

THE EFFECTS OF EXAMINER, ROLE, AND REINFORCEMENT
VARIABLES ON THE MODIFICATION OF VERBAL
BEHAVIOR IN INSTITUTIONALIZED
RETARDATE

by

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CHAPTER I

PROBLEM

Purpose of the Study

The purposes of the present experiment were: (1) an investigation of the modification of institutionalized patient behavior by professional and nonprofessional personnel, and (2) replication of a verbal conditioning effect when certain restrictions were imposed upon examiner variables.

On an observational basis, it seems reasonable to infer that the psychiatric aide in an institution is involved with the direct control of patient behavior and generally functions in a restrictive, authoritarian manner (e.g., "leave the other boys alone" or "stop running in the hall"). On the other hand, the psychologist's responsibility in patient evaluation and therapy renders him prone to facilitate relatively free patient response by functioning in a permissive, accepting manner (e.g., "you may draw it in any way you wish").

Embodied within the division of personnel responsibilities are divergent reinforcement modalities and contingencies. The aide seems to reinforce behaviors which facilitate the maintenance of an efficient cottage routine. Reinforcement is predominantly negative (verbal reprimand, restriction of privileges, etc.). In contrast, the psychologist tends to reinforce behaviors which are most closely related to the patient's problems. Reinforcement is primarily positive.

On the basis of such a reinforcement history, the two classes of employees may have acquired differential reinforcing value for a given class of patient behavior. Further, the stimuli associated with each class of employee (e.g., type of dress) may have acquired the properties of discriminative cues. Conceptualized in this manner, an appropriate experimental analogue for such interactions would seem to require: (1) a dyadic assembly in which reinforcement for each member is mediated by the other, and (2) a dependent variable which is subject to the influence of variations in interaction between dyad members prior to the assembly. The verbal conditioning paradigm meets these criteria. The present investigation, in part, represents an attempt to incorporate these features of the verbal conditioning model into an experimental analogue of the two classes of personnel-patient interaction at issue.

The design of the experiment was developed to provide a situation in which the effects of examiners in the role of institutional employees could be tested. Further concern was directed toward the production of a verbal conditioning effect with institutionalized retardates and replication of such an effect by six experimentally naive examiners. Three males and three females were randomly selected from a general lay population and trained in conditioning procedures. Examiners taking the role of either aides or psychologists interacted with subjects during a five minute session immediately preceding a verbal conditioning task. The subjects were then presented a conditioning task which required the construction of a sentence using a verb and one of six pronouns printed on 80 stimulus cards. Half of the subjects were verbally reinforced when they utilized a first person pronoun in sentence construction. The remaining subjects served as a control and were not reinforced.

Statement of Hypotheses

The following hypotheses were formulated:

1. Frequency of first person pronouns emitted in conditioning trials would not differ significantly between subjects under different examiners.
2. Frequency of first person pronouns emitted in conditioning trials would differ significantly between subjects under the aide role and subjects under the psychologist role.
3. Reinforced subjects would emit a significantly greater frequency of first person pronouns than nonreinforced subjects.

CHAPTER II

REVIEW OF THE LITERATURE

The review of the literature will be presented in five sections: (1) The Verbal Conditioning Paradigm; (2) Examiner Differences; (3) Preconditioning Effects; (4) Methodological Considerations; and (5) Verbal Conditioning With Retarded Subjects.

The Verbal Conditioning Paradigm

The general conceptualization of verbal conditioning is in terms of operant conditioning principles. Skinner (1957) defines verbal behavior as behavior which is reinforced through the mediation of other persons. It is viewed as different from nonverbal behavior only by virtue of the mediation of reinforcement by another person. Thus, by definition, verbal behavior is a social process. Such an approach implies that verbal behavior can be analyzed as a dependent variable which is a function of variations in reinforcement.

Any event which characteristically precedes many different reinforcers acquires, according to this view, reinforcing properties which are operative not only in the original situation but in new and unrelated situations as well. Events whose reinforcing properties have acquired such generality are called generalized conditioned reinforcers. For Skinner (1957), verbal conditioning involves the arrangement of a contingency between a given class of verbal response and a generalized

conditioned reinforcer. A common generalized conditioned reinforcer is approval, which may take a verbal form, e.g., "good". Because such approval frequently precedes specific reinforcements appropriate to many states of deprivation, the behavior it reinforces is likely to be manifest in performance much of the time.

In its simplest form, the verbal conditioning paradigm involves asking the subject to verbalize in terms of a given task. During the subject's verbalization, the examiner attempts to reinforce a preselected class of his verbal behavior by carefully controlled verbal or nonverbal cues.

By far, the largest group of studies has utilized modifications of a task technique first reported by Taffel (1955). White index cards with six pronouns and, on each card, a different verb in the simple past tense are utilized as stimulus materials. Order of the six pronouns is randomized for each card. Instructions consist of asking the subject to make up a sentence using one of the pronouns with the verb. The class of pronouns reinforced is usually that of first person pronouns. A number of modifications of Taffel's basic procedure have been developed (Binder, McConnell & Sjöholm, 1957; Sarason, 1958; Simkins, 1961; Weide, 1959).

Other task techniques include interview or story telling methods (Krasner, 1958) and Kanfer-type procedures (Kanfer, 1954) which utilize the autokinetic stimulus situation.

Examiner Differences

One rather unique characteristic of verbal conditioning involves systematic variations in effect obtained with different examiners or the same examiner in different roles.

A number of earlier investigations were successful in replicating treatments with more than one examiner (Cohen, Kalish, Thurston, & Cohen, 1954; Salzinger & Pisoni, 1958; Wickes, 1956) but replication failures in some studies (Kanfer, 1958; Verplanck, 1955) led to the systematic manipulation of examiner variables.

Binder, McConnell, and Sjöholm (1958) used two examiners differing markedly in physical and social characteristics. An attractive, reserved female obtained the conditioning effect with subjects of both sexes while the large, aggressive male examiner failed to produce conditioning. Noting the confounding of aggressive manner and sex as well as other factors, Ferguson and Buss (1960) manipulated aggressive and neutral roles factorially with sex of examiner. The neutral role was associated with a significantly greater frequency of hostile verb selection than the aggressive role. No statistically significant divergence was noted between a male and female examiner. The response classes utilized in these studies varied along a hostility continuum. Replication with a different response class, e.g., defensive responses, might alter this relation considerably.

Other studies have been exclusively concerned with the effects of sex differences in examiners. One investigation (Krasner, Ullmann, Weiss, & Collins, 1960) obtained equivocal comparability in conditioning male medical students with two male and one female examiner. While the males obtained significant conditioning effects, the female was only able to produce nonsignificant effects in the same direction. Cieutat (1962) found nonverbal reinforcement (attending to S in conversation) to be more effective when reinforcement was mediated by a person of the same sex as the individual being reinforced.

Among the investigations with subjects at varying CA levels is that of Stevenson (1961) who found reinforcement by an adult female more effective than by an adult male with three to four year old subjects of both sexes. This relation held for boys but not girls in the 6 - 7 CA range. At the nine and ten year old level, the differences associated with sex of examiner and subject were not statistically significant. An experiment by Epstein (1961) suggests that five to seven year old males may be more responsive to a male than female examiner if they have a "strong masculine ego-ideal" (in this case, measured by Brown's It Scale for Children). Baer and Goldfarb (1962) concluded that reinforcement of adolescents was most effective when the examiner and subject were of the same sex.

Sapolsky (1960) gave instructions to his subjects which emphasized the likelihood of the subject's finding the examiner personally attractive or unattractive. He also formed compatible and incompatible examiner-subject dyads, based on the results of a personality test. Both compatibility and attractiveness were associated with a significant increment in subject usage of the reinforced response class. Marder (1961) manipulated examiner attractiveness by having either a positive or negative role for the examiner in relating to the subject. Subjects confronted with an unattractive examiner displayed significantly less conditioning than those with an attractive examiner.

Verplanck (1955) reported that of the 15 student examiners involved in a verbal conditioning experiment, success in obtaining the conditioning effect seemed to be positively related to the prestige of the examiner. The reliability of these results was determined by an unsuccessful attempt at replication and subsequent evidence of data faking by some of

the examiners (Azrin, Holz, Ulrich, & Goldiamond, 1961). Friesen and Ekman (1960) obtained no significant differences between enlisted men and officer examiners with a subject population of army enlisted men. Blufarb (1961) found no relation between status of examiner (defined in terms of "age, expertness, and academic rank") and performance.

An investigation by Marion (1956) demonstrated significant conditioning effects by clinic counselors as examiners but not by students in a counselling course. Although conditioning effects were obtained, Bernd (1961) observed no significant differential for a psychiatrist and assistant in the psychology department with a VA hospital population. Caruth (1962) found patients in psychotherapy conditioned to a significant extent with two psychologists as examiners while psychiatrists and social workers obtained negative results. In evaluating Caruth's experiment, it should be noted that professional role was probably confounded with presence or lack of sophistication in experimental procedures as well as any number of other variables.

Possibly, the most comprehensive investigation of examiner characteristics is reported by Campbell (1960). In the initial phase, a personality inventory was administered to a number of nurses after which they were employed as subjects in a verbal conditioning experiment. On the basis of their personality inventory, the nurses were divided into high and low hostility groups and subsequently served as examiners in another verbal conditioning study. The subject population of nonpsychiatric patients was assigned to examiners on the basis of their diagnosis, hostility score, and anxiety score. The hostility level of both patient and nurse had no significant effect on verbal conditioning performance. However, interaction effects involving the conditionability of nurses, the kind of reinforcement, and trials were noted.

In summary, it would appear that the sex, prestige, and professional role of the examiner as well as the manner of relating to the subject bear a significant relation to the conditioning of verbal response.

Preconditioning Effects

Just as the handling of animal subjects prior to conditioning may affect subsequent results, so may prior examiner-subject interactions influence the conditioning of human subjects.

The initial investigation of such effects was reported by Solley and Long (1958). Subjects with whom the examiner had conversed prior to conditioning required fewer trials to evidence conditioning than subjects who had only been exposed to the examiner during the conditioning task. Timmons (1959) also obtained results suggesting that a pleasant preconditioning exposure to the examiner facilitated conditioning. Kanfer and Karas (1959) found that conditioning scores were not differentially influenced by success or failure experiences on a preconditioning task. Comparison with control subjects revealed that all groups with prior exposure to the examiner conditioned at a significantly higher level. Apparently, the nature of these preconditioning operations was less relevant than the simple presence or absence of such experiences.

Hall (1960) found that subjects given an ego-oriented set made a significantly greater number of reinforced responses than subjects given no set or a task-oriented set. Forgays and Molitor (1962) found subjects with incomplete instructions to respond at a higher level than control subjects. Naumoff and Sidowsky (1959) found that subjects who were instructed to try to make the examiner say "good" as frequently as possible had a faster acquisition rate than subjects who were not so

instructed. Buchwald (1960) found that under different verbal reinforcement combinations, saying nothing may become a negative, positive, or neutral reinforcer, depending upon the alternative in that particular reinforcement combination. Thus, it would appear that unless the instructions provide the subject with a specific set, the subject will formulate his own set.

Ericksen (1961) manipulated conditions of social deprivation (no availability of social reinforcers for 15 minutes) and social satiation (30 social reinforcers in a 15 minute period) prior to verbal conditioning sessions with sixth grade children. Deprivation enhanced the efficiency of social reinforcement relative to the satiation condition. To the extent that institutionalization constitutes a deprivation condition one would expect greater responsiveness to social reinforcement by institutionalized subjects than by a comparable population of noninstitutionalized subjects.

As noted earlier, Sapolsky (1960) found an instructional set for examiner attractiveness facilitated conditioning. Spires (1961) found only a tendency toward greater frequency of reinforced response with subjects instructed to expect an attractive examiner. Weiss, Krasner, and Ullmann (1960) found that the induction of a hostile atmosphere decreased responsiveness of college students to social reinforcement. Simkins (1961) obtained results suggesting that the conditioning of hostile verbs was enhanced by a preconditioning experience in which the subject was criticized in a "hostile, derogatory manner."

While results regarding the nature of prior interactions appear equivocal, there seems to be little doubt that pre-experiment interactions are significantly related to verbal conditioning.

Methodological Considerations

The social nature of the dyadic assembly in verbal conditioning is not a one-way affair. Much reinforcement for the examiner is mediated by the subject. The possibility that examiner behavior may come under the control of the subjects (Spradlin, 1962) renders examiner adherence to procedures questionable. Precautions should be taken to avert or take account of procedural violations of such origin by careful pre-training of examiners and, where possible, utilization of an independent observer. Verbal conditioning studies have not consistently incorporated such procedures.

Recording subject response is usually the examiner's responsibility. There are many factors which may undermine scoring reliability under such an arrangement. Subject responses are often rapid or difficult to understand while the examiner has many other duties concomitant to scoring. Novel responses may require fine discriminations regarding the response class to which they belong (Kanfer, 1958) yet the examiner must make such judgments rapidly. Matarazzo, Saslow, and Pareis (1960) report the informal observation of differential "guessing" behavior by two examiners in a pilot study. One examiner, who reportedly "believed" in the verbal conditioning phenomenon, tended to score doubtful responses as falling in the reinforced response class during the reinforcement phase. Another examiner seemed to score doubtful words as falling in the nonreinforced response categories. One investigation (Rosenthal, Friedeman, Johnson, Fode, Schill, White & Vikan, 1960) reported that, in general, more biased examiners tended to make more and larger computational errors in the direction of their hypothesis. Scoring by an unbiased observer other than the examiner or, still better, independent scoring by several observers would appear warranted.

Matarrazo et al., (1960) also suggested that the reliability of verbal conditioning effects would be greatly enhanced by routine cross-validation of results by a second examiner with subjects drawn from the same population. The demonstrated significance of examiner variables in conjunction with a lack of definitive information regarding relevant examiner dimensions precludes any assurance of equating examiners on anything but a post hoc basis. Consequently, the suggested cross-validation becomes a conservative test unless we are able to equate examiners on the basis of comparability of results obtained in prior experiments. In the light of conflicting results in the literature, this would seem to represent sound practice for verbal conditioning research.

The description cited earlier (Matarazzo, Saslow & Pareis, 1960) of an examiner who "believed" in verbal conditioning may well represent the experimenter bias effect. A number of investigations by Rosenthal and his students (Fode, 1960; Rosenthal, 1958; Rosenthal, Fode, Friedman & Vikan, 1960; Rosenthal & Fode, 1960; Rosenthal & Lawson, 1961) have demonstrated that experimenters are able to obtain the data desired, needed, or expected in both human and animal studies. This has come to be known as the experimenter bias phenomenon. Although the process by which such bias is mediated is not clear, it seems necessarily to involve some form of experimenter-subject feedback.

While experimenter bias may influence the outcome of many experiments, it seems particularly relevant to verbal conditioning where the stimulus materials, reinforcement, and response measure are usually mediated by the examiner and the subject is often quite sensitive to subtle examiner cues. One study (Fode, Rosenthal, Vikan & Persinger, 1961) suggests that verbal conditioning may bias results in either a positive or negative direction, depending on the examiner's intent.

With all the concern for the role of awareness in verbal conditioning, it is surprising that one experiment (Rosenthal, Persinger, Vikan, & Fode, 1961) has received so little attention. Eighteen examiners conditioned subjects to give high positive ratings of photos. Half of the examiners were told that their subjects had personality test scores such that they would be aware of having been conditioned while the other examiners were instructed to expect no awareness. All examiners used identical conditioning procedures. Questionnaires, which could be reliably scored, were utilized as awareness measures and scorings occurred under blind conditions. A significantly greater number of aware subjects were conditioned by examiners expecting awareness than by examiners who did not expect awareness.

Much of the verbal conditioning literature reports the use of a single examiner well informed about experimental hypotheses. To the extent that experimenter bias is a valid and general phenomenon, it would seem appropriate to incorporate controls for such in verbal conditioning studies. This might be accomplished by either systematic manipulation of examiner expectancies or restriction of examiner information regarding experimental hypotheses.

Thus, the verbal conditioning paradigm would seem to merit the incorporation of added controls for examiner/scorer bias.

Verbal Conditioning With Retarded Subjects

Although investigations of verbal rewards or the reinforcement of verbal responses have been reported with retarded subjects (Ellis & Distefano, 1959; Fleishman, 1958; Horowitz, 1960; Stevenson, 1961; Stevenson & Knights, 1962a; Stevenson & Knights, 1962b; Zigler, Hodgen, &

Stevenson, 1958), the single published experiment which formally investigates verbal conditioning in the retarded is that of Barnett, Pryer, & Ellis (1959). Two groups of 20 retarded subjects constructed sentences in a Taffel-type conditioning situation. The experimental subjects had a mean MA of 9.2 years with a range of 7.2 to 12.0 years and a mean CA of 20.7 years with a range of 12.5 to 35.1 years. The control group ranged in MA from 7.0 to 11.7 years with a mean of 8.8 years. The mean CA for the control group was 24.8 with a range of 16.0 to 34.6 years. For the experimental group, all sentences beginning with a first person pronoun were reinforced by a statement of "good" by the single examiner, a male. The control group received no reinforcement. Analysis of the results in four blocks of 20 cards each indicated a significant increment for the experimental group while the control group declined somewhat in frequency of the reinforced response class. An interview revealed no subject awareness of reinforcement contingencies. Barnett (1961) reports a more recent study dealing with the effects of positive and negative reinforcement combinations. A preliminary analysis of the results suggested that low MA subjects were less affected by negative verbal reinforcements than were high MA subjects.

It would appear that verbal conditioning procedures may be effectively utilized with retarded subjects.

Summary

Conventional procedures were described and evidence cited for the relevance of examiner variables of sex, aggression, prestige, and role. Effects of preconditioning experiences on conditioning results appear definitely significant. Although the results seem equivocal regarding

the direction of effects with a particular preconditioning experience, it would appear that when a subject is sensitized to examiner cues (a pleasant interaction, social deprivation, ego-involvement, set for examiner attractiveness, etc.) conditioning of many response classes is facilitated. It is possible that the response class of hostile verbs is an exception. Methodological difficulties associated with examiner procedures and some potential controls for such difficulties were explored. Finally, the successful extension of the Taffel-type verbal conditioning procedure to a retarded population was reported.

CHAPTER III

METHOD

Independent and Dependent Variables

Independent variables in this study consisted of: (1) individual serving as examiner; (2) employee role assumed by the examiner during a five minute session immediately preceding conditioning trials; and (3) verbal reinforcement of a specified response class (first person pronouns) during conditioning trials. Frequency of first person pronouns utilized during the conditioning task (sentence construction) represented the dependent variable and response measure.

The experimental method will be presented in six sections: (1) Description of Examiner Selection and Training; (2) Employee Roles; (3) Subjects; (4) Task Materials; (5) Experimental Design, and (6) Procedure.

Description of Examiner Selection and Training

Selection of individuals to serve as examiners proceeded in the following manner. The state employment bureau was informed of openings for a number of individuals with the following qualifications: 26 years of age or older; no prior experience with the retarded; and average or better intelligence. The position was listed as that of research assistant on a part-time basis for the next month. Pay was specified as \$50 base plus \$1.25 for each hour over 40 hours. Three males and three females were randomly selected from the 27 applicants. Mean age of the selected male

examiners was 46.67 years while that for female examiners was 46.00 years. The male sample included a retired insurance salesman, the minister of a local rural Baptist church, and an engineer for the local telephone company. In the female sample were a substitute school teacher, a clerk-typist, and a housewife. The random selection of a heterogeneous sample of examiners was deliberate. This allowed for a conservative test of controls for examiner differences.

Upon selection, each individual was given a written description of the examiner's role in the study (see Appendix A). This description included only instructions regarding what the examiner was to do, attempting to minimize information which might give the examiners cues to experimental hypotheses. After studying the instructions several days, a series of role-playing sessions ensued with the experimenter taking the subject role and each selected individual practicing the assigned examiner roles. During these sessions, the experimenter attempted to present various anticipated situations which might divert the examiner from assigned procedures. In addition, the experimenter provided feedback in terms of examiner adherence to procedures, the extent to which the roles seemed natural, and uniformity in temporal and vocal dimensions of verbal reinforcement. These sessions were continued until the experimenter considered each respective examiner to have progressed sufficiently to benefit from practice sessions with subjects comparable to the experimental population. The number of role-playing sessions required before each examiner was adjudged to have reached this level of proficiency ranged from five to nine two-hour sessions.

Subsequently, each examiner had six practice sessions under conditions simulating the actual experiment. Two judges observed the last

session in each examiner role via a one-way mirror arrangement and submitted independent evaluations of the extent to which each examiner had mastered the procedures. Both judges were Ph.D. experimental psychologists well acquainted with the experimental procedures. When the judges differed in evaluation of the examiner's readiness for the experiment proper, the evaluation of the experimenter, who also observed the sessions, determined whether additional training sessions were warranted. Ultimately, all examiners were adjudged to have adequately mastered the procedures for initiation of experimental trials.

Each examiner saw three subjects in each treatment combination or a total of 12 subjects. Subjects were always of the same sex as the examiner and served in only one treatment combination, i.e., there were no repeated measurements on any subject. As an illustration, female subject No. 1 was run only under female examiner No. 1 in the aide role. Two other subjects were run with the same examiner under the aide role and control condition. Different triads of subjects were run by female examiner No. 1 under the remaining three combinations of role and reinforcement conditions. Treatment conditions to which subjects were assigned are presented in Table I.

Employee role consisted of two conditions: Aide and Psychologist. In the aide role, the examiner was dressed in the psychiatric aide uniform of the hospital, complete with identification tag denoting name and employee position. In the psychologist role, the examiner wore a business suit or some approximation of such with an identification tag denoting name and position. Role characteristics were exaggerated to enhance any differences and to preclude supportive or authoritarian behavior by the examiner except where the role specifically called for such behavior.

TABLE I

Schematic Representation of Experimental Design and Order of Treatment

		<u>Reinforcement Three Female Subjects</u>			
Female Examiner 1	1. Aide	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
	2. Psychologist	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
Female Examiner 2	1. Psychologist	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
	2. Aide	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
Female Examiner 3	1. Aide	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
	2. Psychologist	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
		<u>Reinforcement Three Male Subjects</u>			
Male Examiner 1	1. Psychologist	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
	2. Aide	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
Male Examiner 2	1. Aide	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
	2. Psychologist	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
Male Examiner 3	1. Psychologist	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"
	2. Aide	<u>Control</u>	"	"	"
		<u>Reinforcement</u>	"	"	"

The nature of the roles is best characterized by the instructions under which the examiners were operating:

Aide

This is the role of an aide whose manner of dealing with the child is strict, dogmatic, and quite firm. Throughout this role you will make an attempt to be as stiff and business-like as possible and to convey a lack of interest in what the subject says or does except to keep him/her from bothering anyone.

You should speak in a gruff tone of voice and never smile. Do not make persuasive statements, e.g., "could you," "would you," etc., but rather utilize directive statements such as "do this."

Introduce yourself as "Mr./Mrs. _____, the aide here. I have the same job as Mr./Mrs. (an actual aide with whom the child is familiar)."

Continuing, you say "It will be a few minutes before we begin anything else so take this pencil and draw on this paper in order to have something to do while we're waiting. That way you won't disturb anyone."

If the child asks about what to draw, how to draw, etc., say "It doesn't matter so long as you are quiet while drawing."

If the child begins talking about other things or engages in some activity other than drawing, say "Now remember, I don't want you to talk or do anything that might bother anyone. So just draw on the paper I gave you."

Psychologist

This is the role of a psychologist whose manner of dealing with the child is relaxed, accepting, and quite permissive. Throughout this role you will make an attempt to be as informal and congenial as possible and to convey an interest in what the subject says or does.

You should speak in a friendly tone of voice and smile when appropriate. Never make directive statements such as "do this," but rather utilize statements such as "I would like you to____," "Would you____," etc.

Introduce yourself as "Dr.____, the psychologist here. I have the same job as Dr. (an actual psychologist with whom the child is familiar)."

Continuing, you say "It will be a few minutes before we begin anything else. Here is a pencil and paper. I would like you to draw something for me. You may draw anything you wish. I'm very interested because it will help me to know you better."

If the child asks about what to draw, how to draw, etc., say "You may draw anything you like in any way you wish. I'll be interested in whatever you draw."

If the child begins talking about other things or engages in some activity other than drawing, indicate an interest and try to encourage the child to continue with his/her drawing.

Aide (contd.)

If the child makes a statement requiring a response from you, say "You don't have to worry about that. Just draw on the paper."

If the child refuses to draw, say "If you can still be quiet then you don't have to draw."

Regardless of what the child is doing, intersperse some or all of the following statements during the role period: "Sit up straight while you're drawing;" "Don't fidget around, just draw on the paper;" and (wadding up the first sheet of paper and handing the subject another); "Here. Draw on this."

At the end of five minutes, say "We can start something else now. Let me have the paper so that it doesn't clutter up the table" (wad paper up and throw it in wastebasket).

Examiners related to subjects in the specified roles in the five minutes immediately preceding the conditioning trials. Elements of the role (specifically, dress) were necessarily maintained during conditioning trials. The authoritarian or permissive manner of relating to the child was discontinued at the conclusion of the preconditioning session.

All subjects under the initial role condition were completed before the examiner ran subjects under the second role. Anticipating possible examiner difficulty in changing to behavior commensurate with the second role, practice sessions were held following the completion of all subjects in the first role. On the chance that this procedure might not be adequate, order of roles was counterbalanced for different examiners.

Psychologist (contd.)

If the child makes a statement requiring a response from you, say "Let's talk about that a little later, after we've finished this."

If the child refuses to draw, say "You don't have to draw unless you want to, but if you would, it would help me to know you better."

Regardless of what the child is doing, intersperse some or all of the following statements during the role period: "Are you comfortable? If you aren't, you may scoot the chair around any way you like;" "Would you like some more paper to draw on?;" "That's a very pretty sweater (or dress or shirt) you have on."

At the end of five minutes, say "We can start something else now. Let me have your drawing so that I can look at it when we are through" (place drawing carefully on the table).

Subjects

Thirty-six male and 36 female patients from Parsons State Hospital and Training Center were randomly assigned to a single treatment condition. The male subjects ranged in MA from 6 years 9 months to 15 years 5 months with a mean of 10 years 8 months. The CA range for male subjects was 12 years 10 months to 28 years 1 month with a mean of 17 years 3 months. The female subjects ranged in MA from 6 years to 13 years 11 months with a mean of 10 years 5 months. The CA range for female subjects was 12 years 10 months to 20 years 9 months with a mean of 16 years 9 months (see Appendix B for individual subject attributes). MAs were derived from a recent administration of either the Wechsler Adult Intelligence Scale or the Wechsler Intelligence Scale for Children. All subjects were able to read the pronouns. Demonstration of ability to read the pronouns consisted of reading each of the pronouns four consecutive times without error. All subjects had been institutionalized for at least six months prior to the experiment.

Task Materials

The materials consisted of 80 3" x 5" white index cards. These cards (see Appendix C for sample cards) were patterned after those employed in a previous verbal conditioning study (Barnett, Pryer, & Ellis, 1959) which, in turn, represented a modification for retarded subjects from the Taffel (1955) procedure. The cards utilized in the present study were identical with those of Barnett et al., except for an inadvertent reversal of the position of the pronouns relative to the verb on each card. In that study, 80 common verbs were selected from elementary texts and a different verb typed on each card. All the verbs were in

the past tense. Six pronouns (I, we, she, he, you, and they) were placed below each verb and their respective order randomized for the series of 80 cards. In the present study, the pronouns were placed above rather than below the verb. Other than the deviation noted, the stimulus materials utilized in the two studies were identical. The order in which each card was presented was randomized and the same order utilized for all subjects. Four of the verbs were repeated for use as sample cards in introducing the task to the subjects. The verbs and order of presentation are detailed in Appendix D.

Experimental Design

There were four combinations of role and reinforcement for each examiner with three replications of each combination or a total of 12 subjects per examiner. Two levels of role and two levels of reinforcement (reinforcement and nonreinforcement of first person pronouns during presentation of cards 21 - 80) were factorially varied in every combination for each of six examiners. This eventuated in 24 treatment combinations. Each examiner was assigned three subjects in each of the following four treatment combinations: (1) aide role, reinforcement; (2) aide role, control; (3) psychologist role, reinforcement; and (4) psychologist role, control. Each subject was seen individually in one and only one treatment combination, i.e., there were no repeated measures on any subject. These combinations and the total design are schematized in Table I.

Procedure

During the initial five minutes after the subject was brought into the experimental setting, the examiner's introduction and manner of

relating to the subject proceeded according to the role condition operative for that particular subject. The examiner introduced himself as either an aide or psychologist and presented a drawing task as either a means of control or as a measure for better understanding of the subject (note instructions on page 20).

Immediately subsequent to this five minute preconditioning session, the conditioning task was presented in the following manner. "This is a game in which you show me how well you can read and use words. See this card (card A)? I want you to make up a sentence using one of these top words with the bottom word, 'went'." Only one sentence was constructed for each card and the examiner was directed to prompt on verbs that the subject could not read. If the subject constructed a sentence commensurate with the instructions, the next sample card was presented. If not, the examiner said: "No, I wanted you to make up a sentence using one of these top words with the bottom word, 'went'. For example, you could have said, 'I went, you went, he went, they went, we went, she went,' or something like that. Let's try another one." The next sample card was then presented. If, after the initial presentation of all sample cards, the subject had not constructed two consecutive sentences in accordance with the instructions, all four sample cards were presented once more. In either case, these were followed by cards 1 through 80.

Subjects under the control condition received no reinforcement during the entire conditioning session. Subjects under the experimental condition received reinforcement for sentences constructed with first person pronouns during cards 21 - 80. All other sentences (including those with "I" or "we" during cards 1 - 20) were not reinforced. Reinforcement consisted of an examiner remark of "good" in a flat, unemotional tone.

Both the experimenter and a recorder observed the sessions via a one-way mirror and microphone arrangement. The recorder, minimally informed regarding experimental hypotheses, kept a running tabulation of both the subject's responses and reinforcements by the examiner while the experimenter noted any unusual features of the interaction not incorporated within the response measure (e.g., examiner deviation from procedure).

At the conclusion of conditioning sessions, the experimenter took the examiner's place in the room and interviewed the subject. The interview was structured to reveal the subject's ability to verbalize a recognition of reinforcement by the examiner and the relation of such reinforcement to pronouns employed in sentence construction. Interview responses were rated on a scale of awareness of reinforcement contingencies. Scoring ranged from a rating of 0 to 6 (see Appendix E). The subject's personal reactions to the examiner were also noted. Particular attention was given to remarks concerning the validity of the examiner's role (e.g., the extent to which the examiner in the aide role impressed the subject as a genuine aide).

The formal approach of the interview is outlined in Appendix F but the interviewer was allowed flexibility in rephrasing the questions in more concrete and specific form. The verbal limitations of retarded subjects as well as the possibility of awareness artifacts with limited questioning (Levin, 1961) necessitated an extensive yet flexible interview.

Following the interview, each subject was given candy and allowed to return to his cottage or work.

CHAPTER IV

RESULTS

In this section, the results obtained and the statistical analyses are presented. The results include the data obtained during both conditioning and interview sessions. The response measure for conditioning sessions was a frequency count of first person pronouns utilized in sentence construction (see Appendix G for sample tabulation sheet). Interview responses were scored in terms of awareness ratings ranging from 0 to 6.

Analysis of variance (Snedecor, 1956) was utilized as the major statistical operation to determine the manner in which treatment conditions interact in combination. The present experimental design facilitated the use of such an analysis (Cochran & Cox, 1957).

The statistical analysis of conditioning data is presented in two sections. The first analysis is concerned with frequency of response in each of four consecutive blocks of 20 cards. These blocks of cards will be referred to as trial blocks in the remainder of the present report. The sum of first person pronouns emitted by each subject was computed for trial blocks one (cards 1 - 20), two (cards 21 - 40), three (cards 41 - 60), and four (cards 61 - 80). Thus, the analysis by trial blocks included four response frequency sums for each subject. In the second section on conditioning data, an analysis of difference scores between reinforced (trial blocks two, three, and four) and nonreinforced

trials (trial block one) is presented. Difference scores were computed to obviate any initial differences between subjects in response frequency. Such scores reflect only changes from initial level of response frequency, i.e., the presence or absence of conditioning effects.

In addition, a section is devoted to the analysis of differences in initial operant level, i.e., responses in trial block one (cards 1 - 20). Inspection of the data suggested response frequency differences among treatment groups in trial block one which followed preconditioning sessions and preceded reinforcement (conditioning) procedures. These differences seemed related to the sex of the dyad members (examiner and subject); role condition; and the individual examiner involved. Thus, the object of this analysis was the investigation of relations between frequency of first person pronouns in cards 1 - 20 and the variables of examiner, dyad sex, and role.

A final section reports data obtained from subjects by individual interview immediately after completion of conditioning trials. The extent to which subjects were able to verbalize a recognition of reinforcement contingencies was rated from 0 to 6 on a scale of awareness. The distribution of awareness ratings and informal data regarding the subject's reactions to the examiner are presented.

Conditioning Trials Data

Analysis in Consecutive Trial Blocks

One analysis of subject response to the 80 cards occurred in terms of frequency of first person pronouns used by the subjects in each of four consecutive blocks of 20 cards. The selection of the 20 card block as the unit of analysis was prompted by an interest in response frequency

variations at successive temporal phases of the conditioning trials. No subject received reinforcement during the initial trial block. During presentation of the final 60 cards (trial blocks two, three, and four), half of the subjects were verbally reinforced when they used a first person pronoun while the remaining subjects continued under nonreinforcement conditions.

The analysis of variance was concerned with the systematic variation between examiners, role, reinforcement, and the interaction of these conditions. Further, the analysis was directed toward the within variation associated with different trial blocks and their interactions with the major treatment conditions (examiner, role, and reinforcement).

The results of this analysis are presented in Table II. Among the main effects, only the reinforcement variable approached significance. The variance associated with reinforcement yielded an F-ratio of 3.9628 while significance at the .05 probability level would require an F-ratio of 4.0400. Reinforced subjects emitted a greater frequency of first person pronouns than did control subjects. Although the variance associated with role conditions was nonsignificant, subjects tended to emit a greater frequency of first person pronouns under examiners in the psychologist role than under examiners in the aide role.

Among the interaction effects, only the role x reinforcement component even approximated significance. There was a trend toward greater frequency of first person pronouns among subjects reinforced by examiners in the psychologist role than under other role and reinforcement combinations.

Analysis of within variation yielded a significant trial blocks effect, occurring at a probability level of less than .01. A positively

TABLE II
ANALYSIS OF FIRST PERSON PRONOUN FREQUENCY
IN TRIAL BLOCKS OF TWENTY CARDS

<u>Source</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Examiner	5	174.5556	1.7032
Role	1	227.5556	2.2204
Reinforcement	1	406.1250	3.9628 ^a
Examiner x Role	5	173.3805	1.6918
Examiner x Reinforcement	5	40.8333	<1.0000
Role x Reinforcement	1	329.3888	3.2141
Examiner x Role x Reinforcement	5	56.9472	<1.0000
Error Between	48	102.4838	
Between	71		
Within	216		
Trial Blocks	3	37.5694	4.3790**
Examiner x Trial Blocks	15	5.6889	<1.0000
Role x Trial Blocks	3	7.6482	<1.0000
Reinforcement x Trial Blocks	3	11.4954	1.3399
Examiner x Role x Trial Blocks	15	6.5842	<1.0000
Examiner x Reinforcement x Trial Blocks	15	4.1148	<1.0000
Role x Reinforcement x Trial Blocks	3	9.4444	1.1008
Examiner x Role x Reinforcement x Trial Blocks	15	6.7361	<1.0000
Error Within	144	8.5795	
Total	287		

^a F Value Significant at .05 level = 4.0400

** Significant at .01 level

accelerated increment in frequency of first person pronouns occurred over trial blocks, reaching maximal frequency in the third trial block and undergoing a moderate decline during the final 20 cards. All other components, i.e., the interaction of trial blocks with the variance components of the between analysis, failed to evidence even a trend toward significance. Thus, the incremental trend was independent of treatment conditions and, therefore, of conditioning procedures.

Analysis of Difference Scores

In order to obtain an analysis of conditioning effects unbiased by any initial differences between treatment groups, difference scores were computed for each subject. The difference scores consisted of the response frequency in the initial trial block - weighted by three - and the total response frequency in the remaining trial blocks. The weighting of the initial trial block was done to equalize opportunities for using first person pronouns (20 cards in the first trial block as opposed to 60 cards in the three remaining trial blocks). To avoid obtaining negative scores in the analysis, a constant of 25 was added to each difference score. Conversion to such a unit of analysis incorporates an adjustment for any initial differences and accurately reflects any incremental changes, i.e., conditioning effects.

An analysis of variance was performed on the difference scores. A summary of the analysis is presented in Table III. As can be seen, neither main nor interaction effects were statistically significant. Only the variance associated with reinforcement condition resulted in even a trend toward significance. The variance associated with examiners and role was in definite excess of the .05 probability level and, thus,

TABLE III

ANALYSIS OF DIFFERENCE SCORES BETWEEN REINFORCED
AND NONREINFORCED TRIAL BLOCKS

<u>Source</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Examiner	5	95.3556	.6432
Role	1	156.0556	1.0527
Reinforcement	1	338.0000	2.2801
Examiner x Role	5	93.0889	.6279
Examiner x Reinforcement	5	40.5667	.2736
Role x Reinforcement	1	88.8889	.5996
Examiner x Role x Reinforcement	5	68.6555	.4631
Within	48	148.2361	
Total	71	129.3889	

not statistically significant. F-ratios for all interaction effects were less than 1.0000. Thus, the treatment conditions effected no significant variation in difference scores.

Considering both analyses, acceptance of each null hypothesis would appear warranted regarding conditioning effects.

An Analysis Suggested By the Data

The relative response frequencies for different groups in the initial 20 cards (prior to reinforcement) suggested several possible relations. Subjects under different examiners seemed to differ in frequency of first person pronoun emission even before reinforcement conditions (i.e., conditioning procedures) were initiated (see Figure 1). Moreover, these differences seemed to be related to the role of the examiner and sex of dyad members (see Figure 2).

In order to assess the significance of such differences, an analysis of variance was performed on the frequency of first person pronouns in the initial 20 cards alone. As indicated earlier, the initial 20 cards were presented before the application of reinforcement conditions. Variance components were identical to those in the analysis of difference scores except that the variance among examiners was further partitioned according to sex of examiner (and, under the present arrangement, sex of subject).

A summary of the analysis is presented in Table IV. Two variance components were statistically significant at the .05 probability level. These were the variance attributable to differences among individual examiners and that associated with the sex x role interaction component. In the former, subjects under female examiner No. 3 emitted a greater

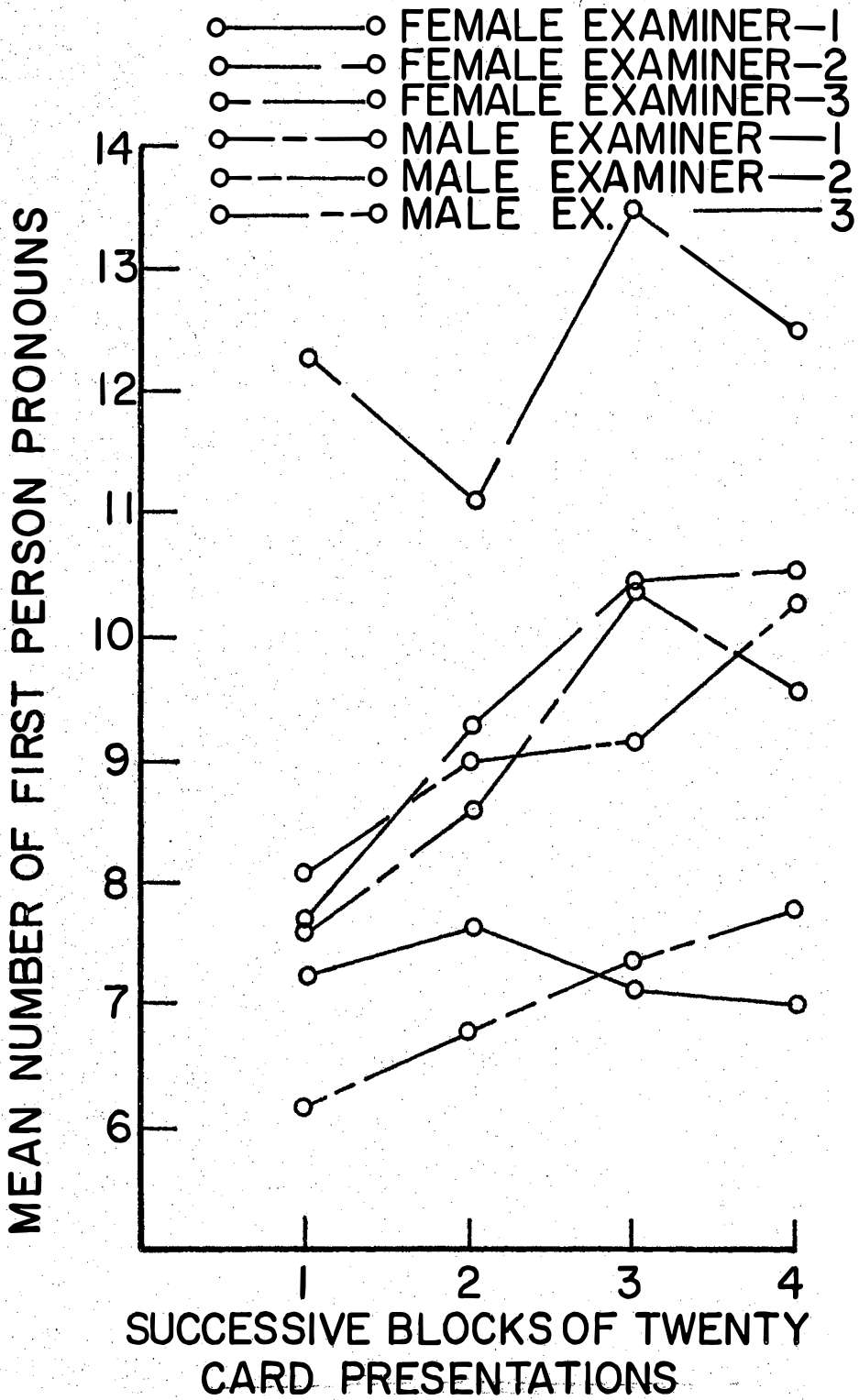


Figure 1. Variations in Response Frequency as Related to Individual Examiners.

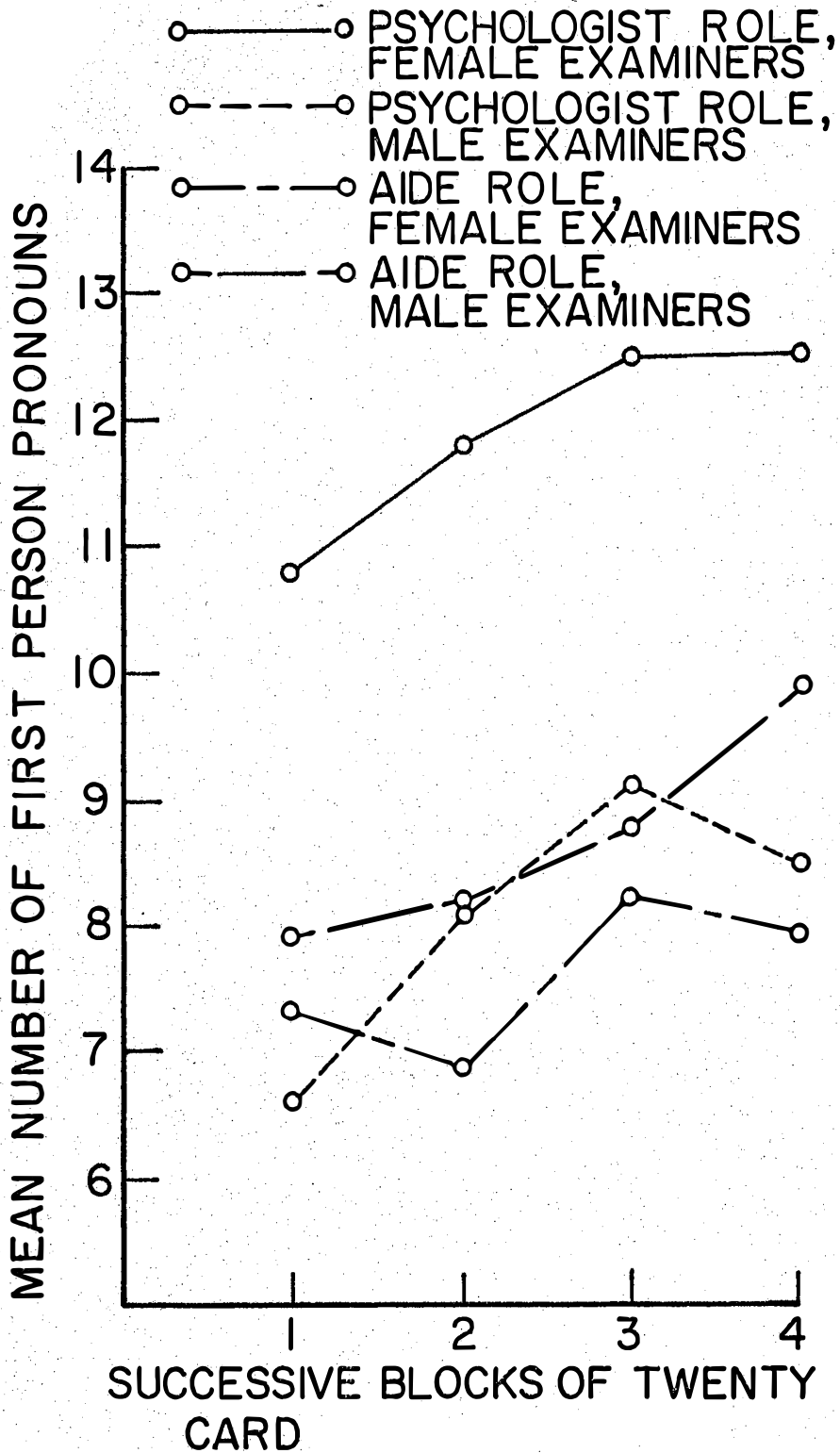


Figure 2. Variations in Response Frequency as Related to the Interaction of Role and Dyad Sex.

TABLE IV
 ANALYSIS OF FIRST PERSON PRONOUN FREQUENCY
 PRIOR TO EXPERIMENTAL REINFORCEMENT

<u>Source</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Examiner	4	64.3090	2.5576*
Sex	1	55.1250	2.1923
Role	1	21.1250	< 1.0000
Reinforcement	1	25.6805	1.0213
Examiner x Role	4	32.9479	1.3103
Examiner x Reinforcement	4	11.1424	< 1.0000
Sex x Role	1	105.1250	4.1808*
Sex x Reinforcement	1	30.6806	1.2202
Role x Reinforcement	1	48.3472	1.9228
Examiner x Role x Reinforcement	4	20.6424	< 1.0000
Sex x Role x Reinforcement	1	.1250	< 1.0000
Error	48	25.1447	
Total	71		

* Statistically significant at .05 probability level

frequency of first person pronouns than subjects under other examiners. In the latter, female subjects under female examiners in the psychologist role emitted more first person pronouns than subjects under other sex and role combinations.

All other variance components were statistically nonsignificant. Variance attributable to dyad sex approached significance. Female subjects under female examiners tended to emit more first person pronouns than male subjects under male examiners. Other variance components failed to evidence even a trend toward significance.

Thus, significant and systematic variation seems to have been operative prior to the presentation of reinforcement conditions. The source of such variation appears related to treatments operative during preconditioning sessions, i.e., a given examiner and the particular combination of examiner role and dyad sex.

Interview Data

Awareness

Formal analysis of interview data occurred in terms of scores on a seven point scale of awareness (0 - 6). The frequency distribution of awareness ratings is given in Table V. Of the 36 subjects rated, only two subjects received a rating in excess of 2, i.e., only two subjects were able to make a partial or complete statement concerning reinforcement contingencies. The scores of the remaining subjects clustered at the lower extreme of the rating scale (0 - 2) and these subjects were unable to demonstrate even a partial recognition of the relationship between the pronouns and the examiner's statement "good". This essential lack of awareness in conjunction with an absence of conditioning effects is

TABLE V
FREQUENCY DISTRIBUTION OF AWARENESS RATINGS

<u>Rating</u>	<u>Description of Rating</u>	<u>Frequency</u>
0	No Statement of Reinforcement or Contingency	1
1	Prompted Statement of Reinforcement but no Contingency Statement	19
2	Unprompted Statement of Reinforcement but no Contingency Statement	14
3	Prompted Statement of Reinforcement and Partial Contingency Statement	-
4	Unprompted Statement of Reinforcement and Partial Contingency Statement	1
5	Prompted Statement of Reinforcement and Complete Contingency Statement	1
6	Unprompted Statement of Reinforcement and Complete Contingency Statement	-

consistent with the conclusions reached by a number of investigations (Kirman, 1958; Levin, 1961; Matarazzo, Saslow, & Pareis, 1960; Southwall, 1962).

Subject's Reactions to Examiners

Interview data regarding the subject's personal reactions to the examiner merely represented a source of informal feedback and potential hypotheses. These results were not incorporated into the analysis. From this material, however, it should be noted that 26 of a possible 36 subjects expressed negative personal reactions to the examiner in the aide role, but only seven noticed differences between the examiner's behavior and that of other aides with whom they were familiar. Furthermore, of the 19 subjects who did not consider the examiner to be a genuine aide/psychologist, 15 arrived at this conclusion on the basis of not having previously seen the examiner on the hospital grounds. Only nine subjects reported any suspicions of the validity of the examiner's role during the experiment proper. The remaining subjects reported that they became suspicious during the interview. Thus, it would appear that, as far as the subjects were concerned, the roles portrayed by the examiners were quite consistent with the behavior of actual aides and psychologists.

Summary of Results

A significant increment in frequency of first person pronouns, independent of treatment conditions, was noted over successive presentations of cards.

Statistically significant differences were obtained in frequency of first person pronouns prior to experimental reinforcement and, therefore,

independent of conditioning procedures. These initial differences appeared to be related to examiner role and dyad sex variables.

Neither examiners, role, nor reinforcement conditions were significantly related to increments in the reinforced response class during conditioning trials and verbal conditioning of first person pronouns was not demonstrated. This was true whether the data were analyzed in terms of trial blocks or as difference scores.

CHAPTER V

DISCUSSION

Chapter V is concerned with the discussion and interpretation of the findings as they relate to the present hypotheses and other investigations. The discussion will proceed in three major sections: (1) Response Differences Among Treatment Groups During Reinforced Trials; (2) Response Differences Among Treatment Groups Prior to Reinforcement; and (3) Suggestions for Future Research.

Response Differences Among Treatment Groups During Reinforced Trials

Conditioning Effects

The failure to obtain verbal conditioning in the present study raises the question of which features of the present procedures were responsible for the failure to replicate the positive findings of Barnett, Pryer, and Ellis (1959). On a very gross basis, the most distinctive difference between the procedures of the two studies was the present experiment's examiner restrictions and preconditioning experience. This difference might well be responsible for the negative results of the present investigation.

Further, there are several factors associated with the conditioning procedures which may underlie the current investigation's negative findings. (1) There was an inadvertent procedural divergence in position

placement of the pronouns on the cards. Pronouns were placed above instead of below the verb. (2) The delivery of the verbal reinforcement "good" in a flat, unemotional tone may be quite variable from examiner to examiner. (3) The subject population of the present experiment, while matched as closely as possible, was more restricted in CA range and less restricted in MA range than the population in the Barnett et al., (1959) investigation.

In addition, it has been suggested (Kanfer & McBrearty, 1961) that tasks such as the Taffel procedure consist primarily of discriminations between reinforced and nonreinforced stimuli rather than of basic operant conditioning. If the Taffel task represents a discrimination problem then the distinctiveness of reinforced stimuli would be critical. It may be that first person pronouns are not sufficiently distinctive to enable many retarded subjects to discriminate them effectively from other pronouns.

Finally, the present procedure allowed the subject to respond at his own rate. Subsequent to the present investigation, it has been suggested (Greenspoon, 1962) that successful conditioning in the Taffel-type situation seems to be related to the requirement that the subject go through the cards at a fixed rate.

Examiners

One of the purposes of the present investigation was the development of procedures whereby comparable verbal conditioning results might be obtained with different examiners. The finding of no significant differences in conditioning effects among six examiners in the present study suggests that the present procedures were effective in achieving their purpose.

On this basis, it is suggested that examiner variance in conditioning effects may be controlled through the following procedures: random selection; careful training; restricting examiner information regarding hypotheses; independent scoring; and observation of experimental sessions for procedural violations.

If such procedures prove generally effectual, the reliability and generality of verbal conditioning results may be extended through cross-validation of results by different examiners with subjects from the same population.

Role

The results of the present experiment suggest that, as far as conditioning effects are concerned, there is no significant difference in the value of reinforcement mediated by an aide as opposed to that by a psychologist.

However, constructing sentences in such a setting is novel and far removed from the milieu in which any reinforcement differential between aide and psychologist might usually occur. It may be that a response class more closely related to everyday events (e.g., statements which refer to home or family) would be more sensitive to any differences in the reinforcement value of the two classes of personnel.

It should be noted that the examiner in the aide role related to the subject in a manner which might be described as aggressive, hostile, or unpleasant. This aspect of the present role is similar to the negative roles manipulated in previous investigations with normal subjects (Ferguson & Buss, 1960; Marder, 1961; Weiss, Krasner, & Ullmann, 1960) In contrast to the decrement in response frequency obtained in the earlier

studies with normal subjects, the retarded subjects of the present investigation maintained or increased frequency of response under examiners in a similar role. This lack of sensitivity to a negative experience is congruent with Barnett's preliminary finding (1961) that, under negative reinforcement, low MA subjects did not decrease response frequency to the same extent as high MA subjects.

Trial Block Effects

Analysis of first person pronoun frequency in four consecutive blocks of 20 cards each revealed an incremental trend significant at the .01 level of probability. Since no significant interactions occurred between the trial block component and other sources of analyzed variation, the basis for the increment seems restricted to sources other than the treatment conditions. Thus, the increment was not a conditioning effect.

On a speculative basis, one of two alternative processes may have been operative. An increment in first person pronouns might occur as a function of practice or "warm-up" effects, i.e., as the subjects became more familiar with the conditioning task, first person pronouns were more comfortably emitted. An alternative basis for the increment might be the possibility that the use of "I" or "we" with some of the verbs was more probable than with others. If the random order of verbs used in the present experiment (see Appendix D) were not effective in equalizing the distribution of pronoun probability across trial blocks then such a trend might eventuate.

An empirical test of these alternative speculations would involve the reassignment of verbs to trial blocks on the basis of frequency with which control subjects emit "I" or "we" responses to each of the verbs.

If the increment persisted in trials where probabilities were equalized across trial blocks, one would infer the operation of "warm-up" effects. If these trials failed to evidence such an increment then the inference would be one of an ineffectual randomization of verbs.

Subsequent to the present experiment, such trials were initiated with the verbs reordered in terms of the frequency with which the present control subjects emitted first person pronouns for each verb. The reordered sequence of verbs is presented in Appendix H. The results in further trials suggested that the increment noted in the present experiment was a function of ineffective randomization across trial blocks.

Response Differences in Treatment Groups Prior to Reinforcement

The conditioning results revealed no significant effects associated with treatment conditions. However, significant relations were obtained between treatment conditions and subject response prior to conditioning trials, i.e., before reinforcement. The present section is concerned with the discussion of the latter findings.

The differences in initial level of response might be considered a function of heterogeneity of subject characteristics among treatment conditions. However, a statistical check of subject attributes revealed no significant differences among treatment groups (see Appendices I and J). It would appear, then, that these effects were not a function of initial differences among subjects.

The present investigation suggests an alternative explanation may be found in the immediate history of the subjects, namely, the pre-conditioning session. The results reported in Table IV revealed significant

variations in initial operant level associated with examiners and the interaction of role x sex, all factors operative in the preconditioning session.

It appears that interaction with a female examiner in the psychologist role, independent of intentional reinforcement procedures, facilitates the use of first person pronouns for a retarded female. Further, characteristics associated with the particular examiner, i.e., personality attributes, seem relevant. The present investigation provides no definitive information regarding these relations but does suggest that future research might be directed toward variations in examiner sex and personality characteristics. Further attention should be given to the control of preconditioning factors which may inadvertently influence initial operant level.

Suggestions for Future Research

It is suggested that future verbal conditioning studies incorporate procedures involving careful selection and training of examiners, restriction of examiner information regarding experimental hypotheses, independent scoring, and observation of experimental sessions. If a Taffel-type situation is utilized, subjects should respond at a fixed rate and materials should be modified for retarded subjects to insure that the reinforced response class can be effectively discriminated from nonreinforced response classes. The investigation of preconditioning influences upon initial operant level is suggested. Future investigations of the described employee roles might utilize response classes more directly related to everyday situations. Finally, replication of verbal conditioning experiments with positive and negative preconditioning experiences seems warranted with a retarded population.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Summary

The purpose of the present experiment was to investigate verbal conditioning behavior in institutionalized retardates as a function of: (1) different individuals as examiners; (2) examiners in the role of psychologists as compared with examiners in the role of aides; and (3) verbal reinforcement of a specified response class (first person pronouns).

Subjects consisted of 36 males and 36 female retardates. The subjects were selected from the patient population at Parsons State Hospital and Training Center.

Examiners were six, newly hired individuals (three males and three females) with no previous institutional experience. Each examiner was trained in verbal conditioning procedures. The sex of examiners and subjects was matched, i.e., female examiners were paired only with female subjects. Each examiner was assigned 12 subjects to half of whom (six subjects) he/she appeared as an aide and to the other half (six subjects) as a psychologist. Each of these cells was divided so that half (three subjects) received verbal reinforcement and the other half (three subjects) did not. Each subject was assigned to only one of these treatment conditions and was seen individually by the examiner.

A Taffel-type conditioning task was presented to the subjects. The task required the subject to construct a sentence using a verb and one

of six pronouns printed on each of 80 stimulus cards. Half of the subjects were verbally reinforced when they utilized a first person pronoun in sentence construction. The remaining subjects served as a control and were not reinforced.

Statistical analysis of the data through analysis of variance techniques revealed the following results:

- (1) No significant differences during conditioning trials were obtained in frequency of first person pronouns emitted by reinforced subjects and nonreinforced subjects.
- (2) No significant differences during conditioning trials were obtained in frequency of first person pronouns emitted by subjects under different examiners.
- (3) No significant differences during conditioning trials were obtained in frequency of first person pronouns emitted by subjects under examiners in the aide role and subjects under examiners in the psychologist role.
- (4) In the initial trials prior to reinforcement, female subjects under female examiners in the psychologist role emitted a significantly greater frequency of first person pronouns than subjects under other combinations of examiner sex and role.

Conclusions

On the basis of the findings, it was concluded that variations in the conditioning effects obtained by different examiners may be controlled through careful selection and training, independent scoring, observation of experimental sessions for procedural violations, and

restriction of information regarding experimental hypotheses. It also appeared that verbal reinforcement by a psychologist was no more effective than that by an aide in conditioning institutionalized retardates. The consistent presentation of verbal reinforcement following emission of a specified response class did not of itself insure verbal conditioning in retarded subjects.

Earlier investigations have demonstrated that preconditioning experiences may influence conditioning results. The present findings suggested that response level prior to conditioning trials may be similarly influenced. These effects seemed to be most marked when the preconditioning experience involved a female examiner in the psychologist role. The basis for such a finding was not apparent from the present data but may be related to a cultural pattern of less restricted response in the presence of an accepting female.

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APPENDICES

APPENDIX A

INSTRUCTIONS TO EXAMINERS

You are being trained to serve as the examiner in this experiment. During the few minutes just before each examination you will play a certain role and deal with the child in a given manner. The type of role and your manner will vary with different children. The examination itself involves having the child make up sentences in order to see how well he uses words. The examination will be the same for all children.

For the present, you will be learning the what, how, and when of the study. At the end, we will take some time to explain the whys.

In all you will be playing each of two roles. Many of the things you say in these roles will simply involve memorizing the "script". At several points, however, we can only give some general remarks to guide you and your statements will be improvised to meet the situation. There will be two roles: Aide and Psychologist.

This is the role of an aide whose manner of dealing with the child is strict, dogmatic, and quite firm. Throughout this role you will make an attempt to be as stiff and business-like as possible and to convey a lack of interest in what the subject says or does except to keep him/her from bothering anyone.

You should speak in a gruff tone of voice and never smile. Do not make persuasive statements,

This is the role of a psychologist whose manner of dealing with the child is relaxed, accepting, and quite permissive. Throughout this role you will make an attempt to be as informal and congenial as possible and to convey an interest in what the subject says or does.

You should speak in a friendly tone of voice and smile when appropriate. Never make directive

Appendix A (contd.)

Aide (contd.)

e.g., "could you," "would you," etc., but rather utilize directive statements such as "do this."

Introduce yourself as "Mr./Mrs. _____, the aide here. I have the same job as Mr./Mrs. (an actual aide with whom the child is familiar)."

Continuing, you say "It will be a few minutes before we begin anything else so take this pencil and draw on this paper in order to have something to do while we're waiting. That way you won't disturb anyone."

If the child asks about what to draw, how to draw, etc., say "It doesn't matter so long as you are quiet while drawing."

If the child begins talking about other things or engages in some activity other than drawing, say "Now remember, I don't want you to talk or do anything that might bother anyone. So just draw on the paper I gave you."

If the child makes a statement requiring a response from you, say "You don't have to worry about that. Just draw on the paper."

If the child refuses to draw, say "If you can still be quiet then you don't have to draw."

Regardless of what the child is doing, intersperse some or all of the following statements during

Psychologist (contd.)

statements such as "do this," but rather utilize statements such as "I would like you to _____," "Would you _____," etc.

Introduce yourself as "Dr. _____, the psychologist here. I have the same job as Dr. (an actual psychologist with whom the child is familiar)."

Continuing, you say "It will be a few minutes before we begin anything else. Here is a pencil and paper. I would like you to draw something for me. You may draw anything you wish. I'm very interested because it will help me to know you better."

If the child asks about what to draw, how to draw, etc., say "You may draw anything you like in any way you wish. I'll be interested in whatever you draw."

If the child begins talking about other things or engages in some activity other than drawing, indicate an interest and try to encourage the child to continue with his/her drawing.

If the child makes a statement requiring a response from you, say "Let's talk about that a little later, after we've finished this."

If the child refuses to draw, say "You don't have to draw unless you want to, but if you would, it would help me to know you better."

Regardless of what the child is doing, intersperse some or all of the following statements during

Appendix A (contd.)

Aide (contd.)

the role period: "Sit up straight while you're drawing;" "Don't figit around, just draw on the paper;" and (wadding up the first sheet of paper and handing the subject another); "Here. Draw on this."

At the end of five minutes, say "We can start something else now. Let me have the paper so that it doesn't clutter up the table" (wad paper up and throw it in wastebasket).

Psychologist (contd.)

the role period: "Are you comfortable? If you aren't, you may scoot the chair around any way you like;" "Would you like some more paper to draw on?;" "That's a very pretty sweater (or dress or shirt) you have on."

At the end of five minutes, say "We can start something else now. Let me have your drawing so that I can look at it when we are through" (place drawing carefully on the table).

Examination

In the examination you will have 84 white cards which have six pronouns printed at the top and one verb centered near the bottom. Except for four sample cards (cards A, B, C, and D), each card will have a different verb. You will use the sample cards in demonstrating to the child what you want him to do. His task will be to make up a sentence for each card by using one of the pronouns with the verb.

As the examiner you will be concerned with three things: (1) getting the subject to understand the task; (2) proper presentation of the cards; and (3) indicating approval of certain types of sentences.

Presenting the Task to the Child

Initially, you say: "This is a game in which you show me how well you can read and use words. See this card (hold up Card A)? Make up a sentence using one of the words at the top with this word, 'went', here at the bottom." If your instructions are followed, go on to the next card. If the child has difficulty with the verb, you may read it again for him. If the child does not make up a sentence or does so without

Appendix A (contd.)

using the verb and a pronoun from the card, you correct him by saying: "No, I wanted you to make up a sentence using one of the top words with the word 'went', here at the bottom. For example, you could have said 'I went, you went, he went, they went, we went, she went' or something like that. Let's try another one (present next sample card). Make up a sentence using one of the top words with the word, 'rode', here at the bottom." If, after all four sample cards have been presented once in this way, the child has not responded correctly on two consecutive cards, then the four sample cards are presented again in an identical manner. Whether the child has successfully responded on two consecutive cards or not, at the end of the second presentation of the sample cards, you go on into the examination cards (cards 1 - 80).

Presentation of the Examination Cards

For cards 1 through 20 you are to present each card and say "Make up a sentence using one of the top words with the word '(the verb on that card)', here at the bottom." If the child has difficulty with the verb you may read it again for him. With cards 1 - 20, however, you are to do nothing but present the cards and re-read the verbs when necessary.

Indication of Approval for Certain Sentences

With one exception, cards 21 through 80 are presented in exactly the same manner as cards 1 - 20. The exception is that you are to say "good" in a flat, unemotional tone at the end of any sentence beginning with "I" or "we". Other than re-read the verb if necessary, you are to do nothing at the end of sentences beginning with pronouns other than "I" or "we". This procedure will apply to only half of the children you see.

Appendix A (contd.)

For the remaining children, all cards will be presented in the same manner as cards 1 - 20. You will be told which procedure is to be used with each child.

All of this may sound somewhat involved but it requires only that you follow the script prepared for you. The importance of following the script exactly cannot be overemphasized. For the results of this study to be of value in the training and understanding of retarded children, the instructions must be closely followed. Departure from instructions might necessitate starting over from the beginning or abandoning the study.

We know that this is your first experience at this kind of job and it is understandable if you are a little nervous. You may find that it takes a little time to feel comfortable in your role. In the meantime, try to relax and enjoy the new experience.

APPENDIX B

DESCRIPTION OF INDIVIDUAL SUBJECTS

Subject No.	Sex	C.A.	Wechsler I.Q.	Derived M.A.
1	F	16	71	11-4
2	"	17-5	61	10-7
3	"	14-7	77	11-3
4	"	20-1	61	12-3
5	"	17-5	59	10-3
6	"	19-1	73	13-11
7	"	16-3	64	10-5
8	"	17-10	65	11-7
9	"	14-5	62	8-11
10	"	17-2	78	13-5
11	"	13-5	59	7-8
12	"	16-7	64	10-7
13	"	18-3	46	8-5
14	"	17-5	56	9-9
15	"	14-6	52	7-5
16	"	20-2	67	13-6
17	"	13-2	63	8-4
18	"	13-3	45	6-0
19	"	13-10	66	9-2
20	"	16-5	61	10-1
21	"	18-4	63	11-7
22	"	17-11	71	12-9
23	"	15-5	70	10-10
24	"	16-3	57	9-3
25	"	20-5	52	10-7
26	"	20-6	56	11-6
27	"	16-10	72	12-1
28	"	15	63	9-5
29	"	15-7	47	7-4
30	"	20-9	46	9-7
31	"	18-4	62	11-4
32	"	18-2	74	13-5
33	"	17-1	67	11-5
34	"	14-5	51	7-4
35	"	15-11	80	12-9
36	"	16-7	72	11-9
37	M	15-3	72	11-0
38	"	14-2	58	8-3
39	"	15-4	53	8-2
40	"	13-10	58	8-0

Appendix B (contd.)

Subject No.	Sex	C.A.	Wechsler I.Q.	Derived M.A.
41	M	17-1	62	10-7
42	"	19-9	78	15-5
43	"	18-11	68	12-10
44	"	18-4	83	15-3
45	"	17-11	70	12-7
46	"	14-3	59	8-5
47	"	19-3	51	9-10
48	"	14-8	66	9-8
49	"	17-2	80	13-9
50	"	17-5	61	10-7
51	"	10-8	59	12-2
52	"	15-4	62	9-6
53	"	13-10	54	7-6
54	"	16-11	58	9-10
55	"	17-11	76	13-7
56	"	16-8	80	13-4
57	"	17-7	46	8-3
58	"	17-1	53	9-1
59	"	16-9	83	13-11
60	"	16-11	58	9-10
61	"	18-10	45	8-6
62	"	19-7	58	11-4
63	"	16-10	62	10-5
64	"	15-7	73	11-5
65	"	15-3	61	9-4
66	"	17-1	65	11-1
67	"	16-1	68	10-11
68	"	14-3	54	7-6
69	"	18-8	68	12-8
70	"	14-8	46	6-9
71	"	16-1	62	10-0
72	"	19-1	66	12-7

APPENDIX C

SAMPLE STIMULUS CARDS

5"

he you we she I they

3"

rode

5"

you we he they she I

3"

sang

APPENDIX D

VERBS AND ORDER OF PRESENTATION

1. Watched	21. Drank	41. Lost	61. Caught
2. Laid	22. Slept	42. Walked	62. Jumped
3. Learned	23. Hid	43. Had	63. Bit
4. Drove	24. Wrote	44. Heard	64. Found
5. Combed	25. Sang	45. Called	65. Bought
6. Ran	26. Cooked	46. Held	66. Broke
7. Fed	27. Cried	47. Played	67. Led
8. Rested	28. Wanted	48. Put	68. Swam
9. Shot	29. Spoke	49. Cleaned	69. Talked
10. Tried	30. Smoked	50. Closed	70. Left
11. Tore	31. Sold	51. Hurt	71. Brought
12. Took	32. Saw	52. Helped	72. Built
13. Told	33. Sewed	53. Came	73. Wore
14. Rode	34. Burned	54. Cared	74. Went
15. Said	35. Buttoned	55. Carried	75. Cut
16. Washed	36. Needed	56. Threw	76. Did
17. Fished	37. Opened	57. Ate	77. Made
18. Forgot	38. Let	58. Hit	78. Loved
19. Dressed	39. Liked	59. Tied	79. Fell
20. Sat	40. Looked	60. Hunted	80. Felt

APPENDIX E

DESCRIPTION OF AWARENESS RATINGS

<u>Rating</u>	<u>Description</u>
0	No Statement of Reinforcement or Contingency
1	Prompted Statement of Reinforcement but no Contingency Statement
2	Unprompted Statement of Reinforcement but no Contingency Statement
3	Prompted Statement of Reinforcement and Partial Contingency Statement
4	Unprompted Statement of Reinforcement and Partial Contingency Statement
5	Prompted Statement of Reinforcement and Complete Contingency Statement
6	Unprompted Statement of Reinforcement and Complete Contingency Statement

APPENDIX F

INTERVIEW PATTERN AND SOME ILLUSTRATIVE QUESTIONS

Patient's Perception of Examiner's Demands

1. What were you and Mr./Mrs./Dr._____ doing?
2. What do you think he/she wanted you to do?
3. (If Subject says "make sentences,", etc.) What do you think he/she really wanted you to do?
4. (Series of specific alternatives) Did he/she want you to make up any sentence?; Did he/she want you to use any of these words (pronouns)?; etc.

Degree to Which Subject Complied with What He Felt Examiner Demanded and Awareness of Examiner Reinforcement

1. Did you (referring to Subject's earlier characterization of what he/she felt Examiner wanted)?
2. (If not) What did you do and how did you decide to do it that way?
3. What did Mr./Mrs./Dr._____ do when you did that?
4. Did it seem to make any difference to him/her?
5. (If no statement of reinforcement) Did he/she ever say anything?
6. (If no statement of reinforcement) Did he/she ever say "good"?; When did he/she say that?; Did he/she say it when you used this word (a specific pronoun)?; etc.

If No Hypothesis of Examiner Demands, What Did Subject Do, and What Was Basis for This

1. What did you do?
2. Tell me about how you decided to do it that way.

Appendix F (contd.)

Subject's Evaluation of His Performance

1. Did you do pretty well?
2. How did you come to feel that way?
3. Do you think Mr./Mrs./Dr._____ thought you did pretty good?
4. How do you think he/she came to feel that way?

Awareness of Any Affectual Responses Toward Examiner

1. What did you think of Mr./Mrs./Dr._____?
2. Was he/she nice to you?
3. Was he/she mean to you?
4. Would you like to have him/her for your regular aide/psychologist?

Impressions of Similarity or Dissimilarity
to Actual Aides or Psychologists

1. What kind of an aide/psychologist was he/she?
2. Was he/she any different from the other aides/psychologists around here? (If so) Tell me about it.
3. Did he/she act about like most of the aides/psychologists you've known?

Basis for Assumed or Non-Assumed Validity of Employee

1. Was he/she a real aide/psychologist? (If not) What makes you think he/she wasn't? When did you come to suspect he/she wasn't a real aide/psychologist? What made you think he/she might not be a real aide/psychologist?

APPENDIX G

SAMPLE TABULATION SHEET

Name _____

Experimental Condition _____

Age _____

Experimenter _____

Cottage _____

Date _____

Comments on Role

Verb	Card #	Pronoun Response Class				Reinforce- ment	Incorrect Sentence?
		I	We	Other	Couldn't Understand		
Went	A						
Rode	B						
Sat	C						
Needed	D						
Went	A						
Rode	B						
Sat	C						
Needed	D						
Watched	1						
Laid	2						
Learned	3						
Drove	4						
Combed	5						
Ran	6						
Fed	7						
Rested	8						
Shot	9						
Tried	10						
Tore	11						
Took	12						
Told	13						
Rode	14						
Said	15						
Washed	16						
Fished	17						
Forgot	18						

Appendix G (contd.)

Verb	Card #	Pronoun Response Class				Reinforce- ment	Incorrect Sentence?
		I	We	Other	Couldn't Understand		
Dressed	19						
Sat	20						
Total							
Weighted Total (x3)							

Drank	21					
Slept	22					
Hid	23					
Wrote	24					
Sang	25					
Cooked	26					
Cried	27					
Wanted	28					
Spoke	29					
Smoked	30					
Sold	31					
Saw	32					
Sewed	33					
Burned	34					
Buttoned	35					
Needed	36					
Opened	37					
Let	38					
Liked	39					
Looked	40					
Lost	41					
Walked	42					
Had	43					
Heard	44					
Called	45					
Held	46					
Played	47					
Put	48					
Cleaned	49					
Closed	50					
Hurt	51					
Helped	52					
Came	53					
Cared	54					
Carried	55					
Threw	56					
Ate	57					
Hit	58					
Tied	59					
Hunted	60					

Appendix G (contd.)

Verb	Card #	Pronoun Response Class				Reinforce- ment	Incorrect Sentence?
		I	We	Other	Couldn't Understand		
Caught	61						
Jumped	62						
Bit	63						
Found	64						
Bought	65						
Broke	66						
Led	67						
Swam	68						
Talked	69						
Left	70						
Brought	71						
Built	72						
Wore	73						
Went	74						
Cut	75						
Did	76						
Made	77						
Loved	78						
Fell	79						
Felt	80						
Sub-total							
Total							

Comments on Examination

APPENDIX H

VERBS REORDERED IN CONSECUTIVE TWENTY CARD
BLOCKS WITH EQUAL PRONOUN PROBABILITIES

1. Watched	21. Sang	41. Learned	61. Ran
2. Wrote	22. Cooked	42. Combed	62. Tore
3. Found	23. Sold	43. Rested	63. Rode
4. Bought	24. Needed	44. Hid	64. Dressed
5. Hunted	25. Smoked	45. Wanted	65. Heard
6. Threw	26. Looked	46. Burned	66. Played
7. Built	27. Sewed	47. Opened	67. Came
8. Felt	28. Laid	48. Let	68. Called
9. Cleaned	29. Drove	49. Walked	69. Held
10. Told	30. Shot	50. Saw	70. Hurt
11. Tried	31. Said	51. Liked	71. Closed
12. Fed	32. Washed	52. Put	72. Hit
13. Took	33. Slept	53. Helped	73. Had
14. Forgot	34. Broke	54. Cared	74. Lost
15. Fished	35. Cut	55. Tied	75. Carried
16. Drank	36. Did	56. Caught	76. Bit
17. Sat	37. Made	57. Talked	77. Swam
18. Cried	38. Went	58. Brought	78. Led
19. Spoke	39. Ate	59. Wore	79. Loved
20. Buttoned	40. Jumped	60. Left	80. Felt

APPENDIX I

TREATMENT CONDITIONS AND CHRONOLOGICAL AGE OF SUBJECTS

<u>Source</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Examiner	4	416.6425	<1.0000
Sex	1	435.1200	<1.0000
Role	1	333.6800	<1.0000
Reinforcement	1	1615.0100	1.8004
Examiner x Role	4	443.3075	<1.0000
Examiner x Reinforcement	4	1495.6425	1.6674
Sex x Role	1	1160.0200	1.2932
Sex x Reinforcement	1	153.1340	<1.0000
Role x Reinforcement	1	654.0180	<1.0000
Examiner x Role x Reinforcement	4	1764.7270	1.9673
Sex x Role x Reinforcement	1	190.1080	<1.0000
Error	48	897.0198	
Total	71		

APPENDIX J

TREATMENT CONDITIONS AND MENTAL AGE OF SUBJECTS

<u>Source</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>
Examiner	4	482.309	< 1.0000
Sex	1	165.014	< 1.0000
Role	1	642.014	1.0783
Reinforcement	1	1275.125	2.1417
Examiner x Role	4	1125.726	1.8908
Examiner x Reinforcement	4	829.864	1.3938
Sex x Role	1	11.680	< 1.0000
Sex x Reinforcement	1	260.680	< 1.0000
Role x Reinforcement	1	618.347	1.0386
Examiner x Role x Reinforcement	4	801.142	1.3456
Sex x Role x Reinforcement	1	342.343	< 1.0000
Error	48	595.381	
Total	71		

VITA

Bill J. Locke

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE EFFECTS OF EXAMINER, ROLE, AND REINFORCEMENT VARIABLES
ON THE MODIFICATION OF VERBAL BEHAVIOR IN INSTITUTIONALIZED
RETARDATEES

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