Comment on Kimmel and McGinnis *by H. Wayne Ludvigson and James H. McHose*

Kimmel & McGinnis (1966) reported that a change, from training to test period, in the time interval between a ready signal and the dropping of a rat into runway altered the test-period speeds in the runway. They found that Ss which experienced an increase from 2 to 4 sec. (Group 2-4) ran faster than Ss which always received a 2-sec. waiting interval (Group 2-2), and Ss which experienced a decrease from 4 to 2 sec. (Group 4-2) ran slower (temporarily) than Ss which always waited 4 sec. (Group 4-4). The authors suggested that the former effect was a frustration increment and the latter a generalization decrement.

The statistical analyses (t tests) performed by Kimmel and McGinnis did suggest that the change in waiting interval effected a change in performance, i.e., that the response speeds of Groups 2-4 and 4-2 under the test conditions differed from what they would have been had training conditions been maintained. However, they provided no conclusive evidence that either frustration or generalization, as commonly defined, was in any way involved.

In general, the concepts of frustration increment and generalization decrement are invoked to refer to specific directional changes in behavior which occur when the value of an experimental variable is changed. However, the magnitude of the increment or decrement is not given directly by the amount of change in the behavior, but rather is measured by the amount of change "corrected" for any "absolute" effect of the variable, i.e., any effect of the present level of the experimental variable which is independent of previous levels. Clearly an absolute effect of a variable could produce or reduce performance change among Ss for whom this variable is changed. This is illustrated in the hypothetical cases in Table 1.

In Cases I and II, the absolute effect, (B-B) minus (A-A), accounts for all or part, respectively, of the observed performance change, (A-B) minus (A-A). In Case III, the absolute effect is opposite to the observed change so that the inferred increment is larger than the observed change, and in Case IV there is an inferred increment but no observed change. In each case the inferred increment is given by the observed change, (A-B) - (A-A), minus the absolute effect, (B-B) - (A-A), i.e., (A-B) - (B-B).

Table 1.
Hypothetical Test Period Scores for Groups which Receive One of Two Levels (A or B) of a Variable in Training and Test Periods.

Case	Group: Training - Test Levels			Group A-B's
	A-B	A-A	B-B	Inferred Increment
I	15	10	15	0
II	15	10	12	3
III	15	10	5	10
IV	15	15	10	5

In testing their hypotheses, Kimmel and McGinnis evaluated the observed changes without correcting them for the absolute effects of test conditions. As in the usual test for transfer they should have compared Group 2-4 vs. 4-4, and 4-2 vs. 2-2.

The comparisons made by Kimmel and McGinnis are not without precedent. They correctly asserted that the comparison of Group 2-4 vs. 2-2 is analogous to the usual definition of the frustration effect or FE (Amsel, 1958). The difficulty is that the FE does not correct for an absolute effect either, and as recently pointed out (Hamm, in press; McHose & Ludvigson, 1965), serious misinterpretation can and has resulted. Similarly generalization decrement is at times measured by the decrease in response strength from conditioned stimulus to generalized stimulus (e.g., Group 4-4 vs. 4-2). However, this comparison similarly assumes no absolute effect, i.e., that a single level of response results from training on the generalized stimulus or the conditioned stimulus. Although this assumption seems justified in certain studies of generalization, one need only cite the findings of asymmetric gradients along dimensions of stimulus intensity to document the need for correcting for absolute effects.

References

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