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A Report of Research on

THE STABILITY OF AUTOKINETIC JUDGMENTS

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THE STABILITY OF AUTOKINETIC JUDGMENTS[1]

J. H. Rohrer, S. H. Baron, E. L. Hoffman, D. V. Swander

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1. This study is one of a series carried out under ONR Contract Nonr-475(01) with Tulane University. That contract provides for a systematic investigation of the relationships holding between personality, learning, and social variables. The project, under the direction of J. H. Rohrer, is a part of the research program of the Neuropsychiatry Branch, Bureau of Medicine and Surgery, U. S. Department of Navy. While this paper constitutes a technical report to ONR, the interpretations presented herein are those of the authors and do not represent, necessarily, those of the sponsoring agency, the Department of Navy.

A major criterion used in a series of studies concerned with problems of personality structure and interpersonal interactions, carried out by the writers, has been rate of convergence to a common social norm established to perceived autokinetic light movement. Generalizations developed from this experimental model of a social situation are limited by the stability, in time, of the norms so established. Sherif (8) in his classic experiment demonstrated that such norms were stable when tested for after a period of one week. Bovard (2) reported stability of norms after 28 days. This report deals with the stability of socially affected judgments, established to an autokinetic producing light S, after an elapsed time interval of one year.

METHOD

Subjects. The stability of norms test was carried out with 46 Os who had established social norms one year prior. All Os were undergraduate male students at Tulane and all were enrolled in either Army, Navy, or Air Force ROTC training units. None of the Os were aware of the purpose of the study and none had experienced the autokinetic producing situation in the interval between test-retest.

The experimental situation and room were identical for the norm formation and retesting sessions. The experimental situation has been described in detail elsewhere (4). The apparatus also has been described elsewhere (7).

Experimental Sessions. Three sessions were utilized: (T) an individual training session; (X) a social norm formation session; and, (Y) an individual test of norm stability. The method of training utilized in session (T) has been described elsewhere (4). Briefly, Os were trained in individual sessions using actual movement of a pinpoint of light within a circular luminous framework. Os reported their judgments of the extent of movement after each exposure. Fifty exposures were made in this session. The actual distance that the light moved was determined by E at the outset of the session and remained constant throughout the session, although the direction of the movement was systematically varied on a plane perpendicular to the O as permitted by the apparatus (7).

About one hour following the training session, the norm formation

session occurred. In this session the luminous framework was absent, the pinpoint of light remained stationary, and the auditory cues from the apparatus were present. In session (X) the Os were tested in pairs, one member had been trained in session (T) at a distance of 2 in., the other member had been tested at a distance of 8 in. During session (X) a verbal report of the perceived extent of light movement was obtained from the Os after each exposure. Fifty presentations were also made in this session.

In session (Y), which took place approximately 12 months following session (X), each O was tested individually and judgments were given following each exposure. Fifty exposures were given in this session also. Thus, in session (Y) the conditions were identical with those used in session (X), with the exception that each O was tested individually.

Scoring. The scores were in terms of inches of movement reported by the O. The Mdn of each O's 50 judgments, for each session, was computed. It is this Mdn that constitutes the O's norm or score for each session. References to "mean score" indicates the M of Mdns.

RESULTS

The data for the Os trained with a 2 in. light movement were analyzed separately from the data obtained from the 8 in. training group. This was done because the means of the (T) scores for the groups differ significantly, which was to be expected, and the groups were heterogeneous with respect to variances. The results of an F test provides evidence for

rejecting the hypothesis of homogeneous variance at the .01 level of confidence. Furthermore, it was not feasible to adjust the autokinetic (X) scores to account for the differences in (T) scores because an analysis of the regression data revealed that one regression line could not be used for all observations. Although the slopes of the regression lines within the two groups were not significantly different and the regression line for the two means was linear, the regression coefficient for the data within the groups differed significantly from the regression coefficient for the group means.

Table 1 presents the mean and variance for the (T) scores for Os trained at 2 in., and 8 in. respectively. When Os who had been trained with a light that moved 2 in. were paired with Os trained with a light that moved 8 in., and these pairs tested together for their judgments of autokinetic movements, the judgments converged to produce the (X) means also presented in Table 1. The variances for those scores are also presented. It may be noted that the variability of the judgments in the autokinetic session are considerable larger than the judgments in the more structured training session.

The group means for the autokinetic (Y) scores obtained one year after the (X) scores are also presented in Table 1 together with their variances. A reduction in the group means may be noted for both (T) groups. This reduction is statistically significant ($p. < .01$) for the 8 in. training group but not for the 2 in. training group. Differences between sessions have been evaluated and are presented in Table 2.

TABLE 1

Means and Variances

Session	2 in. Training (N = 23)		8 in. Training (N = 23)	
	Mean	Variance	Mean	Variance
T	3.08	6.08	8.74	.79
X	6.29	24.95	6.41	4.24
Y	5.50	12.54	5.09	5.06

TABLE 2

Obtained Differences Between Sessions

	2 in. Training (N = 23)		8 in. Training (N = 23)	
	T-X	X-Y	T-X	X-Y
M diff.	3.21	0.79	2.33	1.32
t	2.675	0.6076	4.8724	2.0301
p	$<.01$	$>.50$	$<.01$	$<.05$

In spite of the reduction in group means when retested after an interval of one year, there is still a high positive relationship between the norms established in sessions (X) and (Y). This relationship is shown by the correlation coefficients in Table 3. The multiple correlation coefficient, $r_{Y.XT}$, is approximately the same as the simple coefficient of correlation between first and second autokinetic scores.

In order to evaluate the relative contributions of (X) and (T) to the prediction of (Y), the standard partial regression coefficients were computed. The standard regression of (Y) on (X), independent of (T), is 0.739 and 0.600 for the 2 in., and 8 in., training groups respectively, while the standard regression of (Y) and (T) independent of (X) is 0.264 and -0.008 for the 2 in. and 8 in. groups respectively. It is evident from a comparison of these coefficients that the contribution of (T) to the prediction of (Y) is negligible.

DISCUSSION

In a previous study (4) it was demonstrated that the effects of training Os to judge the actual distance moved by a light S, generalized to a autokinetic light movement situation and thus influenced the magnitude of the perceived autokinetic movement. Stated in more formalistic terms, the habit strength of a R tendency built up to a S of real movement, generalized to a S situation in which the perceived movement was illusionary. The data presented in this study demonstrate that judgmental norms of perceived autokinetic movement, modified in the direction of conformance with

TABLE 3

Intercorrelation Coefficients

	2 in Training (N = 23)	8 in Training (N = 23)
r_{XY}	.892	.595
r_{YT}	.693	.341
r_{XT}	.581	.582
$r_{Y.XT}$	.918	.598

judgments of a second person in an interpersonal (social) situation, tend to negate the effects of the earlier individual training. Moreover this negation of training effects, by social interaction, persists in time; the effects of the social interaction manifesting itself in a "non-social" test situation after a period of one year. Again in more formalistic terms, the modification due to social interaction was in the intervening habit variable.

Kelman (5) has demonstrated that felt "success" led to stability of norms established to perceived autokinetic movement and felt "failure" led to norm modification. The terms, "success" and "failure" are most meaningful when used within a theoretical framework employing the concept of reinforcement. Such a framework requires the identification of "motives" or "drives" that, when reduced, strengthen the tendency to respond. The change made in our S situation, that produced the altered behavior, was the introduction of a second O who began giving reports of perceived movement which were at variance with the judgments given by the other member of the pair. The altered behavior that resulted was to bring into conformance the judgments of perceived movement reported by both members of the pair. It is hypothesized that this shift was activated by an acquired motive for

social conformance.[2]

The data argue for the shift being due to a drive variable, rather than due to a situational, or S, variable because the altered R persisted when the interpersonal interaction was not operating (session Y). Thus, a stable R tendency was established to the light S in the 50 trial (X) session by the reduction of the conformity drive, and this R tendency was manifested in the subsequent individual (Y) session.

An attempt was made to explain the data by use of Bateson's (1) and Harlow's (3) notions of "learning sets." The rather rapid rate of convergence noted in session (X) suggests that a "set" for conformance produced by the interpersonal cues could be involved. What is known about human socialization practices also suggests that sets to conform are one of the most likely by-products of socialization. Yet the results obtained in session (Y) suggest that the notion of "learning sets" is not sufficient to explain the results; the specificity and stability of the acquired R tendency

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2. Within the theoretical framework of Parsons et al, (6) this would be equivalent to their "need-dispositions to conform to expectations" - that was felt by "ego." In the case of our Ss, there was no evidence of overt conflict involved in the conforming behavior. They were not aware that they were conforming, yet all converged very rapidly, despite the presence of acquired R tendencies, established in the (T) session, that would cause them to tend <u>not</u> to conform.

suggests the theoretical need for an additional notion similar to what Harlow (3) has referred to as "Thorndikian bondage" resulting from drive reduction.

SUMMARY

1. The stability of judgmental norms, established as a result of interpersonal interaction was evaluated one year after they were established. The evaluation was made by testing the subjects individually.

2. It was shown that the norms, so established, were stable

3. Data were presented which showed that social interaction resulted in a rapid modification of response tendencies established in a previous individual training session.

4. The results obtained were interpreted within a reinforcement theory framework.

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