

# Familiarity and meaningfulness in nonsense words<sup>1</sup>

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*Latencies of first associations to low-meaningful dissyllables were taken for five groups of Ss. Four of the groups were familiarized on dissyllables from the association list; the fifth group was familiarized on a list containing scrambled versions of the association list. Results suggested that familiarization with the association list words tended to increase  $m$  (as measured by association latency).*

Underwood & Schulz (1960) and Noble (1953) have both suggested that familiarization must precede meaningfulness, and they as well as others (Noble, 1955; Schulz & Martin, 1964) have demonstrated that increasing the frequency of prior stimulation facilitates learning under widely varying conditions.

Riley & Phillips (1959), however, found experimentally induced familiarity, in the form of a learning task involving CVCs, to have no effect on the meaningfulness of the CVCs. Similar results were obtained by Schulz & Thysell (1956), who found that 20 1-sec. exposures of dissyllables did not increase  $m$ .

It was our expectation that during the familiarization process, initially conceptless words would acquire conceptual meaningfulness. In addition to examining differences in acquired  $m$  as a function of frequency of exposure, the effects of three other variables were examined: (1) pronouncing the word aloud, (2) spelling the word aloud, and (3) a memory task involving reporting on previous familiarity with the word. It was hoped that these tasks might provide some sort of gradient from "pure" familiarization through familiarization concurrent with an interfering task.

## Method

**Subjects.** One hundred undergraduate students (mostly sophomores) served as subjects. These Ss were randomly divided into five groups of 20 each.

**Materials and Procedure.** Two lists of dissyllables were used. The A list, used with groups A, C, D, and E, contained 15 dissyllables from Noble's low-meaningful list. Ten of these, all paralogues, formed the association list; the other five served as fillers. Group B used a list containing the same filler words; the criterion words were scrambled (but pronounceable) versions of the original paralogues.

The experiment may be logically divided into two parts, familiarization trials and association trials. All subjects were given four complete presentations of their respective lists, one word at a time, during familiarization. Group A Ss (pronouncing) and Group B Ss (warm-up control) were told to pronounce each word on the list in any way that seemed right to them.

Group C Ss (acquaintance query) were told to look at each word and report whether they had ever seen it before; and, if so, how often. Group D Ss (silent exposure) were told to look at each word but to say nothing. Finally, Group E Ss (spelling) spelled each word aloud.

In all but group D, exposure of each stimulus terminated upon appropriate verbalization by the S. Group D Ss were exposed to stimuli for 2 sec. each. The mean exposure time for all other groups was 2.22 sec. with  $s = .64$  sec.

Following familiarization trials, each S was shown the criterion words once again. For these association trials, subjects were instructed to give their first association to each stimulus. Latencies of the associations were recorded, and were used as a measure of meaningfulness (Hall & Ugelow, 1957; Johnson, 1964).

## Results and Discussion

Inasmuch as the data gathered were in the form of latencies, it would be expected that their distribution would deviate rather severely from normality. Figure 1 shows log transformations of the five distributions (200 scores in each) obtained from the five experimental conditions. As can be seen, all five distributions are strongly skewed to the right. Also, there is considerably greater variability in some of the groups than in others.

It is this writer's opinion that, in most if not all cases, any recorded latency of 15 sec. or more represents a suppressed or rejected association rather than no association at all, and that the difference between latencies of 15 sec. and 30 sec. is therefore somewhat inconsequential. Yet these extreme latencies have a disproportionately greater effect upon the means of the distributions in which they occur. For this reason, it was decided to use the median, rather than the mean, as the measure of central tendency.

Median latencies for each subject still showed considerable differences in between-group variance, though log transformation reduced these discrepancies somewhat. A simple analysis of variance on the transformed data indicated significant between-groups differences ( $F = 3.33$ ;  $df = 4.95$ ;  $p < .025$ ), with Group B having the longest latencies and Group A the shortest (see Table 1).

It could be argued that the significance reported above was due entirely to the B group performance. Further tests for specific between-groups differences failed to reach significance, lending some support to this criticism.

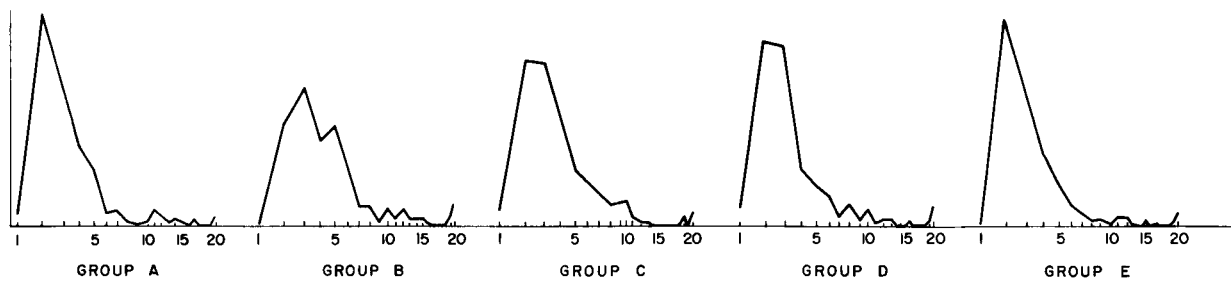


Fig. 1. Log transformation distributions of first association latencies per five experimental groups.

Schulz and Thysell, in their previously cited study, used only a 1 sec. exposure time for familiarization trials, with instructions to "verbalize the word silently." Since Ss in the present study needed a mean of 2.22 sec. to pronounce, spell, or report on the words during familiarization, it does not seem unreasonable that the 1 sec. exposure was simply not enough time to carry out the instructions. Thus the Schulz and Thysell Ss were not really "familiarized" prior to association trials.

In the Riley and Phillips study, Ss were given a learning task during familiarization: presented with the first two letters of the CVC to be familiarized, they were to learn to supply the third. It had been conjectured that this task interfered with the subjective conceptual-meaning formation process which would ordinarily have occurred. If such interference with meaning-formation did occur in the presence of an additional task during familiarization, it should have been reflected in the present data. Although the rank ordering of the group means suggests the possibility that such a process was occurring in the present study, the effect was not statistically significant.

Table 1. Means and variances of log transformations of median latencies in five experimental groups.

	Group				
	A	B	C	D	E
Mean	.486	.639	.585	.511	.500
S <sup>2</sup>	.013	.035	.016	.025	.036

While disappointing in that the groups showed significant differences only in the overall test for differences between means, and the other effects tested for did not reach significance, the results of this study do merit some interest. Schulz and Thysell assert that the weight of the evidence "justifies a firm conclusion that familiarization does not affect meaningfulness." It would seem from this present study that such a conclusion is at best premature, and that certain familiarization procedures may indeed have an effect on m.

#### References

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#### Note

1. This study was carried out under the auspices of the Human Learning Research Institute, Michigan State University.