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Discrimination Between Mediated Facilitation and Mediated Inhibition Items

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In a class of mediation paradigms investigated intensively by Schulz (1972), data suggested that subjects were capable of discriminating rapidly and accurately between mediated facilitation and mediated inhibition items. An experiment was conducted in which this discrimination was tested directly. Results showed the discrimination occurred.

INDEX DESCRIPTORS: Mediated Facilitation; Mediated Inhibition.

The research reported in this paper was conducted as part of a programmatic research effort directed toward the study of mediational processes. The major results of the research program have been published in Schulz (1972). The mediation paradigm used in these studies had three stages. In the first stage, pairs of verbal items were learned. This involved presentation of item pairs (e.g., "Zonad - Soldier") for study, and tests involving presentation of the pairs' first members alone. Each item pair was studied long enough so that by the end of the first stage, the first member of each pair reliably elicited its second member. In the present experiment there were eight pairs to be learned in the first stage. Pairs from the first stage will be referred to as A-B pairs, with "A" referring to the first member and "B" to the second member of the pair.

After first stage learning was completed, second stage learning began. In the second stage eight more pairs were learned. An example of a second stage pair is "Soldier - BIW." These were B-C pairs, with the "B" referring to the first member of the second stage pair (e.g., "Soldier"—carried over from the first stage) and the "C" referring to the second member of the second stage pair. Again these pairs were presented repeatedly for study, and tests involving presentation of the first member showed that it reliably elicited the second member by the end of second stage learning.

After the second stage pairs had been learned the third, or test, stage began. In the third stage there were two different types of pairs. One type was A-C pairs like "Zonad - BIW." Schulz (1972) has shown that such pairs are relatively easy to learn, given the requisite experience with pairs like "Zonad - Soldier" and "Soldier - BIW" in stages one and two. Evidently in stage three learning the first member of the pair (e.g., "Zonad") elicits its associate from the first stage (e.g., "Soldier") which in turn elicits *its* associate from the second stage (e.g., "BIW"). Learning of the A-C pairs is relatively rapid if the A-B and B-C links have previously been established. This process seems to depend on the elicitation of the B term, in this case, "Soldier." This term is presumably elicited between the presentation of the A term "Zonad" and the C term "BIW"; it is customary to refer to it as a mediator. Pairs whose learning is facilitated by mediators are called mediated facilitation pairs. Two examples of the sequence of events over stages one, two and three for mediated facilitation pairs are shown in the first row of Table 1.

TABLE 1. EXAMPLES OF MEDIATED FACILITATION AND MEDIATED INHIBITION CONDITIONS

Condition	Stage I	Stage II	Stage III
Mediated Facilitation	Zonad-Soldier Vutaw-Hand	Soldier-BIW Hand-NEF	Zonad-BIW Vutaw-NEF
Mediated Inhibition	Yolif-Butter Nexus-Doctor	Butter-ZAC Doctor-VOZ	Yolif-VOZ Nexus-ZAC

The other type of pairs in the third stage did not permit mediated facilitation. Indeed, any use of the mediators established in stages one and two could only lead to an error for this type of pair. These will be called mediated inhibition pairs because use of the B term mediator could only inhibit learning. Examples of the sequence of events over stages one, two and three for mediated inhibition pairs are shown in the second row of Table 1. On the third stage for these pairs the presentation of, e.g., "Yolif," would presumably elicit the mediator "Butter," but this would elicit, not the correct third stage response to "Yolif" (which is "VOZ"), but the incorrect response "ZAC." Thus, it seems that for mediated inhibition pairs, mediator elicitation on the third stage would inhibit learning.

One important finding reported by Schulz (1972) was that Ss were apparently able to use mediators selectively. In an experiment in which each S experienced both mediated facilitation and mediated inhibition conditions, the data indicated that Ss used mediators on the facilitation items, while at the same time not using them on inhibition items. This finding implies an ability to discriminate between facilitation items and inhibition items when both types of items are present. The experiment reported in this paper was a direct test for this discrimination. On the third stage of the mediation task used in this experiment, half of the items were facilitation items and half were inhibition items. Each third stage item was presented once briefly to each *S*. Then the *Ss* were asked to sort the items into two sets. The discriminative cue on which this sorting was to be done was not described or explained; the Ss were only told that there were two different types of items, without being told anything about the nature

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of the difference. Support for the hypothesis that Ss discriminate between facilitation and inhibition pairs would be obtained if facilitation pairs were sorted into one set and inhibition pairs into the other.

METHOD

Materials. An eight-item list was constructed with paralog-noun pairs (e.g., "Zonad-Soldier") in stage one, noun-trigram pairs (e.g., "Soldier-BIW") in stage two and paralog-trigram pairs (e.g., "Zonad-BIW") in stage three. In the third stage there were four facilitation pairs and four inhibition pairs.

Design. The design included an experimental group and a control group. The experimental group learned the first stage task for 12 trials and the second stage task for 10 trials. Fewer trials were required for the second stage than the first stage because second stage learning was facilitated by nonspecific transfer from first stage learning. In the control condition, the first two stages were omitted. Then the test stage pairs were presented for one study trial. The Ss were instructed that there were two types of pairs and that their task was to divide the items into two sets, with only one type of pair in each set. Paced sorting of the cards occurred during a second study trial.

Procedure. The first two stages were presented by the study-test method at a 2:4 sec. rate. In the test stage, the first study trial was at a 2 sec. rate, and the paced sorting trial was at a 4 sec. rate. The interval between stages was 1 min.

Subjects. A total of 32 University of Iowa undergraduates participated in fulfillment of a course requirement. The experimental and control groups each contained 16 Ss. The Ss were assigned randomly to conditions in order of their appearance at the laboratory.

RESULTS

In a perfectly correct protocol, all the inhibition pairs would be in one set and all the facilitation pairs in the other set. Of the 16 Ss in the experimental group, 7 produced perfect protocols, and 5 Ss produced protocols which contained only one error. In the control group, no S produced a perfect protocol and only 1 S produced a protocol with at most one error. The mean number of errors in the experimental group was 1.31, and in the control group it was 3.38. The difference between these quantities is reliable [t (30) = 4.38, $p < .01$].

DISCUSSION

Evidently the experimental group Ss can discriminate between mediated facilitation and mediated inhibition pairs as early as the second trial of the test stage. With such a discrimination the selective utilization of mediators is possible. In pairs for which the mediators were potentially interfering, the mediators could be suppressed. In pairs for which the mediators were facilitating, full use could be made of the pre-established mediational chain. Evidently the discriminative cue is salient enough so that most Ss detect it almost immediately and apply it without difficulty. However, it should be noted that the experiment reported here indicates only that such a discrimination occurs when a discrimination is requested. Whether this discrimination actually occurs in the test stage of the standard mediation paradigm, or in real-life mediation situations, is still an open question.

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