

# Review of: "Word learning in the field: Adapting a laboratory-based task for testing in remote Papua New Guinea"

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The aim of Mulak et al. (2021) was to explore the ways in which laboratory techniques used to investigate word learning can be adapted for use in a field setting, and specifically in non-Western communities. Nungon speakers from a secluded community in Papua New Guinea were tested on their ability to learn new words in two well-established psycholinguistic paradigms: explicit and cross-situational word learning (e.g., Escudero et al., 2013; Smith & Yu, 2008). Prior studies have shown that these paradigms almost always produced robust learning in Western populations. Interestingly, Mulak et al. (2021) found no evidence of word learning in either of the paradigms in Experiment 1. In light of this, the researchers modified the explicit word learning paradigm to make it more accessible and relatable to Nungon speakers in Experiment 2. Using this modified paradigm, the researchers found clear evidence of word learning.

First and foremost, this study must be applauded for its efforts in addressing the issue of non-Western communities being under-represented in psycholinguistic research. Research is constrained by financial resources and time availability, and with members of Western communities being the most convenient participants to source, psycholinguistic research (e.g., Johns et al., 2016; Joseph & Nation, 2018; Mak et al., 2021) has propagated a base of knowledge that under-represents those of non-Western communities. Unlike those of the Western population, members of the Nungon community are not accustomed to computer technology, or methods of data collection that is typical in the field of psycholinguistics. By attempting to make accessible and comparable versions of established paradigms for use in these communities, Mulak et al. not only highlighted the lack of diversity in psychological research, but also showed promise for a way forward in combating this issue. While Mulak et al. (2021) must be praised for their efforts in widening the scope of research applications, some cautions are warranted in interpreting their data.

Nungon speakers were unable to learn new words in either the explicit or the cross-situational paradigms in Experiment 1. These paradigms have previously been shown to produce robust learning among Western learners (e.g., Berens et al., 2018; Yu & Smith, 2007). The fact that Nungon speakers performed at chance

level in both paradigms suggests the intriguing possibility that these speakers may process and learn verbal materials in a different way than people in Western societies. Potentially, this may be due to differences in cognitive processing that stem from, for example, the learners' first language, the cultural schema that characterises the community, or even education levels. If this is the case, it would be similar to the finding that Pirahã speakers in Brazil had great difficulty learning numeral concepts, which are largely absent in the Pirahã language (Everette, 2005). Alternatively, Nungon speakers might be unable to acquire new words in Experiment 1 because the paradigms were not sufficiently accessible/relatable to them. In other words, there are at least two possible explanations to the (null) findings from Experiment 1: One based on cognitive differences, another on methodological concerns.

Mulak et al. (2021) did not consider a cognitive account in the article, and it seems safe to say that they favour a methodological account, because in Experiment 2, Nungon speakers demonstrated clear evidence of learning in a modified version of the explicit learning paradigm. However, on the basis of the evidence presented in their paper, it is not possible to rule out a cognitive account because, as noted by the authors, Experiments 1 and 2 are quite different in not only the task demands but also the circumstances in which testing took place. Had Experiments 1 and 2 been more comparable, Mulak et al. (2021) would have been in a much stronger position to attribute their findings to a methodological account. Below we describe a few aspects that made Experiments 1 and 2 incomparable—all of which have been duly noted by Mulak et al. (2021).

One key discrepancy is task demand, which was drastically reduced in Experiment 2. Not only was the cross-situational paradigm abandoned, but there was also a reduction in the numbers of training trials (from 56 to 24) and word-object pairings (from 7 to 3). All these, as intended, made Experiment 2 substantially less laborious. In addition to the task demands, the stimuli were also different between experiments. Experiment 1 made use of black and white line drawings, whereas in Experiment 2 the stimuli were brightly coloured 3D images. These tend to be more visually appealing, which might help boost engagement. Finally, the circumstances in which testing took place were far from comparable. In Experiment 1, participants were asked to complete the study early in the morning before going to work, and data collection was done over one week. Whereas in Experiment 2, a two-week fair was held where all the villagers took time off work to participate in the experiment. Experiment 2 also offered greater monetary rewards. With all these as the backdrop, it is safe to assume that participants in Experiment 2 were more motivated to take part, and may find the task less laborious, than participants in Experiment 1.

Together, these discrepancies rendered Experiment 2 a very different study from Experiment 1. While we believe the contrasting results between the two experiments could be largely attributed to changes in methodologies, a cognitive account remains possible. This is because all those methodological changes

could have masked the unique cognitive characteristics that contributed to the Nungon's inability to learn in Experiment 1. Had the learning conditions been more comparable (and assuming a contrasting result remains), a cognitive account would lose much, if not all, of its appeals. In short, we argue that given the existing evidence, it is premature to conclude that the lack of learning in Experiment 1 is solely due to the adopted paradigms being inaccessible or unrelatable to the Nungon learners.

In summary, Mulak et al. (2021) should be praised for their efforts to include under-represented communities in psycholinguistic research. However, it is not straightforward to interpret the contrasting results between Experiments 1 and 2 given the numerous modifications introduced to Experiment 2. It remains to be explored whether cognitive processing differs between Nungon and (perhaps age/education-matched) Western learners. Finally, as highlighted by Mulak et al., the modifications introduced to Experiment 2 were tested all together; it is, therefore, impossible to pinpoint their relative contributions to the word learning success in Experiment 2. Future work is needed to determine their relative importance. Despite these limitations, Mulak et al. (2021) remains a valid and promising exploration of how word learning paradigms can be translated into real-life situations as well as to non-Western communities.

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