71.3%) of those [students] surveyed expressed some level of agreement that the mnemonics in the course were helpful, there seems to be compelling evidence that there is a demand or opportunity for mnemonics to be used more widely…"

(Mocko, Lesser, Wagler & Francis, 2017)



WHY TALK ABOUT MEMORY AIDS WHEN WE'RE DEEMPHASIZING MEMORIZATION?

WHICH MNEMONICS SHOULD WE USE?

(EXAM 1) MNEMONICS

1. Population and Parameters both start with “p”; Sample and Statistic both start with “s”.
2. The explanatory variable is on the X axis.
3. **SOCS**: **S**pread, **O**utliers, **C**enter, **S**hape.
4. **BINS: B**inary outcomes, **I**ndependent outcomes, **N**umber of trials fixed in advance, **S**ame chance p of success on each trial.
5. Data that is skewed Left has a tail that goes to the Lower numbers.
6. Residual: "To remember the order of subtraction remember that o comes before p in the alphabet so Observed Minus Predicted."
7. **DOTS** : **D**irection, **O**utliers, **T**rend and **S**trength

(EXAM 2) MNEMONICS

8. PHANTOM: Identify the **P**arameter. State the **H**ypothesis. State the **A**ssumptions. **N**ame the test. Compute the **T**est statistic. **O**btain the p-value. **M**ade a decision in context.
9. Ho is what we "Hold" onto unless we get enough evidence to reject it, in which case the researcher is "Happy" because the evidence supports Ha (which is the hypothesis she was trying to "prove").
10. P-value Song "It is key to know, What p-value means, It's the chance (with the null), You obtain, Data that's At least that extreme"
11. If the p-value is low, the null must go!
12. PANIC : **P**arameter, **A**ssumptions, **N**ame of test, **I**nterval, **C**onclusions ("Don't PANIC, you know the steps.")
13. With degrees of freedom, you step down. The d is for degrees and down.
14. The t table is for "tiny" sample sizes and the Z table is for "sizeable" samples.

STRUCTURE

	Time Point 1	Time Point 2	Time Point 3	Time Point 4
Dates (2017)	Oct. 2 & 4	Nov. 7	Nov. 20	Nov. 27 - Dec. 6
Survey Location	Computer Lab	Computer Lab	Computer Lab	Online
Mnemonics	1-7	8-14	1-14	1-14
Associated Exam(s)	1	2	1 & 2	1 & 2
Number of Students, *n*	136	164	152	868

WERE STUDENTS ABLE TO…?

OPEN-ENDED RECALL

CUED EXPLANATION

APPLICATION

SELF-REPORTED FAMILIARITY

how well they remembered the memory aid from class

how likely they were to think of the mnemonic if they needed to solve a problem or remember information for a test

if they thought that they could apply it

OPEN-ENDED RECALL

	Pop – Param, Sample-Stat	Explanatory var on x-axis	SOCS	BINS	Skewed Left	O before P, obs - pred	DOTS
	% of responses recalling (without cue) mnemonic						
1st time point	31.9%	16.0%	60.1%	50.0%	7.2%	21.0%	21.0%
3rd time point	17.1%	2.0%	19.0%	3.9%	2.0%	0.7%	9.9%

CONCLUSIONS

- Acronym mnemonics were more likely than phrase mnemonics to be recalled un-cued.
- Phrase mnemonics were more likely than acronym mnemonics to be explained correctly when cued or applied correctly
- Recall and explaining when cued/application are not linked -- the mnemonics that students can recall un-cued are not the same mnemonics that students can correctly explain or apply.
- Phrase mnemonics were more likely than acronym mnemonics to be self reported as remembered, thought of, or applied.

REFERENCES

- Mocko, M., Lesser, L. M., Wagler, A. E., & Francis, W. S. (2017), "Assessing Effectiveness of Mnemonics for Tertiary Students in a Hybrid Introductory Statistics Course," *Journal of Statistics Education, 25*(1), 2-11. doi:10.1080/10691898.2017.1294879
- Stalder, D. R., & Olson, E. A. (2011), "t for Two: Using Mnemonics to Teach Statistics," *Teaching of Psychology*, *38*(4), 247–250.

QUESTIONS?

Megan.Mocko@warrington.ufl.edu

HAVE A MNEMONIC TO SHARE?

- Please post it below!