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AUTHOR Grush, Joseph E.
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ABSTRACT

Ten Turkish words were used as stimuli in an exposure experiment. Twenty-five students from the University of Illinois subject pool were divided into five subgroups, differing only with respect to which stimuli occurred in which exposure conditions. After the stimuli were evaluated on 7-point "good-bad" scales, subjects completed a questionnaire which assessed variables connected with the various explanations of the mere exposure effect. The results showed that exposure increased the positive evaluations of the Turkish words and the summed positive evaluations of their associations. These parallel findings supported an attitude formation process which used Fishbein's attitude model to relate the evaluations of stimuli to the evaluations of their associations. Four other explanations of exposure effects were also tested, but their predictions were not confirmed. (MKM)

Attitude Formation, Novel Stimuli, and Exposure Effects

Joseph E. Grush
Northern Illinois University

Turkish words were used as stimuli in an exposure experiment. The results showed that exposure increased the positive evaluations of the Turkish words and the summed positive evaluations of their associations. These parallel findings supported an attitude formation process which used Fishbein's attitude model to relate the evaluations of stimuli to the evaluations of their associations. Four other explanations of exposure effects were also tested, but their predictions were not confirmed. It was concluded that an attitude formation interpretation of exposure effects can potentially reconcile findings which show that exposure can breed either contempt or liking.

Zajonc (1968) presented an impressive array of evidence to support the hypothesis that mere exposure of a novel stimulus is a sufficient condition to enhance an individual's positive evaluation of it. Harrison (1968) and Matlin (1970) proposed a response competition hypothesis to explain Zajonc's (1968) findings. This explanation assumes that exposure reduces the number of associations that are competing for dominance and causing negative tension in the individual.

Subsequent research has challenged the mere exposure hypothesis and the response competition explanation. Some studies have shown that exposure can lead stimulus evaluations to become more negative rather than more positive (Brickman, Redfield, Harrison, & Crandall, 1972; Perlman & Oskamp, 1971). Other studies suggest that exposure effects may be mediated by subjects' mental sets (Suedfeld, Epstein, Buchanan, & Landon, 1971), subjects' attitudes toward the experimental context (Burgess & Sales, 1971), or demand characteristics (Stang, 1974).

The present research simultaneously tested all of the above explanations of exposure effects plus an attitude formation explanation. This latter explanation assumes that the evaluative meanings of associations to stimuli are major determinants of stimulus evaluations. If associations to a novel stimulus are construed as subjective beliefs relating the novel stimulus to more familiar objects, Fishbein's (1967) attitude model can be used to relate evaluations of stimuli with evaluations of their associations. Specifically, a subject's evaluation of an exposed stimulus will be a summed function of his evaluations of associations to the stimulus.

The present experiment used "Turkish" words as exposure stimuli. Since exposure increases the positive evaluation of these stimuli (Zajonc, 1968), an attitude formation process predicts that exposure will also increase the (summed) positive evaluations of their associations. To test the relative merits of the attitude formation explanation, predictions derived from other explanations were also tested. Response competition predicts that exposure will decrease the number of associations to stimuli. A mental set hypothesis or attitude conditioning explanation predicts that subjects who show the exposure-enhancement effect will have, respectively, more positive mental sets or attitudes toward the experimental context than subjects who do not show the

exposure-enhancement effect. Finally, a demand explanation predicts that subjects will perceive that they are supposed to rate the most exposed stimuli as most good.

Method

Design

Ten Turkish words from Solomon and Postman (1952) were counterbalanced against five exposure frequencies (0, 2, 4, 8, 16) in a within-subjects design.

Subjects

Twenty-five students from the University of Illinois subject pool participated in the experiment to fulfill a requirement of their enrollment in the introductory psychology course. Subjects were divided into five subgroups, differing only with respect to which stimuli occurred in which exposure conditions.

Procedure

Instructions and procedures for exposure and evaluation of stimuli were identical to Zajonc's (1968) paradigm. After the stimuli were evaluated on 7-point good-bad scales, subjects completed a questionnaire which assessed variables connected with the various explanations of the mere exposure effect.

Associations were assessed by a repeated procedure (Maltzman, Bogartz, & Breger, 1958) which permitted as many as six associations to each stimulus. Associations were evaluated by subjects' placing a number from 1(bad) to 7 (good) after each of their associations. A subject's evaluation of the associations to a stimulus were summed to yield a score indexing that subject's evaluation of associations to that stimulus. Subjects' mental sets were assessed by asking subjects to indicate how they felt about being called for an experiment that day on three 7-point scales (good-bad, favorable-unfavorable, cooperative-uncooperative). These ratings were summed to yield a score which could range from 3 (negative mental set) to 21 (positive mental set). Subjects' attitudes toward the experimental context were assessed by asking subjects to indicate their attitudes toward the experiment, the experimenter and the laboratory on 7-point scales (good-bad, favorable-unfavorable). These six ratings were summed to yield a score which could range from 6 (negative attitude) to 42 (positive attitude). Subjects' perceived demand characteristics were assessed by the following series of progressively more direct questions:

> When you were judging the "goodness-badness" of the Turkish words, did you try to use any rule or strategy? If "Yes," briefly indicate what your rule or strategy was.
>
> Did you think the experimenter wanted you to make your "goodness-badness" ratings of the Turkish words in any particular fashion? If "Yes," briefly indicate what you think it was?
>
> Did you think the experimenter wanted you to rate the Turkish words seen most often as being the most good? If "Yes," did you try to do what you thought the experimenter wanted you to do?

Two raters judged whether a subject's responses to these questions indicated perceived demands. Subjects who showed no evidence of demands were categorized according to their rating strategy (i.e., responses to first question).

Results

An analysis of variance on the data for all subjects showed that exposure had a significant effect on stimulus evaluations ($F = 9.79$; $p < .001$). The pattern of stimulus evaluations replicated Zajonc's (1968) exposure-enhanced positive affect relationship.

Before testing the various explanations for the enhancement effect, the subjects were categorized as to whether they evaluated the stimuli on the basis of demands or their own rating strategies. Only four (4) subjects evaluated the stimuli on the basis of demands. Six (6) subjects indicated that they rated the stimuli on the basis of English word resemblances (e.g., biwonji → won; tavhane → tavern). Three (3) subjects rated the stimuli on the basis of a Pollyanna Hypothesis, e.g., "Good things happen more than bad things, so words seen most often were rated best." Seven (7) subjects indicated that they rated the stimuli according to their sounds, e.g., "If a word sounded good, I rated it good." Finally, five (5) subjects gave no strategy for evaluating the stimuli.

Data for the five strategies were then separately analyzed for exposure effects on stimulus evaluations. Since subjects with a demand, Pollyanna, or English resemblance rating strategy showed the exposure-enhancement effect, these subjects constituted an Exposure Group. Since subjects with a sound or no rating strategy did not show the exposure-enhancement effect, these subjects constituted a Nonexposure Group. Table 1 contains each group's mean evaluations of the stimuli and mean evaluations of the associations.

Table 1
Mean Evaluations of Stimuli and Associations

	Exposure Group (n = 13)		Nonexposure Group (n = 12)	
Exposure Frequency	Evaluation of Stimuli	Evaluation of Associations	Evaluation of Stimuli	Evaluation of Associations
0	2.82	21.70	3.52	22.36
2	3.80	19.63	3.88	19.46
4	3.94	20.11	4.35	20.42
8	5.31	25.08	4.15	22.40
16	5.30	26.15	4.32	22.40
	$F = 12.21$, $p < .001$	$F = 2.66$, $p < .05$	$F = .82$, ns	$F = .27$, ns

Higher scores indicate more positive evaluations.

As can be seen in Table 1, the Exposure Group showed that exposure increased the positive evaluations of the stimuli ($p < .001$) and the (summed) positive evaluations of the associations ($p < .05$). The Nonexposure Group showed that exposure affected neither the evaluations or the stimuli nor the evaluations of the associations (F's < 1). These parallel findings supported an attitude formation interpretation of exposure effects.

Other explanations of exposure effects were not confirmed. Demands were ruled out because only four (4) subjects rated the stimuli on this basis. Response competition was ruled out because the number of associations tended to increase ($F < 1$) rather than decrease. A mental set hypothesis was excluded because subjects in the Exposure Group did not have more positive mental sets than subjects in the Nonexposure Group ($t = 1.21$; ns). Finally, an attitude conditioning explanation was excluded because subjects in the Exposure Group did not have more positive attitudes toward the experimental con-

text than did subjects in the Nonexposure Group ($t = 1.56$; ns).

Discussion

Several questions can be raised about this study. First, why did the present experiment fail to support other explanations of exposure effects? While the answer is complex, it can be said here that existing support for these explanations relies primarily on inferential or equivocal findings. For example, response competition (Harrison, 1968) has been supported when the total number of associations is inferred from the latency of the first association to the stimulus. Latency measures are problematic, however, because a short latency can logically imply either many or few associations. Support for mental sets (Suedfeld et al, 1971) or attitude conditioning (Burgess & Sales, 1971) is also inferential. For example, one cannot necessarily infer from studies which manipulate these variables and obtain an enhancement effect that mere exposure subjects produce the effect for the same reasons. Finally, the evidence for demands is equivocal. That is, while Stang's (1974) role playing subjects intuited demands for an enhancement effect, his subjects in actual exposure experiments intuited a decrement effect ($n = 71$) at least as frequently as they intuited an enhancement effect ($n = 62$).

Second, there is the problem of supporting an attitude formation process with parallel findings. In other words, since the evaluation of associations were assessed rather than manipulated in this study, one cannot definitely conclude that an attitude formation process mediated the exposure effects on stimulus evaluations. However, Staats and Staats (1957) have already shown that when neutral stimuli are systematically exposed with evaluative associations, the stimuli assume the evaluative meaning of their associations. Given this empirical finding, the present study sought to show that some analogous association process actually occurs during the mere exposure of novel stimuli.

Finally, there is the question of why subjects should generate positive or negative associations to novel stimuli? In the present experiment, subjects' rating strategies apparently influenced their generation of positive associations. For example, subjects with an English resemblance rating strategy probably thought of more positive than negative associations because positive words are more frequent (Zajonc, 1968) and easier to process (Hoosain, 1973) than negative words. In other experiments, characteristics of the stimuli may affect the type of associations generated. For example, exposure of bad art (Brickman, et al, 1972) or males photographed in negative contexts such as police line-ups (Perlman & Oskamp, 1971) probably leads subjects to generate negative associations to the referents of these stimuli. Thus, an attitude formation process which considers stimulus characteristics and the evaluations of their associations can potentially reconcile findings which show that exposure can breed contempt as well as liking.

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