

# EFFECTS OF REINFORCEMENT, PROXIMITY, AND ORIENTATION ON VERBAL BEHAVIOR OF FEMALE SCHIZOPHRENICS<sup>1</sup>

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Evaluated effects of reinforcement, proximity, and orientation on verbal behavior of female schizophrenics. Sixty-four inpatient state hospital volunteers (36 schizophrenics and 33 hospitalized controls) either were reinforced verbally or nonreinforced for construction of appropriate sentences. Also, participants were exposed to near or far proximity as well as direct or indirect orientation. Results indicated that schizophrenics performed best in the indirect orientation condition. While no differential group effects were seen across diagnosis, participants on the average responded more effectively when reinforced. These findings are contradictory to those reported in earlier studies of verbal conditioning in schizophrenics. Discussed were the detrimental effects of attentional demands on verbal conditioning in schizophrenics and the effectiveness of verbal reinforcement across hospitalized patients.

Although verbal conditioning studies that used schizophrenics typically have yielded negative results (e.g., Ebner, 1965), anecdotal evidence provided by Searles (1965) and others indicates that such negative findings may be accounted for by tonal variation of reinforcement. Using this evidence as basis, Rierdan and Brooks (1977, 1978) investigated the hypothesis that valence and tonal quality of responses as well as *E* proximity influence verbal conditioning in schizophrenics. Their results suggest that verbal behavior indeed can be altered using congruent words and tone as well as near proximity to the *S*. Additionally, they found that social class moderated learning performance.

However, it is difficult to assess these findings. Specifically, in these studies (a) the samples were poorly defined (i.e., demographic variables, current mental status, psychotropic regimen, and related hospitalization criteria were not furnished); (b) the reinforcement conditions were inadequately delineated (i.e., tonal quality and method of reinforcement were not described); and (c) pertinent statistical information was excluded (i.e., means and standard deviations).

The present study takes these problems into account. Samples were defined operationally. Learning was assessed using a Taffel (1955) like verbal task. Additionally the following variables were manipulated: (a) response-specific reinforcement or nonreinforcement; (b) physical proximity of the *E* to the *S*; (c) physical orientation of the *E* to the participant; and (d) blocks and specific test stimuli were randomized during each task.

## METHOD

### *Subjects*

From Northeast Florida State Hospital's inpatient population, 36 schizophrenics and 33 nonschizophrenic controls volunteered. Individuals read, comprehended, and signed informed consents. Participants exhibited absence of neuropsychological deficits, completed a minimum of a sixth-grade education, and had not received electroconvulsive therapy during the 6 months prior to experimental participation. Participants received a rating of 7 (the lowest occupational rating if previously employed) using the Warner, Meeker, and Eell Index of Status Characteristics/Revised Occupational Rating Scale (1949).

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As shown in Table 1, no difference between groups were observed across groups in number of hospitalizations. However, schizophrenics were, on an average, 10 years older than controls (i.e., 40.01 and 30.24, respectively) and were hospitalized approximately 9 months longer (i.e., 11.35 and 2.79, respectively).

TABLE 1  
DEMOGRAPHIC INFORMATION OF SCHIZOPHRENIC AND NONSCHIZOPHRENIC SAMPLES

Variable	Schizophrenic		Nonschizophrenic		PROB >F
	$\bar{X}$	SD	$\bar{X}$	SD	
Age	40.03	11.69	30.24	11.69	.99
Length of hospitalization (in months)	11.35	28.58	2.79	2.89	.00
Number of previous hospitalizations	1.24	.43	1.44	.50	.37

Diagnosis was ascertained by a clinical psychologist using chart history, interview, and the Revised Inpatient Multidimensional Psychiatric Scale (Lorr & Klett, 1967). Criteria for schizophrenia included the DSM III (American Psychiatric Association, 1980) definition of schizophrenia. Of this sample, 20 (56%) were diagnosed as undifferentiated, 15 (42%) as paranoid, and 1 (3%) as disorganized. Additionally, deviations from norms were observed for the following Inpatient Multidimensional Psychiatric Scale (IMPS) syndromes: Paranoid projection, grandiose expansiveness, perceptual distortion, motor disturbance, conceptual disorganization, and the second order factor of schizophrenic disorganization. These scores are illustrated in Table 2.

TABLE 2  
MEANS AND STANDARD DEVIATIONS OF INPATIENT MULTIDIMENSIONAL  
PSYCHIATRIC SYNDROMES FOR SCHIZOPHRENIC AND NONSCHIZOPHRENIC SAMPLES

	Schizophrenic	Nonschizophrenic
Excitement	11.2 (13.4)	20.5 (22.5)
Hostility	13.5 (12.7)	21.0 (11.7)
Paranoia	58.0 (23.5)	.1 (.3)
Grandiosity	3.4 (6.4)	.4 (1.0)
Perceptual	15.4 (16.6)	0 (0)
Anxiety	19.4 (12.4)	20.9 (10.6)
Retardation	30.9 (20.9)	9.8 (9.4)
Disorientation	1.5 (2.6)	0 (0)
Motor disorder	18.4 (13.3)	2.3 (3.8)
Conceptual disorder	15.5 (8.6)	5.7 (5.5)
Schizophrenic disorganization	49.6 (7.5)	40.6 (1.9)

Using DSM III criteria, controls consisted of the following disorders: 16 (49%) antisocial, 6 (18%) borderline, 6 (18%) bipolar, 4 (12%) dysthymic, and 1 (3%) conversion. As shown in Table 2, controls scored higher on the excitement and hostile belligerence syndromes of the IMPS. Presumably, the elevated excitement syndrome was due to bipolar disorders, while the hostile belligerence was a function of the antisocial participants.

### *Procedure*

Participants were brought to the experimental chambers by a male *E* unaware of the *S*'s history, diagnosis, and reinforcement condition. The experimental room was an 8' by 12' enclosure with an adjoining anteroom. From the anteroom, the male *E* controlled slide presentation as well as tape-recorded the session.

The female *E*, who had received extensive training in providing reinforcement to university student volunteers using videotape, greeted *S*s in the experimental room. She introduced the study as an investigation of "how people make up sentences." Two sample slides then were presented, and *S*s were instructed to construct appropriate sentences as indicated. Five individuals were excluded from the study because they did not emit an appropriate response by the second sample.

The female *E* sat in one of four positions relative to the participant (cf. Rierdan & Brooks, 1978). In the near vis-à-vis (NV) orientation, the front edge of the *S*'s chair was 18" from the female *E*'s chair and the *E* maintained direct eye contact with the participant. In the near juxtapose (NJ) position, sides of both chairs were 18" apart and the *E* gazed forward. In the far vis-à-vis (FV) position the front edge of the chairs were 8' apart, and the *E* gazed directly at the *S*. In the final orientation, far juxtaposed (FJ), sides of the chairs were 8' apart and the *E* looked forward.

Verbal conditioning tasks similar to Taffel's (1955) were employed using a slide projector. In each of the 80 tasks, test stimuli consisted of both a verb and four pronouns shown on a screen 8' from the front edge of the *S*'s chair. The common, present tense verbs were those used by Rierdan and Brooks (Rierdan, Note 1). Directly beneath the verb, the pronouns "I," "We," "You," and "They" were presented horizontally. Participants were to construct a sentence using the verb and one of the pronouns shown. Pronoun order was randomized per slide, and slide presentation was randomized across *S*s.

The first block of 20 slides was used as baseline. During the next three blocks of 20 tasks, the *E* (blind to history and diagnosis) reinforced sentences that began with first person pronoun by saying "good" in a positive, enthusiastic voice while slightly nodding her head affirmatively.

In summary, each participant was assigned randomly to experimental groups. In turn, groups were defined by the variables of orientation, proximity, diagnosis, and treatment.<sup>2</sup>

### RESULTS

A  $2 \times 2 \times 2 \times 4$  analysis of variance (ANOVA) was performed using the variables of diagnosis, orientation, distance, and reinforcement. The analysis revealed a significant diagnosis by orientation interaction,  $F(1.66) = 4.26, p < .05$ . Nonschizophrenics exhibited 11.5 correct sentences both in the vis-à-vis and the juxtaposed condition. However, schizophrenics performed poorly in the vis-à-vis condition relative to the juxtaposed condition (i.e., 9.2 and 12.5 sentences, respectively) and the nonschizophrenic controls.

Also, a main effect of reinforcement was noted  $F(1.66) = 12.73, p < .00$ . The mean number of first-person pronoun sentences for the non-reinforced group was 9.6 compared to 12.5 sentences for the reinforced participants.

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<sup>2</sup>Complete procedural outline and instructions are available upon request.

## DISCUSSION

The results indicate that while orientation did not affect nonschizophrenics' performance, eye-to-eye orientation appeared to hamper, while indirect orientation facilitated verbal conditioning of schizophrenics. Also, these findings indicate that verbal reinforcement was equally affective across both hospitalized groups.

These results are not supportive of those reported earlier by Rierdan and Brooks (1977, 1978). The heterogeneity of participants within groups, incompletely delineated reinforcement contingencies, and inadequate statistical presentation of the data could have obscured the appropriate differential groups effects in Rierdan and Brooks studies that were observed in the present study.

Impairment of verbal conditioning due to orientation could be accounted for by considering that forced attention in the eye gaze may have distracted schizophrenics from performing the task. Shakow (1963) has indicated that schizophrenics cannot maintain close attention for a task for more than a few seconds. This suggestion could be extended to include that schizophrenics cannot perform adequately on verbal conditioning tasks when their attention is being diverted elsewhere. Furthermore, as Ullman and Krasner (1969) have suggested, schizophrenics are not experienced at attending to the task and related reinforcement, especially when gazed at directly.

What is important is that attentional deficits, as shown in this study, appear to be a function of social pressure to attend to another person. In fact, when this pressure was removed, schizophrenics performed better than nonschizophrenic controls in either orientation. Thus, it is suspected that schizophrenics viewed direct orientation by a reinforcing party as disruptive, possibly punishing. These findings may assist in answering the question posed by Argyle (1967) of whether social anxiety or loss of feedback (cf. Shakow, 1963) is contributing more to disrupting performance in schizophrenics.

The relationship of verbal deficits to neural functioning recently has received much attention. Gur (1979) and others have hypothesized that schizophrenics have dysfunction and overactivation of left hemisphere. Because the left hemisphere controls verbal behavior in most individuals, the question remains whether direct orientation affected left hemisphere functioning or simply attention variables. Answers to this and related questions should guide the development of research in intervention and rehabilitation of disordered schizophrenics' behavior in general and verbal behavior in particular.

Also worthwhile noting is that reinforcement was equally effective across groups. Although these findings were not expected, it is assumed that regardless of disorder, verbal reinforcement provided by a concerned therapist is effective in increasing desired verbal behavior when compared to non-reinforcement.

In summary, this study strongly suggests that demanding attention from a social source impairs verbal conditioning and that reinforcement is effective across diagnostic group in conditioning desired verbal behavior. Questions that deal with the relationship of attentional demands, reinforcement, and hemisphericity, however, remain to be answered.

## REFERENCE NOTE

1. RIERDAN, J. Personal communication, February 15, 1980.

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## PSYCHOTHERAPISTS' IMPRESSIONS OF TREATMENT OUTCOME AS A FUNCTION OF RACE<sup>1</sup>

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One hundred sixty-four black and white patients, evenly divided by race, were seen in individual psychotherapy for a mean of more than 31 treatment hours. Half the patients in each group were in racially similar therapist-patient matches and half in racially dissimilar pairings. Assessments of treatment outcomes and personality descriptions of patients were obtained from therapists after termination. White therapists generally rated their clients, and especially their black clients, as psychologically more impaired than did black therapists. Adjective descriptions revealed important differences in the perception of black and white clients by therapists of the two races. In the view of therapists, all patients improved as a result of treatment, and black and white patients, with few exceptions, appeared to benefit about equally. Contrary to expectation, there were no differences in psychotherapy outcome as a function of client-therapist racial match.

The question frequently has been raised whether models of therapeutic intervention, as currently conceived and conducted, are appropriate for the black population. Ethnic minority psychologists (e.g., Weems, 1974) sometimes have argued that because of important cultural differences between blacks and whites, traditional methods of psychotherapy are inadequate for black clients. Non-minority psychologists frequently have agreed with this conclusion, but for different reasons. Goldstein (1973), for example, has urged a more structured, behaviorally oriented approach to treatment for minority clients, who presumably do not possess the attributes allegedly required for dynamic, insight-oriented treatment. Admittedly, this is a controversial area, one that appears particularly vulnerable to biases and misperceptions. Views such as those just cited, based mainly on clinical impressions and not infrequently influenced by ideological persuasion, must be considered speculative until supported by more systematic investigation. What research has been done in the area of race and psychotherapy is of relatively recent origin and essentially has been comprised of three types of investigations: Epidemiological studies that record numbers of patients, types of disorders, and method and length of treatment; analogue studies that consist of more-or-less controlled laboratory investigations of same and differing race interviewer-interviewee interactions; and a small number of outcome studies of actual psychotherapy.

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