



# The Role of Retrieval Strategy in Memory for High- and Low-Frequency Words



Shana K. Carpenter and Edward L. DeLosh

Colorado State University

## Introduction

Research on the word frequency effect has been aimed at understanding the memory dissociation between high-frequency (HF) and low-frequency (LF) words. Free-recall for HF words is superior when the stimuli are pure lists consisting only of HF or LF words, but free-recall for LF words is superior from a list containing a mixture of HF and LF words (DeLosh & McDaniel, 1996). One explanation for the interactive effects of list composition and word frequency is the *order-encoding hypothesis* (DeLosh and McDaniel). According to this view, HF words are encoded according to the serial order of presentation, while LF words are encoded according to individual features. Order information accounts for the HF advantage in pure lists, which is eliminated in mixed lists by the individual features of LF words. DeLosh, McDaniel and Merritt (in press) disrupted the use of order information by using categorized items, to find that free-recall from *pure lists* was superior for LF words.

The purpose of the current study was to replicate the design of DeLosh, et al. (in press), by using pure lists of HF or LF words that were either categorized or uncategorized. In line with the order-encoding hypothesis, it is expected that HF words will have the advantage in serial order memory, and that serial order memory will be greater for uncategorized than categorized lists. A HF advantage for free-recall is expected for uncategorized lists, while to the extent that categorized items disrupt the use of order information, the HF advantage is expected to be eliminated or reversed in categorized lists.

## Methods

### Materials and Design

- Word frequency norms (Francis & Kucera, 1982) and taxonomic category norms (Battig & Montague, 1969) produced 80 HF and 80 LF words from 20 categories.
- 20 eight-item lists (10 pure HF, 10 pure LF) were given to all participants (N=70), half in the uncategorized condition (n = 35) and half in the categorized condition (n = 35).

### Procedure

- After presentation of each list, participants completed a distracter task, followed by a free-recall task.

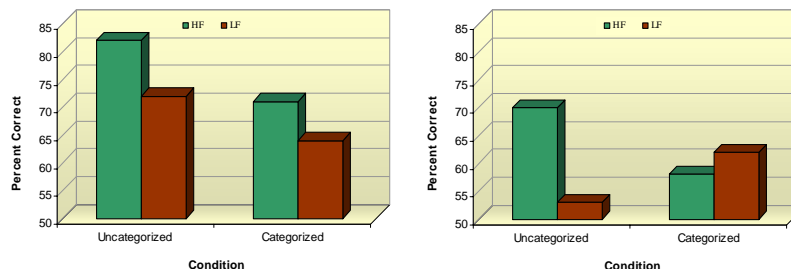


Figure 1. Results of DeLosh, et al. Mean input-output correspondence (left) and free-recall (right) scores for HF and LF words in uncategorized and categorized lists.

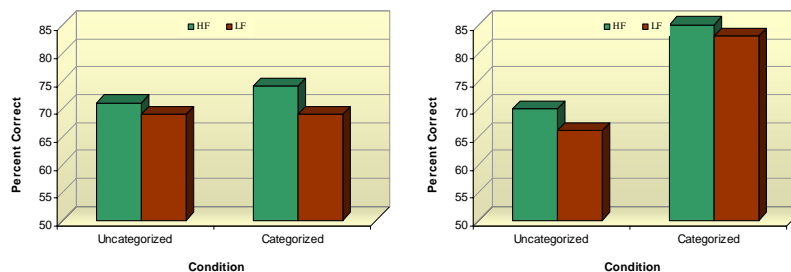


Figure 2. Results of the current study. Mean input-output correspondence (left) and free-recall (right) scores for HF and LF words in uncategorized and categorized lists.

## Results

### Input-output Correspondence

- Significant main effect for word frequency,  $F(1, 68)$ ,  $p < .05$ , with HF words recalled better than LF words in both uncategorized and categorized lists.
- No significant main effect for condition,  $F(1, 68) = .322$ ,  $p > .05$ , so participants used order information to recall words from both uncategorized and categorized lists.
- No significant Word Frequency x Condition interaction,  $F(1, 68) = .096$ ,  $p > .05$ , so different effects of word frequency were not observed for different conditions.

### Free-recall

- Significant main effect for word frequency,  $F(1, 68) = 13.24$ ,  $p < .05$ , with HF words recalled better than LF words in both uncategorized and categorized lists.
- Significant main effect for condition,  $F(1, 68) = 42.26$ ,  $p < .05$ , with categorized lists recalled better than uncategorized.
- No significant Word Frequency x Condition interaction,  $F(1, 68) = .002$ ,  $p > .05$ .

## Discussion

- Consistent with the order-encoding hypothesis, higher I-O correspondence for HF words was associated with a HF item advantage in free-recall.
- Inconsistent with the results of DeLosh, et al., category information in the current study did not disrupt the use of order information in free-recall.
- Inconsistent with the results of DeLosh, et al., categorized lists resulted in better free-recall than uncategorized lists.
- Differences in results between the current study and those of DeLosh, et al. may reflect different effects of taxonomic vs. ad-hoc categories.
- Future research will explore the effects of multiple category lists in reducing the use of order information, to better evaluate the order-encoding hypothesis.

## References

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