Assessing Fluency Attributions in an Online Experiment Testing a Community Sample

Lauren Hollowniczky, P. Andrew Leynes

ERP Lab @ The College of New Jersey

TCNJ THE COLLEGE OF NEW JERSEY

1. Background

◉ One way to create familiarity experiences in the laboratory is to increase the fluency, or ease of stimulus processing. The idea is that through experience we learn fluent processing is a marker of previous exposure.

◉ The Discrepancy-Attribution Hypothesis and Preservation of Experience (SCAPE) framework explain that fluency must be attributed to the past in order to produce familiarity.

◉ Studies showed the malleability of the fluency effect by reversing the traditional fluency effect. The reverse fluency effect states that if fluency of a stimuli is manipulated to predict novelty, then more fluency stimuli on a recognition test would be identified as new.

◉ The present investigation was designed to replicate the Olds and Westerman priming experiment (Experiment 2) with a more diverse sample of participants. The study aims to replicate the reversed fluency effect and to determine if the effect generalize to stimuli other than names.

◉ Using Tatool, an online open-source experiment software (www.tatool-web.com), and Javascript programing language to host an online research study. Programs in python were used to combine datafiles. Extensive skills were learned and practiced while navigating this new software for online research.

2. Methods

Participants: Participants were recruited from crowdsourcing (we are currently collecting data from Amazon Mechanical Turk Workers). We were about to recruit 14 participants for the control (standard training group) and 10 for the reversed fluency training group.

Stimuli: 160 fake drug names produced by an online generator.

Encoding phase: 80 trials, "Is this drug name hard or easy to remember?".

Recognition test 1(Training phase)

- 80 trials, half old. 2 conditions randomly assigned to participants.
- In control condition, half the old and new words are primed with a match prime, and half with a mismatch prime.
- In the reverse fluency condition, new words are primed with match primes, old words are primed with mismatch primes.
- Match prime is a series of 12 Xs (XXXXXXXXXXXX) and the mismatch prime is a mix of the 5 most commonly used English letters and symbols (i.e., "#E&A#I&O#R&T").
- Feedback is given on each trial. Correct responses will receive a green "thumbs up" image, incorrect responses will receive a red "thumbs down" image.

Recognition test 2- 80 trials, half old. Half the old and new names are primed with the match prime, the other half primed with the mismatch prime. No feedback is given.

3. Results

Average Proportion			
Group	Prime	Hits	FA
Control	Match	0.59 (0.15)	0.29 (0.16)
	Mismatch	0.51 (0.10)	0.33 (0.17)
Reversed	Match	0.62 (0.17)	0.36 (0.15)
	Mismatch	0.61 (0.12)	0.33 (0.17)

Response Time			
Control	Match	1847 (865)	1942 (853)
	Mismatch	1733 (543)	1847 (865)
Reversed	Match	1838 (655)	1844 (844)
	Mismatch	1721 (603)	1912 (802)

There were no differences in the hits (old items called "old") and false alarms (new items called "old") as a function of training. We also analyzed response time and did not find any differences. While did observe a trend toward the predicted outcome, the crowdsourcing sample was too small.

4. References

◉ Jacoby, L. L., & Dallas, M. (1981). On the relationship between autobiographical memory and perceptual learning. *Journal of Experimental Psychology: General*, *110*(3), 306.

◉ Leboe-McGowan, J. P., & Whittlesea, B. W. (2013). Through the SCAPE looking glass: Sources of performance and sources of attribution. . In D. Reisberg (Ed.), *The oxford handbook of cognitive psychology* (pp. 243-266). New York, NY: Oxford Univ. Press.

◉ Olds, J. M., & Westerman, D. L. (2012). Can fluency be interpreted as novelty? Retraining the interpretation of fluency in recognition memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 38*(3), 653–664.

◉ Whittlesea, B. W., & Williams, L. D. (2001a). The discrepancy-attribution hypothesis: I. the heuristic basis of feelings of familiarity. *Journal of Experimental Psychology.Learning, Memory, and Cognition, 27*(1), 3-13.

◉ Whittlesea, B. W., & Williams, L. D. (2001b). The discrepancy-attribution hypothesis: II. expectation, uncertainty, surprise, and feelings of familiarity. *Journal of Experimental Psychology.Learning, Memory, and Cognition, 27*(1).