Word Priming Experiment

PSY310: Lab in Psychology

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Introduction:

Word priming is an experiment that readily demonstrates how a person's ability to identify or understand a new word is dependent upon the first word they encounter, known as the "prime," and another, known as the "target." The effect is consistent with the belief that when such terms are provided, participants gain faster access to essential connections. Thus, word priming helps it recognize that words are linked to one another in the brain to form related meanings.

Semantic priming is an aspect of word priming that offers light on how the brain retrieves word meanings during language processing or reading. Especially, this behaviour occurs subconsciously and is made possible by an implicit memory system. Implicit memory influences a person's behaviour even if it is indirect and takes conscious effort to recall. Accordingly, the individual may be able to react to a related target more rapidly even if they are unable to recollect the prime term.

Method:

The experiment's goal was to determine the participants' proficiency in thoroughly answering word priming tasks as well as their speed and effectiveness. There were two components to the work, and PsychoPy software installed on laptops was used for both. In the first phase, participants were required to learn 15 study words, such as board, phone, chart, etc required participants to commit to memory at the initial stage. Participants saw 20 words on the screen during the subsequent test phase: 10 of the previously learned words and 10 new distractor words. To determine whether a word was considered "familiar" or "unfamiliar" in connection to test terms, yes/no questions were asked. This arrangement made it possible to evaluate the priming impact in terms of accuracy and reaction time to both known and unknown words.

Results:

Participant 1's priming score is -0.13333333, with a primed word proportion of 0.86666667 and a non-primed word proportion of 1. For participant 2, the priming score is -0.26666667, the proportion of primed words is 0.73333333, and the proportion of non-primed words is 1. For participant 3, the priming score is -0.46666667, the proportion of primed words is 0.53333333, and the proportion of non-primed words is 1. For participant 4, the priming score is -0.1333333, the proportion of primed words is 0.86666667, and the proportion of

non-primed words is 1.

Discussion:

Together with four individuals, the results provide priming scores on answer accuracy for both primed and non-primed words.

The priming score of -0.133 for Participant 1 indicates a minor negative priming effect, meaning that primed words were identified with marginally worse accuracy than non-primed terms. In particular, the non-primed word percentage was a perfect 1, whereas the primed word proportion was 0.867. This result suggests that the accuracy of recognition may have been marginally hampered by the prepared words.

Compared to Participant 1, the priming score for Participant 2 was -0.267, indicating a more noticeable negative priming impact. In this case, primed words had an accuracy of 0.733 and non-primed words had an accuracy of 1. A higher interference impact from the primed words is indicated by a bigger negative score, which could be the result of attentional competition or distraction.

With a score of -0.467, participant 3 displayed the most pronounced negative priming effect. Compared to the non-primed proportion of 1, the primed word proportion was much lower at 0.533. This result strongly suggests that the primed words considerably hindered recognition accuracy, likely as a result of substantial interference.

Lastly, Participant 4 had a primed word proportion of 0.867 and a non-primed word proportion of 1, representing a priming score of -0.133. This score is less severe than Participant 3's, but it still shows that primed words marginally reduced identification accuracy, which is in line with Participant 1's findings.

In conclusion, the data point to a tendency for primed words to lower recognition accuracy, with participant-specific effects varied in severity.

References

Amaker, T., Barber, C., Benson, A., Beyerl, Z., Bogdan, K., Crocker, L., Doppelheuer, E., Gonzalez, H., Heal, S., Strong, R., O'Dell, A., O'Haren, D., Pavlish, J., Prus, L., Reese,

E., Sasnett, M., Shadinger, J., Smith, A., Todd, S., … Dinnell, B. (2020, July 29). *Psychological priming*. Science Technology and Society a Student Led Exploration. https://opentextbooks.clemson.edu/sciencetechnologyandsociety/chapter/psychological-priming/

Maxfield, L. (2002, May 25). Attention and semantic priming: A review of prime task effects. Consciousness and Cognition. https://www.sciencedirect.com/science/article/abs/pii/S1053810097903111

Schacter, D. L., & Buckner, R. L. (1998, February). Priming and the Brain. 50 Neuron. https://www.cell.com/neuron/fulltext/S0896-6273(17)30868-1

Shao, Z. S., & Meyer, A. S. (2017, October 11). (PDF) Chapter 6: Word priming and interference paradigms. https://www.researchgate.net/publication/312377521_Chapter_6_Word_Priming_and_Interference_Paradigms