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AN EXPERIMENTAL STUDY
OF MNEMONIC DEVICES IN
VERBAL LEARNING

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SUMMARY

The object of this thesis was to study the performance of subjects using mnemonics to learn verbal material, with a view to discovering what sort of relationship might obtain between this sort of learning and the kinds of learning normally exhibited in serial learning experiments.

Six experiments were carried out, using first-year psychology students as subjects, and English nouns as experimental material. The mnemonic technique primarily investigated involved the use of bizarre imagery to connect adjacent pairs of items in serial lists.

In experiment 1 subjects having mnemonic instructions, normal serial anticipation instructions, and free recall instructions and conditions, were compared under two recall conditions, serial anticipation, and free recall. Presentation time was generous (20 seconds per item) and financial reward was used. For both modes of recall mnemonic subjects made less errors (on the single recall trial), than free input subjects, while subjects with standard instructions made most errors. Mnemonic subjects showed no serial position error distribution,

and tended to adhere to serial order recall even under free recall conditions.

In experiment 2 subjects with and without mnemonic instruction learned lists by serial anticipation at an 11 second rate of presentation, to a criterion of one perfect anticipation of the list. In terms of both errors and trials to criterion mnemonic subjects performed better. On the earlier anticipation trials mnemonic subjects showed longer latency to respond than did control subjects. Mnemonic subjects made more of their errors in the form of omissions.

In experiment 3 large groups of subjects were required to provide descriptions of bizarre images designed to link three word-pairs having high, medium, and low inter-item association. 15 weeks later they were asked to try to recall the response terms of the pairs, given the stimulus terms. In the interval the image descriptions had been rated by judges on the extent to which they fulfilled the instructions. These ratings proved to be different for the three word-pairs, and related to correct recall.

An attempt was made in experiment 4 to break down the mnemonic instructions into their component sub-instructions. Groups of subjects received subsets of these instructions ranging, in seven stages, from no mnemonic instruction to the complete set of mnemonic instructions. In addition some subjects received recall instructions and others did not. Each subject received four anticipation trials at a 7 second rate, and returned after 5, 10, or 15 weeks for four relearning trials. Performance on both learning and retention proved to be related to the degree of completeness of the instructions received. On learning, though not on retention, the proportion of the subjects showing more errors of omission than of commission increased with the completeness of the instructions. There was some reason to think that the subjects receiving the full mnemonic instruction had difficulty in carrying it out under the conditions of the experiment.

In experiment 5 subjects with and without mnemonic instruction learned lists of one of two different lengths at a 6 second rate of presentation over four trials. All subjects returned after 6 weeks for four relearning trials. The results showed no interaction between list length and

mnemonic instructions, for either learning or retention. There was little sign that mnemonic instructions benefited retention independently from their effect on learning. For both long and short lists the serial position error curve was flatter for mnemonic subjects than for control subjects.

In experiment 6 subjects with serial anticipation instructions learned lists having either high or low meaningfulness and either high or low rated inter-item association. Presentation was at a 4 second rate, and learning was carried to a criterion of one error-free anticipation of the list. Inter-item association proved to have a more powerful positive effect upon learning performance than did meaningfulness. Between groups differences in error type and distribution, and in the subjective reports given by the subjects, were consistent with the hypothesis that differences in list structure affect performance at least partly through their effect upon the learning techniques used by the subjects.

Overall conclusions were that mnemonic instructions improve performance in the learning of serial lists of concrete nouns, and that this improvement is, at least in part, independent of the subjects awareness that he

will be required to recall the material, and dependent upon his carrying out of the instructions. Persistent qualitative differences in performance and subjective reports between mnemonic and non-mnemonic subjects, together with similar differences produced by variation in the structure of the material, suggest that there may be a number of modes of learning at the disposal of the subject, which are called into operation by such factors as the nature of the material, the mode of presentation, and the instructions given by the experimenter.

One-trial learning, the nature of the functional stimulus in serial learning, meaningfulness, and mediation were among the topics discussed and reviewed.