Comment on "The relative crossmodal transfer of a form discrimination"

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Recently in this journal, Eastman (1967) compared relative amounts of transfer of training between the modalities of touch and vision, but failed to isolate the transfer effect. He first trained college students to identify the shapes of irregular polygonal objects by learning a name for each one according to a paired-associate procedure, the stimulus forms being presented via a single modality (V or T). The second phase consisted of a test trial, in which the same shapes were presented for identification through the other modality. On the basis of superior test-trial performance, the investigator concluded that sequence T-V produced greater transfer for one group than sequence V-T did for another. (Actually, the opposite finding is quantitatively stated in "Results," but is presumably an erratum.) However, the modality variable on the test trial would be sufficient to explain such a finding, without appealing to differential transfer from Phase 1. There is evidence (Lobb, 1965) to show that vision is superior to touch, especially during early form-discrimination trials. In other words, a task of this sort is usually easier by vision than by touch, and before invoking differential transfer of training to explain the result, it is necessary to account for the modality variable in the

second phase. The fact reported by Eastman, that the number of trials to criterion in the first phase was not correlated with second-phase performance *within* each sequence-group, has no relevance for this issue.

It is common practice in experiments on transfer of training, where Group 1 gets task A then task B, whereas Group 2 gets task B then task A, to use the performance of each group during the first phase as control data for second-phase performance of the other group (see, e.g., Andreas, 1960, p. 474). However, this type of control would probably not be appropriate here, because the difficulty of verbal learning may have obscured the modality effect in the first phase, precluding proper adjustment of data in the second phase so as to control the modality component of task difficulty. In view of these problems it seems wise to investigate relative transfer of training in form discrimination between the two modalities by a different technique, that requires little or no extraneous learning.

REFERENCES

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Reply

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Eastman (1967) found greater crossmodal transfer with the sequence touch to vision (T-V) than the sequence vision to touch (V-T) in the discrimination of randomly generated polygonal shapes. Lobb has commented that the superiority of vision over touch during early form discrimination trials (Lobb, 1965) can account for this difference. The transfer measure used by Eastman was the number of identifications of the crossmodal analogs of the training stimuli on a recognition trial. Since the test trial was the first exposure of the Ss to the shapes in the "new" modality, any difference between the groups not attributable to relative transfer effects is necessarily due to a guessing advantage correlated with the test modality of the T-V group.

That significant transfer occurred in both groups is indicated by comparing the means of the T-V and V-T groups, 5.20 and 3.54, respectively, with the value expected by chance, which is approximately 1.10. There are non-chance strategies which can increase this expected value, but the nature and brevity of the task precluded their adoption.

The question which Lobb's comment raises is whether or not a greater tendency to vocalize in the T-V group is sufficient to account for the difference between the scores of the two groups, i.e., 1.66. There were two ways a S could err: make an incorrect response (spoken error) or fail to respond (silent error). Because

there is no extant data on the relative frequency of these two types of errors within the two groups, the following simulated test was conducted.

It was assumed that both groups had the same "true" score, i.e., 3.54, as the V-T group. Then the following question was asked. Given the score pattern of the V-T group and assuming that Ss "guess" randomly on all other trials, how probable is it that random pairings of stimuli and responses on non-correct trials will result in a mean score increase equal to the difference between the groups, i.e., 1.66 identifications? This question was answered by generating a sample of 100 values of the mean increase in the V-T group's mean score ($N = 24$) by randomly "guessing" on non-correct trials. No one of the 100 values (mean = 6.71, $SD = 0.17$) was as large as the difference between the groups.

This test suggests that differing tendencies to vocalize during recognition testing is an extremely improbable source of the difference between the T-V and V-T groups, even assuming the improbable situation in which all V-T errors are silent and all T-V errors spoken.

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