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Vicarious verbal conditioning as a function of an observer's expectancy regarding the friendliness of the reinforcing agent.

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VICARIOUS VERBAL CONDITIONING AS A FUNCTION OF AN OBSERVER'S EXPECTANCY REGARDING THE FRIENDLINESS OF THE REINFORCING AGENT

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The fact that behavior can be conditioned through the use of verbal reinforcement is well documented (c.f. Kanfer, 1968; Flanders, 1968). Specific critical responses of a subject, reinforced by praise or utterance of the word "good," tend to increase in frequency, in this type of conditioning.

The relationship between the reinforcing agent, and the individual whose behavior is selectively reinforced would seem relevant to this process, and, indeed, evidence has been presented to support this expectation (e.g. Kanfer and Karas, 1959; Binder, et al, 1957; Sapolsky, 1960). Sapolsky's (1960) study, for example, indicates that attractive, compatible experimenters are more effective reinforcers than unattractive, incompatible experimenters in a verbal conditioning task.

In all of the above cases, the subject was directly reinforced for making an appropriate response. Observational learning studies have demonstrated conditioning of an observer, when specific responses of a model are verbally reinforced by an experimenter (Kanfer and Marston, 1963; Marston, 1966; Marston and Kanfer, 1963). When only

the model is reinforced the procedure is usually referred to as vicarious reinforcement.

The traditional "law of effect" states that the probability of occurrence of a behavior closely followed by reinforcement will tend to increase. In the vicarious learning paradigm, the model's reinforcement may bear no relationship to the observer's behavior, since the observer is not usually responding at the same time as the model. The basis for vicarious learning and the effects of the reinforcing agent may, therefore, differ from direct reinforcement situations. The function of attractiveness, or friendliness of the reinforcing agent may differ from direct reinforcement situations.

To initiate an evaluation of the effect of expectancies regarding the friendliness of the reinforcing agent on an observer, the author ran a pilot study utilizing a vicarious reinforcement paradigm. Subjects were told that they would be participating in a verbal test-taking study. The goal of the experiment was represented as "assessing verbal performance, as a function of the personality of the test administrator." Since persons taking tests receive cues about the test administrator to varying extents subjects were told that they would also be given varying exposure to the test administrator. In fact, all subjects were told that they were in the "remote" condition and that their only exposure to the administrator would be listening to him on a tape recording.

Subjects listened to a tape recording of, and performed concurrently on the Taffel (1955) verbal task. The task consisted of making up sentences from a number of cards given each subject, by matching a pronoun and a verb. The taped model was reinforced by a "mmm-hmm" or similar verbal response by the administrator for the use of "I" and "we" for 60 trials. The subject alternated responses with the taped model for each of these 60 trials, and completed 40 trials alone at the completion of the taped performance. The subject listened and performed alone, and none of his responses were reinforced throughout the task.

The reinforcing agent was described to subjects prior to the performance of the task. The description was the same except for the terms "warm and friendly," or "cold and unfriendly" used to create the differential expectancy.

The pilot data indicate that subjects led to expect that they would listen to a cold, unfriendly interviewer showed a greater degree of verbal conditioning and use of pronouns which were reinforced in the tape, than subjects led to expect that they would listen to warm, friendly interviewer.

Organized in ten blocks of ten trials each, the mean number of critical responses by subjects in the "cold and unfriendly" group exceeded that of the "warm and friendly" group in nine blocks, and equaled it in the tenth block. No linear or quadratic trends were shown over the ten blocks.

An application of the Mann Whitney U-test, using total critical responses of each subject over 100 trials, provided an additional indication of the relative superiority of the "cold-unfriendly" reinforcer. The difference between the two groups did not reach a conventional significance level, but provided an indication that the difference should not be overlooked ($U=11$, $Z=1.429$, $p<.15$, two-tailed test).

Given that a difference in the ability to condition an observer through verbal reinforcements to a model favors an "unfriendly" reinforcing agent, what theoretical orientation would lead to its prediction? Recent discussions of attribution theory by Kelley (1967), and Jones and Davis (1965) provide a prediction consistent with the data of the Jorgensen pilot study.

The two orientations differ somewhat in their perspectives toward the processes by which an individual makes attributions of causes, dispositions and inherent properties of his world, but both analyses are based on Heider's work in The Psychology of Interpersonal Relations (1958). The basic analytic tool of the observer in making his attributions has its origins in J.S. Mills' "Method of difference." A simplified statement of this criterion would be that an effect tends to be attributed to a condition which is presented when the effect is present, and absent when the effect is absent. The presence of the effect, "friendly behavior" can be inferred for the agent over a variety of conditions, and over time in the

pilot study, since a description of his typical behavioral mode is given.

When the "friendly" agent reinforces the model, inferences regarding the friendly behavior should be difficult to make, since it is the expected behavior over a wide variety of conditions. For the "unfriendly" agent, however, the friendly behavior is unexpected and the observer may be compelled to seek the condition which present in the experimental setting and not typically present. An obvious "condition" is the model performing on the verbal task, in whose absence the agent would be expected to behave in an unfriendly manner.

Although not equivalent to the problem at hand, a study by Jones, Davis and Gergen (1961) provides a strong analogy leading to the same expectations provided by the simplified method of difference. In this study subjects listening to tape recorded interviews rated the personalities of those on the tape more confidently if their taped performance had been out of role. The out of role behavior was assumed to be unexpected in that situation, and subjects had to reduce their uncertainty by locating the sufficient reason for the behavior in the individual. In the pilot study the behavior of the "unfriendly" agent is out of character for the individual, so sufficient reason for the behavior might be sought in the setting. This process is similar to the "method of difference" approach; an unexpected behavior leads one to seek the unusual cause, existing only in the presence of

the unusual behavior.

Open-ended questions in the pilot study suggest that differences in the perception of the reinforcing behavior existed across the two experimental conditions. Questions asking why the man on the tape said "good," and what it meant to the observer seemed to indicate that a difference in causal attribution existed between the "friendly" and "unfriendly" expectancy conditions consistent with the earlier discussion in this paper of the attribution process utilizing the method of difference approach.

In general, the open-ended questions indicated that it is easier to attribute the response of "good" to specific good responses by the model if the use of "good" is not entirely expected, if the subject expects an unfriendly interviewer. The use of "good," when fully expected from an individual, is likely to be attributed to the model's behavior only in a more general sense, indicating perhaps that all is well, or that nothing is amiss.

The present study was similar to the pilot study discussed, and attempted to investigate vicarious learning in an observer in a verbal task. Experimental groups were provided with unfriendly, friendly, or neutral expectancies regarding the friendliness of a taped interviewer. Subjects performed 60 trials of the Taffel Sentence Construction Task (1955), alternating on each trial with a taped interviewee, the model, and 40 trials along upon the completion

of the tape recording.

The specific hypothesis to be tested was as follows: 1. Subjects expecting to listen to a warm, friendly interviewer will show the smallest increment in critical responses reinforced in an observed model, while subjects expecting to listen to a cold, unfriendly interviewer will show the greatest increment in critical responses. Subjects with no experimentally induced expectancies regarding the interviewer will provide a baseline measure of observational learning. They will probably show less learning of critical responses than subjects with an unfriendly expectancy and will probably not differ significantly from those having a positive expectancy, since, given no expectancy, one would probably anticipate friendly behavior on the part of an interviewer.

Method

Subjects

Subjects were 45 undergraduates at the University of Massachusetts. Males and females were distributed approximately equally across cells, with a total of 15 subjects in each condition. All were undergraduate volunteers, and most received some sort of experimental credit for their participation.

Design

The present experiment reproduced the two expectancies induced in subjects in the pilot study, that of an unfriendly

taped interviewer, and that of a friendly taped interviewer. The one-way completely randomized design was completed by the addition of a third condition, where subjects received a neutral description of the taped interviewer. The neutral expectancy condition provided a baseline, to which the effects of the induced friendly and unfriendly expectancies could be compared.

The primary dependent variable measured was the number of critical pronouns given by the subjects. Critical pronouns were "I" and "we," the pronouns reinforced for the model. Responses were recorded for each of 60 "acquisition" trials, where the subject alternated responses with a reinforced model, and for each of 40 "extinction" trials where no model was observed. A difference score was also computed, showing the change in number of critical responses from the first block of 10 trials to the sixth block of trials.

Structured dependent measures recorded subjects' perceptions of the interviewer's friendliness, and liking of him, to evaluate the success of the expectancy manipulation. Subjects also rated the reinforcements in terms of their specificity and generality. Open-ended questions further evaluated their perceptions of the reinforcements and their awareness of the reward contingencies.

Procedure

Subjects were initially given a description of the interpersonal nature of the work of a clinical psychologist.

The problems of selection, rejecting only the unsuited and accepting only the interpersonally capable, was discussed. The present system, subjects were told, utilizes judgments of clinical candidates made only by faculty, whose social relationships with the candidate may cause their decisions to be less than accurate. Subjects were led to believe they would make evaluations to supplement the present system of selection. An expectancy regarding the friendliness of the taped interviewer was created in the description of the task.

The task was described as listening to a tape recording, on which a clinical psychology graduate student interviews a girl, who performs on a verbal task. Subjects were asked to form a general impression of the interviewer, and to perform on the same verbal task, 60 trials alternating with the girl on the tape, and 40 trials upon completion of the tape. Subjects were then asked to fill out a questionaire assessing the performance of the interviewer, and describing their thoughts and observations. Scaled questions checked the independent variable manipulations, and open-ended questions (from Levin, 1961) were included to reveal the extent of awareness of the reward contingencies, and evaluate the subjects' perceptions of the taped reinforcements.

The procedure is presented in somewhat more detail in the description of instructions, below.

Instructions to Subjects

"You will be participating in a research program for the clinical area of the Psychology Department. The nature of a clinician's work requires that he command certain interpersonal skills; he must be friendly, easy-going, and able to get along well with other people. You will be judging a clinical candidate on these characteristics, after listening to him in a tape recorded interview with a girl who performs on a verbal task.

Shortcomings in the faculty's system of evaluating graduate students who are clinical candidates has prompted this attempt to add some more objective measures to the present system. The primary shortcomings have been these: First, students are eliminated from the graduate program when they should possibly be retained. There have been complaints from those asked to leave the program that personal relationships with the faculty have caused them to be misjudged. Second, students are permitted to complete their course of study, but eventually fail on the job due to their inability to get along with others."

One of the following descriptions was inserted at this point to effect the manipulation regarding the friendliness of the reinforcing agent: The friendly interviewer--"You will be listening to one of a number of tapes provided by the clinical faculty, of a clinical psychology graduate student about to receive his Ph.D. degree. His interpersonal

skills--friendliness and ability to get along with others--were favorably evaluated, and he is expected to be successful in his new career. Your objective evaluations of his personality will be later correlated with his actual success on the job. This will provide us with a number of correlations between various rating systems and actual success, enabling us to use only the most accurate selection techniques."

The unfriendly interviewer--"I have been provided with a few anonymous tape recorded interviews by the clinical faculty. These students are probably going to be asked to leave the graduate training program. They aren't generally seen as very friendly, and probably can't get along with others well enough to handle the job of a clinical psychologist. But, before making any final decisions on the matter the faculty wants to see the extent to which your objective judgments agree with their own."

The neutral expectancy--"I have been provided with some tape recordings provided by the clinical faculty. We are interested to see the extent to which your evaluations of the clinical graduate student conducting the interview on the tape, correspond with those of the faculty."

"This study attempts to improve on the present evaluation system in several ways. It provides a more objective response to the personality of the clinical candidate,

since your judgments will not be interferred with by any social relationships. Also, the conditions under which you are rating the clinical candidate more closely approximate a clinical setting than those under which the faculty typically observe the clinical student. This interview, for example, approximates a clinical interview in that the man says very little on the tape, much as a clinician attempts to speak very little himself, preferring to get the client or patient to do most of the talking.

Besides just listening to the tape you will be performing on a verbal task, the same one as the taped interviewee, to further approximate the clinical situation. This simulates the behavior of the client, who, in the clinical interview, thinks not only about the personality of the clinician, but about himself and the subject matter being discussed. Another reason for your performance on the verbal task is to provide a standard of comparison by which the taped performances can be judged. The ratings given the clinical candidates can possibly be affected by their interviewee's performance on the verbal task the standard provided by your performance and that of other subjects will make it possible to determine the extent to which the interviewee's performance affects the ratings of the clinical candidate.

The task you will be performing on will be as follows:

You will make up one sentence for each of the 100 cards you see in front of you, and speak it into the microphone. You will make up the sentence using one of the six pronouns along with the verb on the card. For the first 60 cards you will alternate the sentences with the girl on the tape--she speaks slowly and you shouldn't have much trouble keeping her pace. After the tape recording ends simply continue making up sentences for your remaining cards. The girl on the tape used a similar set of cards to your own, but the order of your cards is completely random, and will not directly correspond to the order of the cards used by the girl.

Let me review what you will be doing. You will be trying to get a general impression of the interviewer on the tape, and you will make up 100 sentences, keeping pace with the girl on the tape for the first 60."

The Verbal Task

The task is a commonly used verbal conditioning task, from work done by Taffel (1955), Subjects had before them 100 cards, on each of which were written a common verb in the past tense, and six personal pronouns. Subjects were told to make up sentences using the verb and one of the pronouns on the card. Subjects responded alternately with the taped model for 60 trials, completing the 40 additional trials after the tape recording had ended. Critical responses of the model, sentences using the pronouns "I" and "we" were

reinforced by the interviewer. Subjects listened to the tape alone and spoke their sentences into a microphone attached to a second tape recorder.

Results

The main dependent variables were tested for significance using an analysis of variance for unequal cell frequencies. Three pairs of dependent variables were analyzed in this way, two performance measures, two manipulation checks, and two checks of the theoretical basis for prediction. The sources of variance examined were condition (expectancy regarding friendliness of the taped reinforcing agent), sex of subject, and Condition X Sex interaction. Each of the three pairs of analyses will be described in turn, along with related analyses. Following these will be several *post hoc* analyses of relevant relationships.

Performance Measures

Two different performance measures were analyzed, total critical responses ("I" and "we") over the first sixty trials, and a change score representing the increase in critical responses in the sixth block of ten trials over the number recorded for the first block of ten trials. The analyses of variance for the performance measures are shown in Tables 1 and 2.

Insert Tables 1 and 2 about here

Differences between conditions are in the predicted direction, however, it can be seen from Tables 1 and 2 that the effects are not significant. The group given the unfriendly expectancy regarding the reinforcing agent showed more critical responses over 60 reinforced trials than subjects given a friendly expectancy, as predicted (mean for unfriendly expectancy = 19.67, mean for friendly expectancy = 18.43, mean for neutral expectancy = 17.14). The change score was also in the direction predicted (unfriendly expectancy = +.67, friendly expectancy = -.07, and neutral expectancy = +.07).

It is probably relevant, while discussing the performance measures, to assess whether any significant learning of the reinforced responses occurred. The critical reinforced pronouns comprised 1/3 of the available alternatives. Under conditions of no reinforcement the frequency of occurrence of the critical pronouns might be estimated at once every three trials. Since no base rate for "I" and "we" was established this is probably the best available estimate of "I" and "we" use in a non-reinforced situation. For all subjects the 30.69% use of critical pronouns differs insignificantly from one-third, and might be taken as an indication that the reinforcement was ineffective in producing learning. There is some evidence, to be discussed later, that the use of "I" and "we" is affected by individual differences, and the once-in-three-trials projected base rate is not entirely accurate.

Manipulation Checks

Two questions were included as dependent measures to assess the efficacy of the expectancy manipulation. The subjects were asked, "How friendly was the man on the tape?" and "Did you like the man on the tape?" Subjects responded on a 1 to 9 scale indicating "not at all" to "very much."

The analyses of variance indicate that the manipulation was not effective, since the main effect for Conditions was not significant. However, a sex difference trend is revealed in the analysis of the first question (see Table 3). Males rated the man on the tape recording as more friendly than did females, although the difference was not reliable (males = 6.53, females = 5.24, $F = 3.72$, $p < .10$). The liking measure showed a smaller difference than did the rated friendliness, but in the same direction (males = 6.32, females = 5.38).

Insert Tables 3 and 4 about here

Theoretical Checks

It was predicted that subjects given different expectations regarding the friendliness of the reinforcing agent would attribute his actual friendliness to different sources or causes. The subjects led to expect an unfriendly agent might tend to perceive his rewards to have been caused by something impinging on the agent, the "something" restricted largely to the performance of the model on the tape. This follows from the basic "method of difference" analysis

previously discussed. The effect (friendly behavior) is attributed to a condition (model's behavior) which is present when the effect is present, and absent when the effect is absent. Subjects led to expect a friendly agent might attribute the rewards to some kind of self-generation process on the part of the agent, since the friendly, rewarding behavior would also be expected in the absence of the model. These rewards might be seen as more general in nature, the purpose of which would be support for the model, and attempt to create a relaxed setting, or just friendly behaviors which might be expected from a friendly person.

Two questions were designed to assess the subjects' perception of the nature of the reinforcements, "How much general supportive behavior did the man show?" and "Did the man give the girl specific indications she was doing the right thing?" Subjects responded on a 1 to 9 scale indicating "not at all" to "very much."

The analysis of variance in Table 5 shows an effect of Condition which does not quite reach a conventional level of significance. It is in the predicted direction, subjects led to expect a friendly agent tending to perceive the agent's rewards as general supportive behavior to a somewhat greater extent than subjects in other conditions (friendly = 7.21, unfriendly - 5.92, neutral = 5.21). This trend was not duplicated for the specificity measure (Table 6) where

it was predicted that subjects with an unfriendly expectancy would rate the reinforcements as more specific (unfriendly = 6.33, friendly = 7.00, neutral = 6.36). Differences on the specificity measure were not statistically significant.

Insert Tables 5 and 6 about here

Open-ended Questions

It was thought that these questions regarding the nature of the reinforcement might not have meant the same thing to the subjects as had been intended by the experimenter. For this reason, open-ended questions asking why the man on the tape said "Good," were reviewed by three raters to provide additional indices of how subjects perceived the agent's rewards. The subjects' responses were rated on a 1 to 9 scale for two questions: 1. Did the subject perceive the use of "good" as general, supportive behavior? General supportive behavior included things like "reassurance," "make the girl comfortable," and "keep her going," and 2. Did the subject perceive the use of "good" as specific reinforcement for a good response by the girl on the tape? Although these perceptions would appear to be opposite in character, it was possible for a subject to be rated high or low on both questions 1 and 2.

The average intercorrelation of raters on the first question was .48, and on the second question .79. The ratings were summed over raters to give totals for each question

within each condition. The sums in Table 7 indicate no reliable differences between conditions on the rated questions.

Insert Table 7 about here

Table 7 does indicate a generally greater perception by the subjects of general supportive behavior by the reinforcing agent, than of specific reinforcement for a good response by the girl.

Analyses Using Actual Subject Perceptions of Reinforcing Agent

Since the manipulation checks (Tables 3 and 4) indicate that the manipulations failed to create the desired expectancies regarding the friendliness of the reinforcing agent, the primary analyses couldn't be expected to conform to predictions. Friendliness and liking measures were examined to determine whether the performance of critical responses was a function of subjects' actual perception of the reinforcing agent. A trend in the predicted direction is shown in this analysis, for both measures of subjects' perception of the agent. Subjects who rated the agent low on the friendliness or liking measures tended to emit more critical responses than those high on the friendliness and liking measures. The mean number of critical responses over the reinforced trials was 16.9 for subjects who perceived the reinforcing agent as friendly, and 21.1 for subjects who perceived him as unfriendly ($t = 1.59$, $p < .20$

two-tailed test). The mean number of critical responses was 16.9 for subjects who liked the reinforcing agent, and 21.3 for subjects indicating less liking for the agent ($t = 1.63$, $p < .20$, two-tailed test).

Substituting ratings of friendliness of the agent and liking of the agent for ineffective expectancy manipulation a prediction analogous to one of the primary hypotheses can be tested. It was predicted that subjects with an unfriendly expectancy would tend to perceive the rewards of the reinforcing agent more as specific responses to good performance by the model, than subjects with a friendly expectancy. Those who perceived the rewards as more specific should perform more critical responses than those perceiving the rewards as less specifically linked to the model's behavior. The logic behind these predictions has been discussed.

The analogous predictions, making the above substitutions are that subjects low on the perceived friendliness and liking measures should perceive rewards as more specific in nature than would subjects high on these measures. Subjects perceiving the rewards as more specific and less general, as determined by the ratings of the open-ended responses, should perform more critical responses than those perceiving the rewards as less specific and more general by the same measure.

The subjects who were low on the perceived friendliness

and liking of the reinforcing agent tended to perceive the rewards as less specific than subjects high on perceived friendliness and liking. This was opposite from the predicted direction. The difference for the perceived friendliness measure was only a trend (high perceived friendliness = 13.5 on rated perception of specificity of rewards, low perceived friendliness = 10.0 on rated perception of specificity, $t = 1.42$, $p < .20$ two-tailed), but was significant for the liking measure (high liking = 14.6 on rating of perceived specificity of rewards, low liking = 7.9 on rating of perceived specificity, $t = 2.91$, $p < .01$). Only the perceived specificity ratings were used because of their bimodal, symmetrical distribution; the generality ratings showed little dispersion and did not adequately discriminate between high and low responses on the measure. Low perceived friendliness and low liking was determined by rating of 5 or less on the 9 point scales; a response of 6 or greater was high on these measures. This cutting point provided a 17-19 split for the perceived friendliness measure, and a 15-21 split for the liking measure.

The "method of difference" analysis led to a prediction that subjects who perceived the rewards of the agent to be a function of specific responses of the model would emit more critical responses than would subjects who did not perceive the rewards to be a specific function of the model's behavior.

Again using only the ratings of perceived specificity, this prediction was not confirmed. Subjects rated as not perceiving the existence of a specific reward-model behavior relationship emitted a mean of 21.94 critical responses over the first sixty trials, versus a mean of 16.06 critical responses for those subjects judged as perceiving a specific relationship did exist ($t = 2.10$, $p < .05$ two-tailed test).

A check was made to determine the performance of subjects who conformed to the theoretical expectations of the study, that is, those subjects low on the friendliness-liking measures who perceived the rewards as highly specific, and those high on the friendliness-measures who perceived the rewards as very general. Subjects were placed in one of four cells for each analysis. Two levels of perceived friendliness or liking of the reinforcing agent were provided by a 5- and 6+ split on that measure. The two levels of perceived specificity of reinforcement ratings were a result of a 10- and 11+ split on the specificity rating.

The analysis revealed nothing of interest about the subjects who had conformed to the theoretical expectation, but did turn up one startling effect. Subjects who rated the agent low on friendliness and liking, and perceived the rewards to be non-specific in nature emitted more critical responses than did subjects in any of the other three cells of the analyses (low perceived friendliness and low

specificity = a mean of 27.2 critical responses *vs.* a mean of 16.9 critical responses for the second highest cell, $t = 3.12$, $p < .01$ two-tailed test; low liking and low specificity = a mean of 25.8 critical responses, *vs.* a mean of 17.4 critical responses for the second highest cell, $t = 2.47$, $p < .05$ two-tailed test). These data appear in Tables 8 and 9. This appears to reveal an important individual difference in the use of "I" and "we" which reflects back on an earlier question regarding the use of .33 as the expected proportion of "I" and "we" use in this task. This individual difference will be examined in more detail in the discussion section of this paper.

Insert Tables 8 and 9 about here

Discussion

The results of this study do not lend themselves to the drawing of conclusions regarding confirmation of the hypotheses of the study. The manipulation to produce an expectancy regarding the friendliness of the reinforcing agent produced no differences in perceived friendliness or in liking of the agent. The manipulation check was made after the subject had been exposed to the agent, so it is not clear whether the manipulation was totally ineffective, or simply impotent in comparison to the agent's actual behavior in producing an impression of him.

A second disappointment of the study was the apparent lack of any verbal conditioning. No base rate for the use of "I" and "we" was established, so this can only be projected from the data. For all subjects the 30.69% use of "I" and "we" differed insignificantly from the .33 proportion of alternatives represented by the critical pronouns. Further, the mean change score from block 1 to block 6 of the trials was only +.25, insignificantly different across conditions. Nearly as many subjects decreased in their use of "I" and "we" as increased, 18 showing an increase over the six blocks and 16 decreasing. Six subjects had a zero change score.

Substituting actual ratings of the agent's friendliness and subjects' liking of the agent for the unsuccessful manipulation of expectancy, trends similar to that evident in the pilot data are revealed. Subjects low on the friendliness and liking measures tended to emit more critical responses than subjects high on them ($p < .20$ for both measures, using two-tailed tests of significance). This approximates the trend of the pilot data, where subjects led to expect an unfriendly agent tended to emit more critical responses than subjects led to expect a friendly agent. Both trends are very weak, but considered together offer somewhat more support than either considered separately.

A follow-up of the actual subject perceptions failed

to support the theoretical expectations predicted in this study. Subjects perceiving the agent as less friendly, and who liked him less, tended not to see the rewards as a specific function of the model's behavior, as much as subjects high on these measures. This was opposite the predicted direction of difference.

Likewise, the relationship between perceived specificity of the reinforcement, and emission of critical responses, was opposite that predicted. It was predicted that subjects who perceived the rewards of the agent to be a function of specific responses made by the model would emit more responses than subjects perceiving the rewards to be less specifically directed.

The pattern which emerges from this series of analyses shows that subjects who rated the agent low on friendliness, or liked him less, and were rated as perceiving the rewards to be less specifically directed, emitted more critical responses than subjects having these variables in other combinations. This is shown in Tables 8 and 9.

The nature of this individual difference is not perfectly clear, but some speculation may enable one to project some characteristics of the subjects favoring "I" and "we."

If the individual rated the agent low on friendliness or low on the liking measure, it is possible that he did so because he perceived himself more favorably. This assumes that the judgments of the agent were made utilizing the

self-concept as an anchor or reference point.

If the subject perceived the agent's rewards as not specifically a function of the model's performance, it may be that the model's behavior was perceived as undeserving of praise. Again, the use of the self-concept as an anchor or reference point in the procedure of evaluating the nature of the rewards is essential in the following conclusion.

The projected characteristic of the subjects favoring "I" and "we" seems to be egotism. The relative downgrading of the agent and model, as hypothesized above, would upgrade the self. The favoring of "I" and "we" is consistent with a favorable self image. It would be worthwhile to determine whether the personal preference for "I" and "we" is a relatively enduring disposition, or can be experimentally induced. The fact that the trends in the pilot data were experimentally induced might be an indication that such a self-orientation might be subject to temporary change. The information provided by this study is inadequate, however, for a reasonable evaluation of this possibility.

A recommendation which should be made regarding the use of the Taffel verbal conditioning task, is to offer only pronouns of the same class (e.g. third person) for subjects to choose from. The inclusion of first person pronouns, particularly when they are chosen as the critical ones to be reinforced, is risky, and only likely to confuse the

interpretation of the data.

Summary

This study attempted to evaluate vicarious learning as a function of an observer's expectancy regarding the friendliness of a reinforcing agent. Differential verbal conditioning as a function of expectancy was not found, possibly because of a failure of the independent variable manipulation to create sufficiently potent expectancies. An apparent individual difference in the preference for "I" and "we" was discussed, and recommendations made regarding future studies of verbal conditioning.

REFERENCES

Binder, A., McConnell, D., & Sjohelm, N.A. Verbal conditioning as a function of experimenter characteristics. Journal of abnorm. soc. Psychol. 1957, 55, 309-314.

Flanders, J.P. A review of research on imitative behavior, Psychol. Bull. 1968, 69, 316-337.

Heider, F. The psychology of interpersonal relations, New York: Wiley, 1958.

Jones, E.E. & Davis, K.E. From acts to dispositions. In L. Berkowitz (Ed.), Advances in experimental social psychology. Vol. 2. New York: Academic Press, 1965 pp. 219-266.

Jones, E.E., Davis, K.E. & Gergen, K.J. Role playing variations and their informational value for person perception, J. abnorm. soc. Psychol., 1961, 63, 302-310.

Kanfer, F.H. Verbal conditioning: A review of its current status. In T.R. Dixon & D.L. Horton (eds.), Verbal behavior and general behavior theory. Englewood Cliffs, N.J.: Prentice-Hall, 1968.

Kanfer, F.H., & Karas, S. Prior experimenter-subject interaction and verbal conditioning, Psychol. Reports, 1959, 5, 345-353.

Kanfer, F.H. & Marston, A.R. Human reinforcement: Vicarious and direct, J. exper. Psychol., 1963, 65, 292-296.

Kelly, H.H. Attribution theory in social psychology. In D. Levine (Ed.), Nebraska symposium on motivation. Lincoln, Nebraska: Univ. of Nebraska Press, 1967.

Marston, A.R. Determinants of the effects of vicarious reinforcement, J. exper. Psychol., 1966, 71, 550-558.

Marston, A.R. & Kanfer, F.H. Group size and number of vicarious reinforcements in verbal learning. J. exper. Psychol., 1963, 65, 593-596.

Sapolsky, A. Effect of interpersonal relationships upon verbal conditioning. J. abnorm. soc. Psychol., 1960, 60, 241-246.

Taffel, C., Anxiety and the conditioning of verbal behavior. J. abnorm. soc. Psychol., 1955, 51, 496-501.

TABLE 1

Analysis of Variance : Performance Measures; Responses Over 60 Reinforced Trials

Source	df	MS	F
Condition	2	20.73	.27
Sex	1	18.31	.24
C x S	2	55.73	.72
Error	34	76.92	

TABLE 2

Analysis of Variance : Performance Measures; Difference Scores

Source	df	MS	F
Condition	2	1.81	.39
Sex	1	3.79	.91
C x S	2	5.52	1.18
Error	34	4.68	

TABLE 3

Analysis of Variance : Manipulation Checks; Friendliness Measures

Source	df	MS	F
Condition	2	.57	.12
Sex	1	17.99	3.72*
C x S	2	6.53	1.35
Error	34	4.84	

* $p < .10$

TABLE 4

Analysis of Variance : Manipulation Checks; Liking Measure

Source	df	MS	F
Condition	2	.63	.11
Sex	1	8.63	1.47
C x S	2	.70	.12
Error	34	5.89	

TABLE 5

Analysis of Variance : Theoretical Checks; General-Supportive Measure

Source	df	MS	F
Condition	2	15.13	2.55*
Sex	1	3.16	.53
C x S	2	4.95	.83
Error	34	5.93	

* $p < .10$

TABLE 6

Analysis of Variance : Theoretical Checks; Specificity Measures

Source	df	MS	F
Condition	2	2.16	.37
Sex	1	1.85	.32
C x S	2	7.92	1.36
Error	34	5.81	

TABLE 7

Ratings of Open-Ended Questions : Totals for Three Raters

	Unfriendly Expectancy	Neutral Expectancy	Friendly Expectancy
1. "Good" perceived as general-supportive Behavior	20.46	19.72	20.43
2. "Good" perceived as Specific Reinforcement for a Good Response	11.77	11.71	11.36

TABLE 8

Mean Critical Responses for The First Sixty Trials as a Function of Rated Friendliness of Agent and Perceived Specificity of Reinforcement

Rated Friendliness of Reinforcing Agent	Perceived Specificity of Reinforcement	
	Low	High
Low	27.2 (9)	14.4 (7)
High	16.7 (9)	16.9 (11)

$27.2 > 16.9$, $t = 3.12$, $p < .01$ two-tailed test

n's are in parentheses

TABLE 9

Mean Critical Responses on the First Sixty Trials as a function of Rated liking of Agent and Perceived Specificity of Reinforcement.

Liking of Reinforcing Agent	Perceived Specificity of Reinforcement	
	Low	High
Low	25.8 (11)	14.5 (4)
High	15.8 (7)	17.4 (14)

$25.8 > 17.4$, $t = 2.47$, $p < .05$ two-tailed test

n's in parentheses