

REMOTE EXPERENTIAL LEARNING VIA THE REPLICATION OF EMPIRICAL FINDINGS IN COGNITIVE PSYCHOLOGY USING MOBILE APPS

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To play with demos used here Click SYMBOL to DOWNLOAD





Android

iOS

SEARCH TERM: * **PASSWORD: FoTL** SUBJECT ID: 000

NO DATA WILL BE RECORDED

Got stuck?

https://www.youtube.com/watch?v=5BXBCOOuT6Y

BACKGROUND

Within Science, the reliability of empirical findings determines the future health of, and confidence in, specific disciplines (replication crisis; Nosek et al.

To meet the challenge of experiential learning in the context of remote teaching, 8 'Flex Labs' were set up in a Cognitive Psychology course. Each lab attempted to replicate an historic or contemporary finding (1971 – 2016) related to course content.

Labs were delivered via Presentation Mobile. Participation was possible any time across the week (1% per lab; ethics protocol *Pro00103400*).

For the following week, data were analysed and integrated into the delivery of the relevant topic.

Students then selected one of these Labs to write up as their Written Assignment (26%).

Lab Syllabus Topic **FACES COGNITIVE NEUROSCIENCE PERCEPTION SEARCH DOODLE ATTENTION OBJECT LONG-TERM MEMORY** HOUSE **EVERYDAY MEMORY TRIVIA SEMANTIC MEMORY VISUAL IMAGERY ROTATE**

DECISION MAKING

RPS

METHOD

* FACES

Rueckert & Naybar (2008)

* SEARCH

Wolfe

(2001)

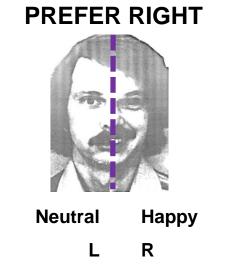
Using pairs of chimeric faces, do individuals prefer the left side of the face for the expression of emotion?

Using odd-one-out displays,

are individuals quicker to

detect the presence relative

to the absence of features?



DOODLE

OBJECT

Brady et al

HOUSE

Pichert &

Anderson

(1976)

(2008)

Andrade (2010)

Listening to a phone message, does doodling at the same time help to retain information about the message?

Are individuals able to

remember general or specific

details about objects they see

only once, two weeks apart?

Using a narrative describing a

house, does switching

perspectives to / from a buyer

or burglar facilitate memory?

DOODLE

take time off...**Suzie** is going to be there too. She's the person I met at the pottery class in Winnipeg last year...

NO DOODLE











"...Pete wanted to see the house so Mark started with the living room. It, like the rest of the downstairs, was newly painted. Mark turned on the stereo, the noise of which worried Pete..."

* TRIVIA

Pashler et al (2005)

Answering trivia questions twice, is providing the correct answer better than saying right / wrong for facilitating learning?

What is the capital of Suriname?

Paramaribo **Albina**



ROTATE

Shepard & Metzler (1971)

Using forwards and backwards rotated Rs, does the degree of mental rotation increase reaction time?

RPS

Dyson et al (2016)

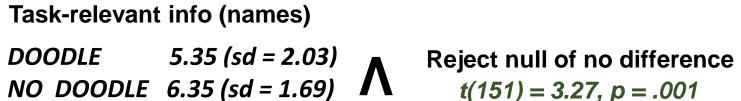
Using Rock, Paper, Scissors, do individuals use win-stay and *lose-shift* strategies more than predicted?



RESULTS







Task-irrelevant info (places) 3.55 (sd = 1.94) Accept null of no difference **NO DOODLE 3.56 (sd = 1.88)** t(151) = 0.05, p = .961

Reject null that value is 50% (chance)

55.88% (sd = 11.13) t(133) = 6.11, p < .00155.32% (sd = 7.90)t(133) = 7.79, p < .00152.50% (sd = 7.80)t(133) = 3.71, p < .001STATE

Initially Relevant Info

Accept null of no difference 7.60 (sd = 2.60)**SWITCH** 7.06 (sd = 2.65)t(134) = 1.08, p = .281

Initially Irrelevant Info) Reject null of no difference 5.60 (sd = 2.37)t(134) = -2.18, p = .0316.56 (sd = 2.33)

INCORRECT —— CORRECT

No Feedback 2.92 (sd = 2.15)Reject null of no difference Right / Wrong 5.25 (sd = 2.03) F(2,282) = 136.80, p < .001*Correct Answer* 7.30 (sd = 2.83)

B R B B B Reject null of no difference F(5,625) = 110.75, p < .001800 -

Accept null value is 33.3%

Lose-Shift 74.04% (sd = 18.07)

Win-Stay

31.24% (sd = 20.35)

Reject null value is 66.6% *t*[147]=5.42, p < .001

t[147]=-1.05, p = .295

Naybar (2008), implicating the right hemisphere in the processing of emotion

REPLICATES the left-

side bias of Rueckert &

REPLICATES faster detection of featurepresent targets (Wolfe, 2001), implying feature map architecture

FAILS TO REPLICATE

advantages for taskrelevant and -irrelevant information as a result of doodling (Andrade, 2010)

REPLICATES abovechance performance for remembering specific details of objects seen once (Brady et al., 2008)

REPLICATES increased recall of previously irrelevant information via perspective shift (Pichert & Anderson, 1976)

REPLICATE effectiveness of correct answer over right / wrong feedback re semantic learning (Pashler et al., 2005)

REPLICATES increase in RT as a function of mental rotation (Shepard & Metzler, 1971). Pictures in the mind?

REPLICATES absence of win-stay but presence of lose-shift (Dyson et al., 2016), more predictable decisions following loss

CONCLUSION

Of the 8 findings, 7 were conceptually replicated. The current pedagogical scheme emphasises the importance of evidence-based, critical-thinking irrespective of the age of the claim.

Relative to other sub-disciplines, the findings of Cognitive Psychology sampled here appear robust across time, cohort and mode of delivery.

The use of Presentation Mobile was flexible in terms of its integration with Android and iOS software, and, also appeared to handle reaction time reasonably well.

Appropriately designed virtual connections can continue to bring students face-to-face with empirical science.

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