

A method for studying the effects of mediated associations in the paired-associate learning of children¹

Richard D. Odom
UNIVERSITY OF MINNESOTA

Abstract

Two classrooms of fifth grade children were presented training and transfer lists of verbal paired-associates in order to test the merits of a group technique in demonstrating the facilitating effects of mediated associations on the learning of new responses. A practice-test procedure was followed, utilizing a projector and screen for the presentation of materials and individual booklets for the responses of Ss.

Problem

The typical procedure used to investigate verbal learning in children involves taking each S individually from a classroom to an experimental room. This kind of approach is time consuming, and although it might be thought to offer a more controlled environment, the novelty and strangeness of the situation may interfere to some degree with certain children's performance in the task.

An alternative approach to the one traditionally used is to present the task to Ss in the classroom. The present study investigates the merits of such a technique in demonstrating the facilitating effects of verbal mediation in children's learning.

Method

Children from two fifth grade classes, which were integrated according to factors potentially related to learning ability, were used as Ss. Each classroom successively learned a training and a transfer list of verbal paired-associates.

The lists were constructed so that the learning of the transfer list of one classroom (F group) was expected to be facilitated by mediated associates acquired during training, while the learning of the transfer list of the second classroom (I group) was expected to be hampered by responses acquired during training, since the responses on the two lists were unrelated. The number of Ss in the F and I groups were 22 and 28, respectively. Four graduate students acted as proctors during the experiment.

Three lists of six paired-associates each, contained the verbal materials presented in Table 1. Each list contained the same set of stimuli (C items) which were chosen from among Archer (1960) CVC trigrams having association value ratings between 84% and 86%. During training the F group was presented a list of C-A pairs and the I group a list of C-D pairs. Both groups had identical transfer lists of C-B pairs.

Table 1. Verbal Materials

C Items	D Words	A Words	B Words
DIT	BUTTER	ANGER	MAD
REM	WINDOW	EAGLE	BIRD
FUD	MOUNTAIN	LAMP	LIGHT
SEP	OCEAN	BOY	GIRL
NOS	CITY	SWIFT	FAST
VAR	MUSIC	BLOSSOM	FLOWER

The A, B, and D response words were selected from the Palermo-Jenkins (1964) word association norms for sixth grade children. The A and D words from these norms were Kent-Rosanoff (1910) stimulus words and the B words were primary responses to the A words. The inter-pair associative strength was no greater than 0.4%. The average A-B associative strength was 64.0 which is in terms of the percentage of Ss in the Palermo-Jenkins (1964) sample giving a B word as a primary response to an A word.

The apparatus consisted of a filmstrip projector which was used to project the material onto a screen. Each filmstrip contained four random sequences of six trigrams and six paired-associates, with the frame containing a particular pair always preceded by a frame containing the stimulus trigram of that pair.

Each S received a pencil and a 12 page booklet, each page containing the stimuli and responses from one of the three lists. The six stimulus items were listed in a column down the left hand side of each page, and beside each stimulus was a line on which one of the six responses was to be written. The responses were listed in a row across the top of the page. The stimuli and responses were presented in four different random orders which occurred at equal frequencies throughout the booklet.

The Ss were told what they would see on the screen and that they were to remain quiet and pay close attention. Following these instructions one of the four random orders of the appropriate list was presented. The Ss were then told to write in the blank beside each nonsense word the real word that belonged with it. After all Ss were finished with page one, they were told to turn to page two and watch the screen. The Ss were then told to fill in the blanks on page two. This procedure was followed for the 10 remaining pages.²

A 3-sec. anticipation period and a 3-sec. joint presentation period were used in the presentation of all trigrams and paired-associates. There was a 48-hr. interval between the training and transfer sessions. The same procedure was used on both testing occasions.

Results and Discussion

As was expected, no significant difference was found between the number of correct responses made during training by the F ($M=57.04$) and I ($M=56.40$) groups, $F(1,49) < 1$. The difference between number of correct responses made during the first trial of transfer by the F ($M=5.0$) and I ($M=2.8$) groups was significant, $F(1,49)=20.66$; $p < .001$, reflecting the effects of the facilitating and interfering conditions on performance. Considering performance on all transfer trials, the F group made more correct responses ($M=64.72$) than the I group ($M=52.27$), $F(1,49)=5.52$; $p < .05$. The number of correct responses for the I group was lower during the initial trials and increased more during successive trials than those for the F group, which started at a relatively higher level and increased relatively little across trials. At no time during transfer did the I group exceed the F group in number of correct responses. Since both groups were required to learn new responses during transfer, the superior performance of the F group was apparently due to the effects of implicit associations learned during training.

A number of studies have demonstrated the facilitating and interfering effects of implicit verbal mediators on the paired-associate learning of adults (e. g., Horton & Kjeldergaard, 1961; McGehee & Schulz, 1961). The results of the present study indicate that some of the same phenomena occur in the verbal paired-associate learning of children. In conclusion, it would appear that the group method offers a sensitive and economical approach to the investigation of such problems.

References

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Notes

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2. A copy of the complete instructions may be obtained by writing the author at Vanderbilt University, Nashville, Tennessee.