

Does learning context influence the creation of new semantic relationships between words? An examination through automatic and strategic priming.

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How newly learned lexico-semantic information integrates and competes with pre-existing long-term representations remains a central question in psycholinguistics [1,2,3,4]. While some studies highlight the benefit of enriched semantic contexts to learn new meanings for known words (i.e., deep semantic engagement) [4], others suggest that learning new words and their meaning requires strategic retrieval mechanisms [1]. However, it is unclear whether learning contexts (i.e. with or without semantic enrichment) affects the creation of new relationships between pre-existing unrelated words, and whether strategic mechanisms are needed to access them. The current set of experiments address this gap.

In total, 192 French-speaking young adults took part in online experiments. They were explicitly asked to learn spoken names associated with tangram pictures (Figure 1a). Each picture was associated with either one name (e.g. elephant) or two semantically unrelated names (e.g. “elephant” & “windmill”), which were repeated four times. In Experiment 1 (with semantic enrichment), a justification of the names was provided during the first repetition (Figure 1b), whereas no justification was given in Experiments 2 and 3 (without enrichment). Following this learning phase, participants performed a lexical decision task with a semantic priming paradigm on written words. In each experiment, the task tested whether new semantic relationships were created between words associated with the same picture (i.e. related words), in comparison with words associated with different pictures (i.e. unrelated words). SOA was also manipulated to assess automatic (i.e. short SOA of 166ms in Experiments 1 and 2) vs. strategic retrieval (i.e. long SOA of 1000ms in Experiment 3).

When comparing reaction times for related vs. unrelated word pairs with linear mixed-effects modelling (LME), no significant semantic priming effect was observed in any experiment (Figure 2). In the present study where attention is engaged while learning, neither semantic enrichment, nor a longer SOA engaging strategic mechanisms yielded a significant priming effect. This contrasts with previous findings showing via explicit semantic judgement that new relationships were created using the same stimuli in an enriched semantic context during dialogue [5]. Taken together, it is attention to semantic relationships via explicit judgement — rather than the learning setting — that appears to be the main parameter capturing the activation of new lexico-semantic content within the semantic network.

References

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Figures and Tables

Figure 1a.
Example of
Tangram picture



Figure 1b. Justification for the names

Related condition:

I think the words “elephant” and “windmill” suit it well. For the animal, there's just its head with its big ears on top and its trunk on the bottom. For the other word, on top are its mill blades and there is a road that leads right up to it.

Unrelated condition:

I think the word “elephant” would suit it well because there's just its head with its big ears on top and its trunk on the bottom.

Figure 2. Mean reaction times for related and unrelated pairs of words.

