

# ATTITUDES ESTABLISHED BY CLASSICAL CONDITIONING<sup>1</sup>

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Osgood and Tannenbaum have stated, "... The *meaning* of a concept is its location in a space defined by some number of factors or dimensions, and *attitude* toward a concept is its projection onto one of these dimensions defined as 'evaluative'" (9, p. 42). Thus, attitudes evoked by concepts are considered part of the total meaning of the concepts.

A number of psychologists, such as Cofer and Foley (1), Mowrer (5), and Osgood (6, 7), to mention a few, view meaning as a response—an implicit response with cue functions which may mediate other responses. A very similar analysis has been made of the concept of attitudes by Doob, who states, "*An attitude is an implicit response . . . which is considered socially significant in the individual's society*" (2, p. 144). Doob further emphasizes the learned character of attitudes and states, "The learning process, therefore, is crucial to an understanding of the behavior of attitudes" (2, p. 138). If attitudes are to be considered responses, then the learning process should be the same as for other responses. As an example, the principles of classical conditioning should apply to attitudes.

The present authors (12), in three experiments, recently conditioned the evaluative, potency, and activity components of word meaning found by Osgood and Suci (8) to contiguously presented nonsense syllables. The results supported the conception that meaning is a response and, further, indicated that word meaning is composed of components which can be separately conditioned.

The present study extends the original experiments by studying the formation of attitudes (evaluative meaning) to socially significant verbal stimuli through classical conditioning. The socially significant verbal stimuli were national names and familiar masculine names. Both of these types of

stimuli, unlike nonsense syllables, would be expected to evoke attitudinal responses on the basis of the pre-experimental experience of the Ss. Thus, the purpose of the present study is to test the hypothesis that attitudes already elicited by socially significant verbal stimuli can be changed through classical conditioning, using other words as unconditioned stimuli.

## METHOD

### *Subjects*

Ninety-three students in elementary psychology participated in the experiments as Ss to fulfill a course requirement.

### *Procedure*

The general procedure employed was the same as in the previous study of the authors (12).

*Experiment I.*—The procedures were administered to the Ss in groups. There were two groups with one half of the Ss in each group. Two types of stimuli were used: national names which were presented by slide projection on a screen (*CS* words) and words which were presented orally by the *E* (*US* words), with Ss required to repeat the word aloud immediately after *E* had pronounced it. Ostensibly, Ss' task was to separately learn the verbal stimuli simultaneously presented in the two different ways.

Two tasks were first presented to train the Ss in the procedure and to orient them properly for the phase of the experiment where the hypotheses were tested. The first task was to learn five visually presented national names, each shown four times, in random order. Ss' learning was tested by recall. The second task was to learn 33 auditorily presented words. Ss repeated each word aloud after *E*. Ss were tested by presenting 12 pairs of words. One of each pair was a word that had just been presented, and Ss were to recognize which one.

The Ss were then told that the primary purpose of the experiment was to study "how both of these types of learning take place together—the effect that one has upon the other, and so on." Six new national names were used for visual presentation: *German, Swedish, Italian, French, Dutch, and Greek* served as the *CS*s.

These names were presented in random order, with exposures of five sec. Approximately one sec. after the *CS* name appeared on the screen, *E* pronounced the *US* word with which it was paired. The intervals between exposures were less than one sec. Ss were told they could learn the visually presented names by just looking at them but that they should simultaneously concentrate on pronouncing the auditorily presented words aloud and to themselves, since there would be many of these words, each presented only once.

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extreme of the evaluative scale was scored 1, the unpleasant 7.

The analysis of the data for both experiments is presented in Table 2. The results of the analysis indicate that the conditioning occurred in both cases. In Experiment I, the *F* for the conditioned attitudes was significant at better than the .05 level. In Experiment II, the *F* for the conditioned attitudes was significant at better than the .01 level. In both experiments the *F* for the groups variable was significant at the .05 level.

DISCUSSION

It was possible to condition the attitude component of the total meaning responses of *US* words to socially significant verbal stimuli, without *Ss*' awareness. This conception is schematized in Fig. 1, and in so doing, the way the conditioning in this study was thought to have taken place is shown more specifically. The national name *Dutch*, in this example, is presented prior to the word *pretty*. *Pretty* elicits a meaning response. This is schematized in the figure as two component responses; an evaluative response  $r_{PV}$  (in this example, the words have a positive value), and the other distinctive responses that characterize the meaning of the word,  $R_P$ . The pairing of *Dutch* and *pretty* results in associations between *Dutch* and  $r_{PV}$ , and *Dutch* and  $R_P$ . In the following presentations of *Dutch* and the words *sweet* and *healthy*, the association between *Dutch* and  $r_{PV}$  is further strengthened. This is not the case with associations  $R_P$ ,  $R_S$ , and  $R_H$ ,

since they occur only once and are followed by other associations which are inhibitory. The direct associations indicated in the figure between the name and the individual words would also in this way be inhibited.

It was not thought that a rating response was conditioned in this procedure but rather an implicit attitudinal response which mediated the behavior of scoring the semantic differential scale. It is possible, with this conception, to interpret two studies by Razran (10, 11) which concern the conditioning of ratings. Razran found that ratings of ethnically labeled pictures of girls and sociopolitical slogans could be changed by showing these stimuli while *Ss* were consuming a free lunch and, in the case of the slogans, while the *Ss* were presented with unpleasant olfactory stimulation. The change in ratings could be thought to be due to the conditioning of an implicit evaluative response, an attitude, to the *CSs* by means of the lunch or the unpleasant odors. That is, part of the total response elicited by the food, for example, was conditioned to the pictures or slogans and became the mediation process which in turn elicited the positive rating.

It should be stated that the results of the present study do not show directly that *Ss*' behavior to the object (e.g., a person of Dutch nationality) has been changed. The results pertain to the *Ss*' attitudinal response to the signs, the national names themselves. However, Kapustnik (3) has demonstrated that a response generalized to an object when the response had previously been conditioned to the verbal sign of the object. Osgood states,

The aggressive reactions associated with *Nazi* and *Japan* on a verbal level certainly transferred to the social objects represented under appropriate conditions. Similarly, prejudicial behaviors established while reading about a member of a social class can transfer to the class as a whole . . . (7, p. 704).

The results of this study have special relevance for an understanding of attitude formation and change by means of verbal communication. Using a conception of meaning as a mediating response, Mowrer (5) has suggested that a sentence is a conditioning device and that communication takes place when the meaning response which has been elicited by the predicate is conditioned to the subject of the sentence. The results of the present study and the previous one of the present authors

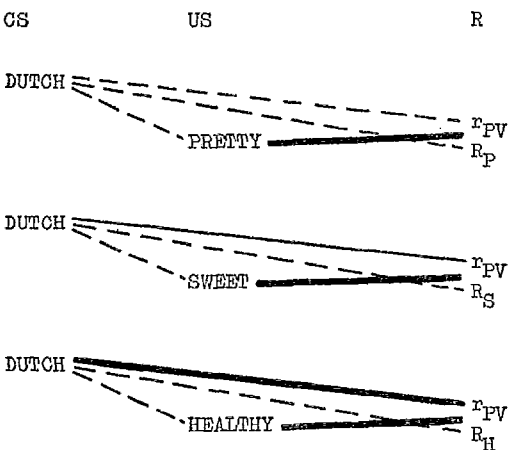


FIG. 1. THE CONDITIONING OF A POSITIVE ATTITUDE. THE HEAVINESS OF LINE REPRESENTS STRENGTH OF ASSOCIATION

(12) substantiate Mowrer's approach by substantiating the basic theory that word meaning will indeed condition to contiguously presented verbal stimuli. In the present study, the meaning component was evaluative, or attitudinal, and the CSs were socially significant verbal stimuli. The results suggest, therefore, that attitude formation or change through communication takes place according to these principles of conditioning. As an example, the sentence, "Dutch people are honest," would condition the positive attitude elicited by "honest" to "Dutch"—and presumably to any person called "Dutch." If, in an individual's history, many words eliciting a positive attitude were paired with "Dutch," then a very positive attitude toward this nationality would arise.

The reason for the group differences in each of the experiments is not clear. These differences could have arisen because there were actual differences in the Ss composing each group, or in some condition of the procedure occurring to one of the groups. Nothing the authors were aware of seem to indicate this as the explanation, and in the previous experiments of the authors (12) there were no group differences. Since in a 2 x 2 latin square the interactions are entirely confounded with the main effects, the group differences could also have arisen as a result of the interaction of the other two main effects (i.e., direction of conditioning and names).

#### SUMMARY

Two experiments were conducted to test the hypothesis that attitude responses elicited by a word can be conditioned to a contiguously presented socially significant verbal stimulus. A name (e.g., *Dutch*) was presented 18 times, each time paired with the auditory presentation of a different word. While these

words were different, they all had an identical evaluative meaning component. In Experiment I, one national name was paired with positive evaluative meaning and another was paired with negative evaluative meaning. In Experiment II, familiar masculine names were used. In each experiment there was significant evidence that meaning responses had been conditioned to the names without Ss' awareness.

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