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INFLUENCE OF DEGREE OF ORIGINAL LEARNING UPON ASSOCIATIVE AND REPRODUCTIVE INHIBITION

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INTRODUCTION

Although the experimental literature on retroactive inhibition is vast, the only previous systematic study using verbal material of retroactive or reproductive inhibition as a function of degree of original learning is one by McGeoch (McGeoch, 1929). He found that relative amounts of retroactive inhibition varied inversely as the number of presentations given the material to be learned. The present study differs from McGeoch's primarily in that paired-associates, rather than serial lists, were learned. Since information on reproductive as well as associative inhibition as a function of degree of original learning would seem essential to the formulation of a precise theory of retroactive inhibition, the present study, using paired-associates, has been conducted to see if the same trends are present as are found with serial lists in the investigation of retroactive inhibition.

PROCEDURE

Four different degrees of original learning were used in this experiment. They were 2 repetitions of the original list, 5 repetitions, 10 repetitions, and 20 repetitions. The interpolated learning was always for 5 repetitions.

The subjects learned lists of paired-associates on a modified Hull drum. Five different orders of presentation of each list of 10 pairs of two-syllable adjectives were used. The subject's task was to anticipate the second member when the first member appeared. Each pair in the interpolated list had as its first member a word which appeared as the first member of a pair in the original list.

Before he began the experiment proper, each subject had two days of practice on each of which he learned two lists.

One group of 12 subjects worked under the conditions required to measure the influence of 5 and 10 repetitions of the original list and another group of 12 under the conditions required to measure the influence of 2 and 20 repetitions of the original list.

The interval between original learning and relearning was 20

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minutes. The intervals during the rest conditions were filled with
looking at cartoons. The portion of the interval not taken by in-
terpolated learning during the work conditions was also filled by
looking at cartoons.

A total of 30 repetitions, exclusive of the trials required to re-
learn the original lists was given under each condition. The pur-
pose of this was to distribute degree of learning over the condi-
tions to as nearly an equal average degree as possible.

A scheme whereby conditions were counterbalanced was used
throughout the experiment.

RESULTS

The results on associative inhibition can be summarized brief-
ly, since none was found that could be considered in any way
signifigant. The exact results on associative inhibition are pre-
sented in Table I. It is apparent from an examination of the table
that percents of associative inhibition are not only small, but that
critical ratios for the differences between original and interpola-
ted learning are by no means signifigant. The only direct com-
parison that can be made with serial learning derives from a
study by Melton and Irwin (Melton and Irwin, 1940). They

Table I. Amount of Associative Inhibition with Different Degrees
of Original Learning

Degree of Original Learning	Amount of Associative Inhibition	Critical Ratios for differences between original and inter-polated learning
2	6%	.30
5	7%	.32
10	-6%	.50
20	9%	.68

found that with 5 degrees of original learning and 5 degrees of
interpolated learning, as were present in one condition in the
present study, associative inhibition was 42.2%. This result at
least approached signifigance, since the critical ratio for the dif-
ference between original and interpolated learning was 2.79. This
differs sharply from the result for the same condition in the
present study in which the associative inhibition was only 7%
with a critical ratio of only .32 for the difference between origin-
al and interpolated learning. If the same discrepancy in asso-
ciative inhibition between serial learning and paired-associate
learning should hold for all degrees of original learning, it might
be concluded that serial position was a necessary condition of

associative inhibition, since serial position remains the same with serial learning whereas it does not with paired-associate learning.

The results on retroactive or reproductive inhibition in terms of mean number of correct anticipations are shown in Tables II, III, and IV. An examination of these tables reveals that there is a general tendency for retroactive inhibition to dissipate after the first relearning trial. Although there is a noticeable rise in retroactive inhibition from relearning trials 1 to 2 in the condition in which there were 2 degrees of original learning, this can be attributed to chance.

McGeoch found with serial lists that retroactive inhibition when measured in terms of correct anticipations varied inversely with degree of original learning (McGeoch, 1929). With the exception of the condition in which there were 2 degrees of original learning,

Table II. Retroactive Inhibition in terms of Mean No. of Correct Anticipations on First Relearning Trial

Degree of Original Learning	Retroactive Inhibition	Critical Ratios for differences between relearning after rest and after work.
2	0%	0
5	50%	3.7
10	23%	3.1
20	15%	2.16

Table III. Retroactive Inhibition in terms of Mean No. of Correct Anticipations on Second Relearning Trial

Degree of Original Learning	Retroactive Inhibition	Critical Ratios for differences between relearning after rest and after work.
2	17%	.75
5	19%	1.9
10	10%	1.7
20	5%	1.11

Table IV. Retroactive Inhibition in terms of Mean No. of Correct Anticipations on Third Relearning Trial

Degree of Original Learning	Retroactive Inhibition	Critical Ratios for differences between relearning after rest and after work.
2	-2%	.10
5	1%	.14
10	11%	1.54
20	2%	.36

these results correspond with his. If McGeoch had had a condition with this low a degree of original learning, his results for

retroactive inhibition with this condition would probably have corresponded with the result reported here.

The percentage of retroactive inhibition in terms of trials required for relearning was relatively high for all conditions except that in which there were 2 degrees of original learning. The correspondence between retroactive inhibition in terms of correct anticipations and relearning trials was not close, however. Since a definite tendency toward dissipation of retroactive inhibition in terms of correct anticipations was shown, it seems unlikely that relearning scores which showed high amounts of retroactive inhibition would be reliable. That they were unreliable is substantiated by the fact that the critical ratios for the differences between rest and work conditions in terms of trials required for relearning were consistently small.

The overt intrusions corresponded more or less closely with the retroactive inhibition for the various conditions as is shown in Table V. Omitting the condition in which there were 2 degrees of

Table V. Overt Intrusions and Retroactive Inhibition for the
Different Degrees of Original Learning

Degree of Original Learning	Overt Intrusions	Retroactive Inhibition
2	4	0%
5	15	50%
10	9	23%
20	3	15%

original learning, both retroactive inhibition and overt intrusions vary inversely with degrees of original learning. An incidental finding of interest was that overt intrusions often appeared late in the learning of a balance list which might be taken as evidence for the very real existence of implicit competition between responses.

SUMMARY

The experiment was designed to determine the influence of degree of original learning upon associative and reproductive inhibition. The degrees of original learning were 2, 5, 10, and 20. Interpolated learning was always for 5 repetitions. The findings were as follows:

1. No associative inhibition which could be considered significant in any way was found. This differs from results found with serial lists. Paired-associates were used in this experiment.

2. With the exception of the condition in which there were 2 degrees of original learning, retroactive or reproductive inhibition varied inversely with degree of original learning. This corresponds with results found with serial lists.

3. A rough correspondence between overt intrusions and retroactive inhibition was found with the exception of the condition in which there were 2 degrees of original learning.

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