GENERALIZATION OF AFFECTIVE VERBALIZATION

IN OPERANT GROUPS

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Bachelor of Arts

Northeastern State College

Tahlequah, Oklahoma

1972

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ACKNOWLEDGMENTS

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CHAPTER I

LITERATURE REVIEW

The effectiveness of psychotherapy in bringing about constructive behavioral change has been challenged by the findings of Eysenck (1960), and by the review of relevant literature by Truax and Carkhuff (1967). The latter found that average counseling and psychotherapy as it is currently practiced does not result in average client improvement greater than that observed in clients who receive no special counseling or psychotherapeutic treatment.

On the other hand, some researchers have produced more favorable evidence. Truax and Mitchell (1971) found psychotherapy to be generally effective, and Bergin (1971) interprets the literature as supporting the conclusion that therapy has, on the average, moderately positive results.

This investigation of traditional therapy does not, however, directly address the question of what specific factors do contribute to effective psychotherapy. Two approaches which have attracted a good deal of interest are behavior modification, based on learning principles of general psychology, and group therapy techniques.

Behavior modification research has sought to influence key behaviors thought to be important in therapeutic change. One group of studies has concentrated on verbal operant conditioning as an analogue to the verbal processes of psychotherapy. The earliest example of "free

operant" conditioning is the work of Greenspoon (1954), who reinforced nouns with "mhmm" as his subjects verbalized freely. Subsequently, many variables of verbal conditioning have been studied; among them acquisition, extinction, response classes, methods of reinforcement, and generalization. Several reviews have appeared (Krasner, 1958, 1962, 1965; Holz and Axrin, 1966; Salzinger, 1959; Kanfer, 1968; Greenspoon, 1962; Williams, 1966; and Hersen, 1967).

Verbal Conditioning as an Analogue
to Verbal Therapy

The issue of the degree of relationship between verbal condition- ing and psychotherapy centers primarily around two considerations: (1) How similar are the processes and settings? (2) How does a change in verbal behavior mediate therapeutic change in a client's life patterns?

Krasner (1965) has pointed out the many shared features of verbal conditioning and verbal psychotherapy. They are both situations in- volving social influence; they effect changes in verbal behavior shown to be extensive and durable; they both are interaction processes involving lawful variables. Truax (1966) was able to analyze an ex- tended, successful therapy case of Carl Rogers' using certain classes of verbalizations to determine whether improvement was in any way associated with the selective reinforcement of these response classes by warm and empathetic feedback on the part of the therapist. Rogers (1951, 1957) has argues that empathy and warmth must be nonselective in order to be therapeutic. In spite of Rogers' assertions, it was found that the therapist in fact selectively reinforced certain response classes. These increased in frequency over time, while other

nonreinforced classes did not. Thus the results support a reinforce-
ment interpretation of Rogers' therapy techniques.

The question of how a change in verbal behavior mediates client
improvement is much more complex. In some cases verbal behavior is
itself the target symptom, as in the work of Houghton (1964) with the
delusional speech of psychotics, and van Sommers (1968) with stammer-
ers. More often, however, verbal behavior is not specifically targeted.
The client's self-exploratory and self-explanatory verbal behavior, to-
gether with the establishment of therapeutic rapport, are the primary
factors viewed as enabling the client to change his behavior. The sym-
bolic properties of language are held to mediate between various
behaviors, verbal and nonverbal, in effecting this change. However,
this process is not very well understood.

Response Class

Regardless of how therapeutic change is conceptualized, research
has demonstrated the importance of situational reinforcement contingen-
cies which influence various classes of verbal responses. A great
variety of these response classes have been targeted, from very
specific types of verbalizations such as plural nouns or words denoting
persons, to broader units such as expressions of feelings or attitudes.
In fact, appropriate response classes have been conditioned in quasi-
therapeutic settings. These include self-references (Phelan, Tang and
Heckmat, 1967; Myrick, 1969; Ince, 1970; Kennedy and Zimmer, 1968;
Dickens and Fordham, 1967; Powell, 1968; and Rogers, 1960), affect words
or statements (Merbaum and Lukens, 1968; Ince, 1968; Ullman, Krasner
and Gelfand, 1963; Ullman, Krasner and Collins, 1961; and Williams and

Blanton, 1968), affective self-references (Pisoni and Salzinger, 1960;
Merbaum and Southwald, 1963; Merbaum, 1963; Hoffnung, 1969; and Heckmat,
1971), and independence and affection statements (Moos, 1963). Fromme,
Whisenant, Susky, and Tedesco (1974) modified affective, feedback, and
empathy statements.

Very few of these studies have used the verbal conditioning para-
digm with deliberate therapeutic intentions. Williams and Blanton
(1968) did tell their subjects that they were referred for "psycho-
therapy." Eighteen nonpsychotic patients were assigned to three treat-
ment groups. One group was reinforced verbally for "feeling" state-
ments, another one for statements without feeling content, and one
group was given traditional psychotherapy. After nine sessions the
percentage of feeling statements had increased for the group receiving
selective reinforcement, and for the group given psychotherapy. The
group reinforced for nonfeeling words showed a slight decrease in feel-
ing statements. In this study, therefore, verbal conditioning was at
least as effective as traditional psychotherapy in the elicitation of
feeling statements.

Group Therapy

The shortage of therapists for individual therapy during and
immediately after World War II was in large part responsible for the
evolution of group psychotherapy techniques. With an ever-increasing
number of people seeking psychotherapy today, the use of groups provides
an individual with a number of persons with whom to interact in a thera-
peutic way. Yalom (1970) suggests that a group provides a social micro-
cosm which allows for a corrective emotional experience while trying out

new behaviors. One is also given the opportunity to give help to
others in a group setting, which, according to Yalom (1970), can itself
be therapeutic. Bednar and Lawlis (1971) in their review of empirical
research in group psychotherapy found results consistent with the view
that group therapy is an effective means toward client improvement.

In some cases, operant conditioning principles have been applied
very successfully to group interaction. Liberman (1970, 1971) rein-
forced certain types of statements in a study of the development of
group cohesiveness--also termed intimacy, solidarity, or affection.
In the experimental group the therapist used social reinforcement tech-
niques to facilitate cohesiveness, while in the comparison group a
therapist closely matched in several traits with the other, used a more
conventional approach. The experimental group members showed more signs
of cohesiveness, independence from the therapist, quicker symptom remis-
sion, and greater personality change than did the control group.

Most group studies using behavior modification have relied on the
efforts of a therapist or group leader to provide reinforcement of the
responses of group members. However, Wolf (1961) has suggested that
therapists in a group situation may become the focus of attention,
fostering an antitherapeutic reliance on them by group members. In
support of this, Salzberg (1961) found that verbal interaction by group
members is inversely related to the frequency of the therapist's inter-
ventions. Another factor to be considered in therapist-led groups is
the difficulty in controlling for therapist differences and the biasing
effects in research.

As a result, there have been attempts to replace the therapist
with a mechanical feedback apparatus as the reinforcer. Hastorf (in

Krasner and Ullman, 1968) used sets of lights to manipulate the leader-
ship hierarchy of four-person groups that were given the task of "solv-
ing problems in human relations." Each subject had a red and a green
light in front of him. Subjects were told that their green light would
go on when they made a facilitating statement, and that the red light
would light up when their statements hindered group process. Actually
the experimenters were controlling the lights in such a way that the
target person was manipulated into leading the group.

Krueger (1971) attempted a therapeutic modification of verbal be-
havior by using light flashes which could be exchanged for primary
reinforcers. Using rather loosely-defined verbal response categories
with male delinquents, a peer-reinforcement condition increased response
rates where reinforcement was administered by one of the group.

<div align="center">Modification of "Here and Now" Affect,

Feedback and Empathy Verbalizations

in Leaderless Groups</div>

Truax and Carkhuff (1967) have gathered a great deal of support
for the contention that interactions characterized by empathy, nonpos-
sessive warmth, and genuineness are the most significant factors
related to client improvement in either individual or group psycho-
therapy. Yalom (1970) has emphasized that group members need to
express their feelings toward others in the group as they arise ("here
and now"), and to provide feedback for each other as they test the
appropriateness of their behaviors.

With these curative factors in mind, Fromme, Whisenant, Susky, and
Tedesco (1974) sought to use the techniques of verbal conditioning in a

group setting to enhance the interpersonal interaction process. Five categories of verbal responses were selected that could be easily and reliably judged. These included "here and now" expression of feeling, giving and asking for feedback about the effects of a person's behavior, and the use of empathic statements. Four-person groups of college students were instructed to engage in interpersonal interaction according to these five categories. These instructions were considerably detailed, and a summary of the response categories was listed on an index card in front of each subject. In the experimental condition a digital counter and red light was in front of each subject, as well as the instructions. Whenever a subject said something that corresponded to one of the reinforceable categories, his counter was advanced one digit. The counter made an audible click so that the other group members could learn vicariously what was expected of them. If three minutes elapsed in which no one in the group got a click, all four red lights momentarily flashed on. If one group member fell behind the person having the highest number of counts by ten, then the light of that person who was behind was turned on until he caught up. The groups were given the same instructions and observed for the same period of time. A tally of the number of reinforceable responses was made during observation of the control groups and compared with the data from the experimental groups.

Results over one session for each group indicated as predicted that the experimental groups with the feedback apparatus did emit significantly more of the categorizeable responses, an average of 9.75 per person. In fact, the subjects in the control condition emitted scarcely any responses that would have been reinforceable, 0.85 per person. A

test of the reliability of the response categories yielded an index of 93% interjudge agreement, suggesting that these categories can be reliably judged.

In a partial replication of this study, Fromme and Close (1974) found similar results adding a warm-up procedure to the instructions. Groups with the feedback apparatus averaged 10.04 responses per person; groups without feedback averaged 2.58. The present study used the same instructions, response categories and apparatus as the Fromme et al. studies, and included warm-up procedures on the initial and final sessions.

A major finding of the Fromme et al. studies was that detailed instructions and warm-up alone were not sufficient to evoke extensive use of the categories. This result seems closely related to task structure and the amount of information and incentive provided in the experimental condition.

Sources of Information and Incentive

Instructions, application of reinforcement and modeling effects are the three most important sources of information and incentive found in both of the Fromme et al. studies, and in the present one. Whalen (1969) also demonstrated the importance of modeling and detailed instructions in eliciting interpersonal openness from subjects in a group setting. The 128 subjects were divided into groups of four, under four conditions, with no reinforcement given during the sessions. Two of the conditions involved the groups being shown a film of four people interacting in an open fashion, with one condition receiving additional detailed instructions and describing interpersonal openness, the other

with minimal instructions. Two groups saw no modeling film, but were given the same detailed and minimal instructions, respectively. Results indicated that only subjects in the group exposed to both film and detailed instructions tended to engage in the desired behavior, according to 14 categories devised to include all types of interaction.

In the Fromme et al. studies the instructions were designed to initiate or facilitate intention to perform; and to direct the subject's attention to the content of the categories. Additionally, modeling effects were presumed to have been present in the examples (symbolic models) given in the instructions and in the observation of other group members' use of the categories. Thus the instructions served both an exhortative and descriptive function.

And yet, in the absence of the feedback apparatus, groups made scarcely any use of the categories. This lack of effect of detailed instructions alone can perhaps be accounted for by the novelty and complexity of the response categories. It is also possible that subjects were not easily persuaded that expression of "here and now" affect would not bring aversive consequences. Instructions to engage others in an open and personal fashion in the experimental situation was possibly threatening and embarrassing.

Reinforcement of the correct responses in these studies served an important informational function. Skinner, in a personal communication cited in a paper by Matarazzo, Saslow and Pareis (1960) considers the response plus the reinforcement to act as a discriminative stimulus, conveying primarily information to the subjects. Another function of the feedback apparatus was motivational in the more usual sense of "reinforcement." Also the counters and lights, visible to all the

subjects, made the situation a competitive one and kept the subjects mindful of the experimenter's earlier exhortations.

Schedules of Reinforcement in Verbal Conditioning

A very important consideration in operant conditioning research is the effect of various schedules of reinforcement on the functions of acquisition and extinction. Early studies in verbal conditioning using simple response classes found the effects of different schedules on these two functions to be quite similar to those typical of operant conditioning with animals. Acquisition and extinction were relatively quick when a continuous schedule was used. Partial reinforcement had the effects of: (1) requiring more trials but fewer reinforcements in acquisition; (2) initially speedier extinction, but overall the least rapid; and (3) fixed-ratio schedules sustained responding quite well (Kanfer, 1954; Kanfer and Marston, 1962; Kanfer, 1958; Webb, 1963; Spivak and Papajohn, 1957; Fattu and Mech, 1955; Weiss, Krasner and Ullman, 1960; Grant, Hake and Horseth, 1961).

Complex response classes, on the other hand, have produced much more varied results. Salzinger and Pisoni conditioned self-references in an interview with schizophrenics (1968) and normals (1960). The response class consisted of all statements beginning with the pronouns "I" or "We" which were followed by an expression of affect. Reinforcers were verbal agreements; "mmhm," "I see" or "yeah." A continuous schedule was used, and both acquisition and extinction were completed in one session of 60 minutes. Results showed a linear relationship between number of reinforcements and number of responses in extinction.

Williams and Blanton (1968) used the same response class, but found that acquisition was more gradual and occurred over several sessions. Moos (1963) conditioned independence and affection statements in an interview with head nods and "mhmm" as reinforcers. A session without the reinforcement conducted 24 hours later showed no evidence of an extinction effect. Rogers (1960) conditioned positive self-references with head nod and "mhmm," and found that extinction was retarded.

Heckmat (1971), using the same reinforcers as Salzinger and Pisoni (1960), employed intermittent and continuous schedules in an interview situation. Under continuous reinforcement, acquisition and extinction were quite similar to earlier studies. Intermittent schedules, however, showed no significant effect on rate of acquisition, but were found to be significantly more resistant to extinction.

Stommel (1974) used data from the first nine sessions of the present study in observing acquisition and extinction of the Fromme et al. response classes. The nine sessions were divided into four phases: baseline (session 1); acquisition (sessions 2-4); extinction (sessions 5-7); and reacquisition (sessions 8-9). It was found that acquisition in the partial reinforcement group was retarded by the 33% schedule, with response rate dropping off sharply in the extinction phase. The continuous reinforcement group, on the other hand, showed no extinction effect, plus a significantly higher response rate in sessions four (3rd acquisition) through seven (3rd extinction). It was concluded that resistance to extinction did not require use of partial schedules with these particular response classes.

Generalization of Conditioned Verbal Responses

Perhaps the most important test of verbal operant conditioning as
an analogue to verbal psychotherapy is whether a behavior learned within
a specialized setting will transfer to new situations. Generalization
of changes occurring in the therapy session to other life situations is
crucial. If verbal conditioning is to be considered an effective
approach to therapeutic change, generalization effects must be convinc-
ingly demonstrated. However, reviews of the area reveal that evidence
concerning the transfer of successfully conditioned verbal responses to
new settings is neither extensive nor conclusive (Kanfer and Phillips,
1970; Greenspoon, 1962; Williams, 1964).

Rogers (1960), in a quasi-therapeutic setting, was able to success-
fully condition self-references in 36 male college students using "mhmm"
and head nods as reinforcers. There were six ten-minute sessions where-
in the subject was asked to discuss his personality characteristics in
a free-responding manner. Generalization of positive self-references,
as defined by the difference between a battery of four personality tests
administered prior to and following the conditioning sessions, failed
to occur.

Using the same reinforcers, Moos (1963) successfully conditioned
independence and affection statements in 20 female undergraduates, but
failed to find generalization to any significant degree.

Lanyon (1967) attempted to condition responses to "content" words,
here defined as references to one's parents, and "affect" words, as
defined by Ullman and McFarland (1957), in 20-minute sessions. Subjects
were asked to freely recall early childhood experiences which they

considered meaningful, and were reinforced by head nods and "mhmm"; for content in group I and affect in group II. Two control groups were administered noncontingent reinforcement at a constant interval. Subjects were then taken immediately to another room and asked, by a different experimenter, to complete a 100-item sentence completion blank orally. This second phase of the task constituted a test for transfer of training effects. Results showed that content words could be conditioned by this method, while affect words could not. No transfer of training effects were found.

Dinoff et al. (1960), in a group therapy situation with hospitalized schizophrenics, conditioned references to self, therapist, environment, and the group in 12 male schizophrenics. Groups conditioned to personal references (P), and group references (G) separately, were combined and a comparison rate taken. No generalization was found.

On the other hand, generalization has been demonstrated by some researchers. Dicken and Fordham (1967) reinforced positive self-references and statements of positive affect with "mhmm" in their experimental (E) group. In a second group (CI), subjects were interviewed and responded to according to the tenets of "client-centered" therapy. In a third group used as a control, no interview was conducted and no reinforcement given. Interviews varied from 20 to 30 minutes and were spaced one week apart for either seven or eight weeks. The California Personality Inventory (CPI) was administered prior to and following the sessions. The results showed the experimental group as having the greatest change in CPI scores from pre- to postexperimental administration. Further, the subjects in the experimental group tended to talk more in discussions than did those in the other conditions.

Another demonstration of generalization effects was made by Hoffnung (1969). He explored the differential effects of five forms of therapy-like interventions on the conditioning and transfer of affective self-reference statements in a role-played interview. The interventions during the 40-minute session were designed to provide differing levels of discriminative cue potency and were, from least to most potent: Condition I, "mhmm"; Condition II, Echoic, reflecting the mood and content of S's affective self-reference (ASR); Condition III, in which E restated or rephrased S's ASR; Condition IV, combined "mhmm"-echoic; and Condition V, combined "umhmm"-paraphrasic. Immediately preceding and following the role-playing, the subject was required to tell three two-minute stories to TAT cards. Results indicated that ASRs increased for all experimental conditions, with no differential effects between the types of interventions showing significance. In addition, transfer of training was shown by the greater production of ASRs by the experimental conditions than by the control conditions.

Finally, Ullman, Krasner and Collins (1961) conditioned emotional words, as defined by Ullman and McFarland (1957), in three groups of 10 "continued treatment" hospitalized males. Subjects were seen for two sessions per week for two weeks, during which time they were asked to make up five-minute stories to four pictures depicting neutral scenes common to a hospital setting. Ten subjects were reinforced by "umhmm" in the Positive-Personal condition; another group of 10 by advancing a mechanical counter, in the Impersonal-Unstructured condition; and the third group not at all. The subjects were evaluated pre- and postexperimentally by their group therapist, using a scale designed to

monitor patient behavior over the most recent four sessions. There was a significant gain in rating only in the Positive-Personal group.

The Present Study

The purpose of the current study was twofold:

1. To investigate whether generalization of verbal conditioning to certain affective response categories in group therapy-like sessions could be shown to occur; and

2. To compare the possible effects of partial versus continuous reinforcement schedules on response levels in the generalization sessions.

Because the reduction of the goals of psychotherapy to observable sub-goals seems desirable, the response categories were chosen on the basis of therapeutic potential and a universality in terms of generally adaptive interpersonal behavior. Instructions were highly detailed in order to maximize incentive and information, and mechanical counters and lights were used to provide reinforcement and discriminative cues in order to increase response rate. The general method of Fromme et al. (1974) was used, but was modified to accommodate an acquisition, extinction, reacquisition, and generalization design, while comparing the possible effects of partial versus continuous schedules of reinforcement.

CHAPTER II

METHOD

Subjects

Subjects were 32 undergraduates enrolled in an intermediate-level
psychology course. An initial pool of 50 volunteers was reduced through
individual interview to 8 who could commit themselves to nine one-hour
sessions spaced evenly over three weeks. The remaining 24 subjects were
selected from the same class, but were required only to commit them-
selves for one sixty-minute session.

All subjects with previous counseling or encounter group experience
and those with previous acquaintanceship other than in class were ex-
cluded. The eight experimental subjects (ESs) were given a block of 100
points for participation, and the test subjects (TSs) were given 20
points (800 points were required for an "A" in the course).

A coin toss determined assignment of the randomly formed groups to
the reinforcement conditions. The resulting two groups were labeled
according to the type of schedule: CRF for continuous reinforcement, and
PRF for partial reinforcement. The ESs then participated in one base-
line, three acquisition, three extinction, two reacquisition, and one
generalization sessions.

The 24 subjects selected as TSs for generalization were assigned
randomly in groups of three to each of the eight ESs, comprising eight

groups of four who met for one sixty-minute session within three days after the last reacquisition session.

Apparatus

The experimental room was nine feet by fifteen feet with a one-way mirror centered in one of the longer walls. Subjects were seated in a semicircular arrangement around a small table, facing the one-way mirror. Each session's conversation was video-tape recorded and simultaneously monitored by the experimenter via the one-way mirror and a microphone on the discussion table. A four-channel relay control panel, with push buttons operating a multiple event recorder, was used to record those instances where the experimenter judged that a group member's statement fit one of the reinforceable categories. When reinforcement was applied, a digital counter placed in front of each subject was advanced, producing an audible click. A red light attached to each subject's counter was used to provide two additional types of discriminative cues in sessions where feedback was provided: (1) All four lights were automatically flashed by an interval timer at the control panel whenever three minutes elapsed with no reinforceable responses having been made; (2) a subject's light was switched on whenever he fell ten or more responses behind the subject with the highest count, remaining lighted until he caught up.

Response Categories

Response categories were chosen to include the expression of current feelings, seeking others' expression of feelings, giving and asking for feedback on current behavior, and the use of empathy

statements. Five categories were used, operationally defined as follows:

1. Giving Feeling--any verbal expression of one's current feelings as elicited by members of the group. This expression must be explicit and cannot merely be implied in order to fit the category. It does not count for a group member to express a feeling, even a current feeling, that was produced by an outside situation. This definition also excludes cognitive, conative and perceptual state verbalizations such as "I think," "I wish," or "I hope."

2. Seeking Feeling--asking for information from another group member regarding his feelings, as defined in Category 1.

3. Seeking Feedback--seeking information in regard to the effects of one's own behavior on the feelings of the rest of the group members.

4. Giving Feedback--statements made to another group member describing or labeling one's own perception of that group member's current behavior or the group's behavior in general.

5. Empathy--any attempt to clarify, by means of verbal labeling, the expressed feeling states (as defined in Category 1.) of another member in regard to what transpires in the current situation.

In the sequence of interactions, only those statements that added or sought new or additional information about the current situation and accompanying subjective states were defined as reinforceable. Current situation was defined as including only those 60 minutes of interaction per session.

Instruction cards (Appendix A) summarizing the five response categories were taped to the discussion table in front of each subject.

Procedure

Each ES group met separately for nine sessions spaced over a period of three weeks. The CRF group met on Tuesdays, Thursdays, and Saturdays. The first session was the baseline session, and the rest followed an acquisition, extinction, reacquisition design. After the ninth session, the members of the ES group were each assigned three randomly chosen TSs, and these eight groups met within three days of session nine, as scheduling would allow.

During the baseline session neither group received reinforcement. In the first acquisition session both received 100% reinforcement, but in the following two sessions the CRF group received 100% and the PRF 67% and 33%, respectively. The same schedules were followed in reacquisition. Variable ratio schedules (Appendix B) were generated mathematically for each PRF subject by means of a random number table.

During partial reinforcement sessions a procedure was worked out which involved an assistant following the generated schedule and reinforcing subjects. The experimenter would signal the subject's seat number when a reinforceable response was made, and the assistant would check the schedule and advance the counter when appropriate.

Instructions

After being seated prior to sessions one and two, subjects were given detailed instructions (Appendix C) suggesting the social desirability of sharing one's feelings, being empathetic and providing feedback. Definitions of each of the response categories were explained, with illustrative examples. The general task was explained as "getting

to know one another on a personal basis," and the subjects were requested to express themselves by making use of the response categories. They were informed of being monitored and observed.

In session two, where feedback was provided, an explanation of the meaning and function of the feedback apparatus was given. For the remaining sessions, subjects were given brief instructions reminding them of their task, and where appropriate they were informed of any change in feedback procedure (extinction and partial reinforcement).

A warm-up procedure similar to that used by Fromme and Close (1974) was conducted prior to the baseline and the generalization sessions. The subjects were paired up and asked to hold hands and look into each other's eyes for a short while, and then to verbalize current affective states. Replies were then evaluated in terms of the response categories to provide a brief learning experience whereby the response categories could be more easily recognized.

At the end of the baseline and generalization sessions each subject filled out a five-item questionnaire (Appendix D) designed to measure subjective perception of their own behavior and feelings during the session.

Scorer Reliability

A reliability check was made between the experimenter and another scorer who used the same category system in a later study. Videotapes of the first acquisition session of each group were used. This material was divided into scoreable units (complete thoughts) of which 868 units were numbered and independently judged by each scorer as to whether or

not they fit one of the response categories. There were disagreements on 39 of these units, yielding a reliability of 96%.

Descriptive Analysis of Response Categories

In order to obtain a descriptive analysis of the type of interaction occurring in the reinforcement groups of the present study, a comparison was made with the research of Whalen (1969). She utilized modeling and detailed instructions to elicit interpersonal openness from subjects in four-person groups. Content analysis was carried out through 14 categories meant to be inclusive of all types of statements. These 14 categories were further broken down into six summary categories and displayed graphically. Included in the six categories were the following types of statements:

1. Personal Discussion--including statements of personal self-disclosure, immediate feeling and personal questions;

2. Feedback--which covered positive, negative and neutral feedback, as well as whether the communication was accepted or rejected;

3. Impersonal Discussion--involving impersonal self-disclosure, extra group process and impersonal questions;

4. Group Process--meant to categorize all references to the experimental situation;

5. Descriptive Aspects--involving agreement or disagreement, laughter, silence or interruption;

6. Unscoreable Utterances--included were inaudible and unintelligible statements.

Whalen (1969) found that the film and detailed instructions (F-DI) and no-film and minimal instructions (NF-MI) were the highest and lowest,

respectively, in producing personal interactions, as defined by her categories.

These two groups of Whalen's study were used for comparison with the groups of the present study. Two acquisition sessions of both the CRF and PRF groups were videotaped and analyzed according to Whalen's (1969) categories. Alternate 15-minute segments of the first and second acquisition session for each group were taped, comprising a total of 60 minutes each for CRF and PRF groups. The sequence was: CRF, first acquisition, second and fourth 15 minutes; CRF, second acquisition, first and third 15 minutes; PRF, first acquisition, first and third 15 minutes; PRF, second acquisition, second and fourth 15 minutes.

CHAPTER III

RESULTS

Group means and standard deviations for the use of response cate-
gories are presented in Table I.

TABLE I

MEAN USE OF RESPONSE CATEGORIES
BY ES AND TS

	Experimental Subjects				Test Subjects	
	Baseline		Generalization			
	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD
CRF	5.25	2.28	24.25	11.26	15.00	8.52
PRF	12.50	4.03	34.75	9.57	17.17	7.18

The response totals for ESs were analyzed by a 2 x 2 repeated mea-
sures analysis of variance (AOV), with repeated measures on the base-
line and generalization sessions (see Kirk, 1968). Factor A was type
of reinforcement and factor B was baseline versus generalization ses-
sions. Results are found in Table II.

The AOV yielded significant results for factor B, baseline versus
generalization sessions (Table II). In fact, differences in response

TABLE II

ANALYSIS OF VARIANCE BASELINE AND
GENERALIZATION RESPONSES, 2 X 2

Source	SS	df	MS	F
Between Ss				
Reinf. (A)	315.06	1	315.06	3.68
Ss W. Grps.	514.38	6	85.73	
Within Ss				
Bas. vs. Gen.	1701.56	1	1701.56	22.95*
A x B	10.56	1	10.56	.14
B x Ss W. Grps.	444.90	6	74.15	

*p < .01

totals for subjects across these two sessions was such that very little overlap occurred between the two distributions of scores. This suggests that generalization occurred for the ESs, and that it was psychologically as well as statistically significant.

The A factor, type of reinforcement, failed to reach significance at the p < .05 level. However, the PRF group outperformed the CRF group during both baseline and generalization sessions. Since this study is exploratory, it should be noted that this factor barely failed to reach significance at the p < .10 level.

Response totals for ESs in the baseline session and TSs were analyzed with a 2 x 2 AOV, using an unweighted means analysis for the unequal cell sizes (see Kirk, 1968). Factor A was type of reinforcement

schedule and factor B was ESs versus TSs. Results are found in Table III.

TABLE III

ANALYSIS OF VARIANCE ES AND TS
RESPONSES, 2 X 2

Source	SS	df	MS	F
A	133.30	1	133.30	2.36
B	312.40	1	312.40	5.54*
AB	38.76	1	38.76	.69
W. Cell	1577.42	28	56.34	

*p < .05

The AOV yielded a significant B factor, ESs versus TSs (Table III). This result indicates that the TSs made significantly more use of the response categories than did the ESs in the baseline session. In turn, this suggests that the "seeding" of the trained ESs into the generalization groups had the effect of raising response totals of the TSs above that level found in a group of untrained baseline subjects.

The A factor, type of reinforcement, failed to reach significance. However, it should be noted that the ESs and TSs in PRF outperformed their counterparts in CRF, and that the factor barely failed to reach significance at the p < .10 level.

A planned comparison between the mean of the TSs assigned to CRF and those in PRF was carried out using a t test for matched pairs (see Hays, 1968).

The comparison failed to achieve significance, suggesting that the ability of ESs to influence the TSs in their groups was not significantly affected by the type of reinforcement schedule used during training.

Data from the questionnaire administered to subjects can be found in Appendix F. Those questionnaires administered to ESs were analyzed using the same 2 x 2 repeated measures AOV as in the analysis of response categories. Factor A was type of reinforcement, factor B was baseline versus generalization sessions. Analysis was done for all five questionnaire items; however, only those reaching significance are reported.

Results of the AOVs reached significance on Item two (extent of desire or intent to use the categories) (F = 10.59, df = 1/6, p < .05), factor B, baseline versus generalization. This suggests that the ESs desire to use the categories significantly increased in the generalization sessions.

Additionally, the AOV for Item four (extent of enjoyment of using the categories) yielded a significant B factor (F = 9.39, df = 1/6, p < .10). This result indicates that ESs significantly increased in their enjoyment of using the response categories during the generalization sessions.

The questionnaire data was further analyzed by a planned comparison using a t test for matched pairs, between the means of the TSs in CRF and PRF. Those reaching significance are reported by questionnaire item.
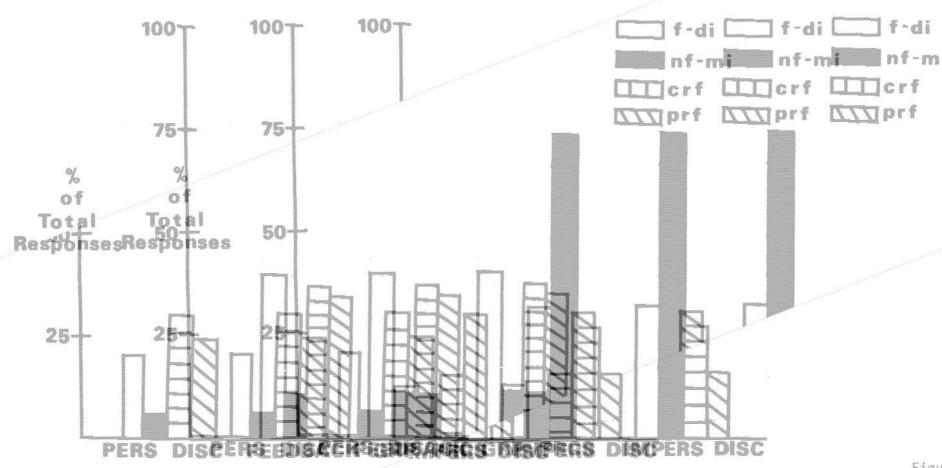
The comparison reached significance on Item five (worthwhileness of using the response categories), suggesting that the TSs in CRF felt that using the response categories was more worthwhile than did the TSs in PRF.

The data from the descriptive comparison of the CRF and PRF groups with the F-DI and NF-MI of Whalen's study is displayed graphically in Figure 1. Only four of the six summary categories devised by Whalen were used, as two were of rather low interest to the present study. Consequently, in calculating percentage of total responses, Whalen's (1969) totals were considered as a percentage of the four categories used.

Results of the descriptive analysis using the categories devised by Whalen (1969) show that the two groups of the present study were just as personal in their interaction as was the best of her groups (Figure 1).

In order to further observe the type of interaction occurring in the CRF and PRF groups, a percentage of total responses breakdown of the five response categories used in the present study was performed (Table IV). The full 60 minutes of the first acquisition sessions for both groups was videotaped and responses were recorded. The material was divided into scoreable units, resulting in 817 units, and were judged as to which of the five categories they fit.

The CRF and PRF groups performed comparably in using Category two (Seeking Feeling), Category three (Seeking Feedback), and Category five (Empathy). However, the PRF group used Category one (Giving Feeling) approximately three times as often as did the CRF group. At

Figure 1. Comparison of Summarized Observed Categories (PERS DISC = Personal Discussion; GRP PROCESS = Group Process; IMPERS DISC = Impersonal Discussion)

TABLE IV

BREAKDOWN OF PERCENTAGE OF TOTAL
RESPONSES BY CATEGORIES

Percentage of Total Responses (817)	
CRF	PRF
1 - 12.90	1 - 33.54
2 - 33.87	2 - 31.25
3 - 8.06	3 - 14.58
4 - 40.32	4 - 16.67
5 - 4.84	5 - 4.17

the same time, the CRF group made statements fitting Category four
(Giving Feedback) over twice as frequently as the PRF group.

These results suggest that the PRF group made a high number of
"feeling only" statements, but did not associate these feelings with
their perceptions of other group members' behavior as often as the CRF
group did.

CHAPTER IV

DISCUSSION

Baseline response totals were considerably greater than those re-
ported by Fromme et al. (1974) and Fromme and Close (1974), where the
nonreinforcement groups averaged 0.89 and 2.58 responses per person,
respectively. Similar procedures were used in both studies, but sub-
jects in the present study were taken from an intermediate-level psy-
chology course. These students were believed to have been much more
task-oriented and sophisticated than the introductory psychology
students of the previous study. Apparently they took the task far more
seriously because of the considerable course credit given, higher than
in the Fromme et al. studies, and because of the commitment to meet for
ten sessions.

The PRF group made much more use of the categories in the baseline
session than did the CRF group. This indication of task-orientation is
further supported by the fact that one PRF subject scored much higher
than all others in session one (Appendix E). He was also observed to
be particularly task-oriented both in providing feedback to other mem-
bers, and in urging others to use the categories. His comments can be
viewed as serving the same purpose in the baseline session as the
lights and counters did in acquisition sessions.

The response categories were broken down into percentage of total
responses in order to provide a picture of the type of interaction

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occurring in the groups. As shown in Table IV, the two groups differed primarily in their use of category one (Giving Feeling) and category four (Giving Feedback). Although the PRF group had a very high rate of responding in the baseline and first two acquisition sessions (Appendix E), their extensive use of "immediate feeling" statements shows a relatively unsophisticated use of the categories. This is in contrast to the CRF group, who made more use of the category involving feedback on other's behavior, category four. In other words, the PRF group did not connect their feelings to perceptions of other's behavior.

It is possible that this difference in sophistication is related to subsequent trends in response rates of the two groups (Appendix E). The PRF group started quite high, but dropped off sharply in the 33% reinforcement and extinction sessions. This is an indication that the prevalence of individual feeling statements did not constitute the type of interaction able to sustain itself in a 33% partial reinforcement or extinction situation. The CRF group, on the other hand, showed more feedback types of responses--i.e., more sophistication--and an increasing rate of response throughout all the acquisition sessions.

A further implication of the difference in category usage can be found in the questionnaire results. The TSs in the CRF groups reported that they found the experience more worthwhile than did the TSs in the PRF groups. It is likely that the types of statements made in the PRF group contributed to the lower worthwhileness rating given by TSs assigned to these ESs.

Both ES groups significantly raised their level of responding in the generalization sessions. The very clear statistical significance obtained, plus the lack of substantial overlap between baseline and

generalization scores, shows that generalization was demonstrated.
These results indicate a psychological as well as a statistical signi-
ficance. Questionnaire data shows that the ESs in the generalization
groups showed an increase in desire to use the categories, and in their
enjoyment of them.

The PRF group of TSs significantly outscored the baseline group,
while the CRF group was very close to doing significantly better. The
presence of ESs in the generalization groups acted to raise the scores
of TSs in two ways. First, the ESs were experienced in use of the
categories and were able to provide a model for the untrained TSs.
Second, the ESs were observed to refocus group discussion to conform to
the categories when the group lagged or strayed. Thus the ESs actively
induced the TSs to use the categories.

The response totals of the TSs were much greater than those report-
ed by Fromme et al. (1974) where the nonreinforcement group, led by a
trained graduate student as therapist, averaged 12.75 responses per
session. The ESs trained in the current study, therefore, were as
effective at the tasks of inducement and modeling as trained therapists
were. Apparently their extensive use of the categories over the nine
sessions led them to be acutely aware of the task at hand, particularly
in a group of untrained subjects.

Since both ESs and TSs failed to differentiate significantly be-
tween CRF and PRF conditions, it would seem that the type of reinforce-
ment has little effect on generalization of the response categories.
However, this difference was partially masked by the variability of the
the scores for the ESs. Although these results imply that the type of
reinforcement schedule used is not of great import in the demonstration

of generalization, further research might aim at parceling out those factors contributing to the variability of scores among group members.

CHAPTER V

CONCLUSIONS

In future research using these response categories, a shaping procedure might be considered. Those categories requiring less sophistication in interpersonal skills--for example the immediate feelings, category one, and the feedback categories of two and three--could be conditioned initially. As the rate of responding increased in these three categories, gradually diminishing partial reinforcement schedules could be used to phase them out. At the same time a gradually increasing set of partial reinforcement schedules could "phase in" the other two categories. Such a procedure might prevent groups from using one category to the exclusion of others, thereby being less sophisticated in their group interaction.

In order to bring about constructive change, any psychotherapy must foster new behavior capable of generalizing to outside, less specialized, settings. Verbal conditioning must meet this requirement if it is to be considered an alternative to less objective methods. Prior research in generalization of verbal conditioning, however, has either failed to demonstrate the effect, or has done so utilizing "paper and pencil" measures as the sole dependent variable. The present study, on the other hand, strongly suggests that conditioning of complex affective verbal responses can be shown to generalize. Particularly important is

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the demonstration that generalization of the observable subgoals of behavior modification, as opposed to the more vaguely defined goals of traditional therapy, is possible.

The results of this study suggest three major conclusions:

First, that complex affective verbal responses capable of generalizing from one setting to another can be conditioned.

Second, that the operant techniques used in the present study are an effective means for demonstrating generalization of conditioned affective verbalizations.

Third, that not only does the learning of affective verbalization generalize, it also has the potential for a constructive effect on the verbal behavior of others in the generalization setting.

The techniques used in this study would seem to be very useful in parceling out the factors involved in therapy group processes. In fact, because the goals are clearly observable, the technique seems to be invaluable for training therapists in both the delineation of group process and in reinforcement of selected types of behavior. Further, it has potential application as an adjunct to the practice of psychotherapy, in both experiential and therapeutic groups.

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APPENDIX A

BASIC INSTRUCTION CARDS

Category 1.   Any verbal expression of _your_ current feelings resulting

from interaction with the group.

Category 2.   Seeking information from another group member regarding

his feelings.

Category 3.   Seeking information regarding your _own_ behavior.

Category 4.   Statements to another group member regarding _your_ percep-

tion of _his_ behavior.

Category 5.   Any attempt to clarify the expressed feelings of another

person.

HERE & NOW

APPENDIX B

SAMPLE VARIABLE RATIO SCHEDULES

66%

1 0 1 1 0 1 1 1 1 0 0 1 0 1 1 1 1 1 0 1 1 0 0 1 1 1 0 1 1 0

2 2 2 0 2 0 0 2 2 0 0 2 2 2 2 2 0 2 0 0 2 2 2 0 2 0 2 2 2

0 3 3 3 3 0 3 0 3 3 3 0 3 3 3 3 3 0 3 3 0 0 3 3 0 3 3 3 0 0

4 4 0 0 4 4 4 4 4 4 0 4 0 4 4 0 4 0 4 4 4 4 0 0 4 4 0 4 0 4

(Each space represents a potential reinforceable response occasion for one of the subjects. Where a zero appears, no reinforcement is administered. Schedules are numbered according to subjects' seating arrangement. The person who administers reinforcement checks off appropriate spaces as reinforceable responses are made. Schedules were constructed in such a way that no more than six responses would be reinforced in a row, nor more than two nonreinforced in a row.)

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APPENDIX C

INSTRUCTIONS

This experiment is designed to help you get to know each other on a personal basis. A good way to do this is by sharing with each other your feelings arising from the current situation. If another group member's actions pleases or displeases you, the best way to get him to continue or to stop is to make him aware of your feelings by telling him. The more specific you can be, the more clearly your message will come across. When expressing your feelings to another person, it is best if you stick to the "here and now." No one can possibly change the past. One very important thing that you can give to a person is empathy and understanding. When you genuinely try to understand someone's feelings, this will naturally make him feel closer to you.

There are some things all of us do which inhibit personal communication. For example, we often make value judgments of "good" or "bad" or speculate about motives as in, "You just said that because you were angry." Finally, we often avoid involvement through information-gathering as in "How are you classified?" or "What's your major?"

These five categories (at this time the experimenter points to the cards in front of each subject) are specific statements of what I've been talking about. They are ways of interacting which have been shown to be effective in establishing and keeping close relationships. They are:

Category 1. Any verbal expression of your current feelings result-
ing from interaction with the group. "I appreciate your interest" is an
example that fits, while "I feel good because I just aced an exam" does
not fit because it relates to something outside the group.

Category 2. Seeking information from another group member regard-
ing his feelings. For instance, "How did you feel when she ignored
your question?" References to feelings outside the current situation
such as, "Have you ever felt that way before?" do not fit this category.

Category 3. Seeking information regarding your own behavior. A
question like, "Is my insistence making you angry?" fits, while "Do
people who talk a lot bother you?" does not because it refers to people
in general and not your specific behavior.

Category 4. Statements to another group member regarding your
perception of his behavior. For example, "I think that was really a
perceptive comment." An example that would not fit is "He's really
coming on strong," because it isn't made directly to the person being
discussed.

Category 5. Any attempt to clarify the expressed feelings of
another. "Are you saying that you feel better now?" is a good example,
but "Yeah, I guess so" does not fit because it does not clarify a feel-
ing.

You can see that all these categories refer to the current situa-
tion: the interaction that will take place between you in this room.
Also they are about feelings, not ideas. What I am asking you to do is
to interact with each other for sixty minutes using these categories.

I will monitor the group through the one-way mirror and the micro-phone. What you say will be recorded, but will be kept confidential. It will be used only in this experiment, then erased.

For Feedback Sessions

Whenever someone makes a statement fitting any one of these cate-gories, I will activate the counter in front of that person. It makes a loud click which will let you know that you are in fact using these categories in your interaction. The counter registers your total and if anyone falls too far behind, the red light on his counter will be turned on. This will be a sign that either this person may need assistance, or that someone is dominating the conversation. If no one gets a click for three minutes, all lights will flash on; they will do so every three-minute period until a click is registered. This will be a sign that the group as a whole is not using the categories and that you should change the nature of your interaction.

Finally, I realize that the apparatus makes for an artificial situation, but it is the least distracting, nondisruptive way we have found to give you information concerning your interactions while those interactions are taking place.

For Partial Reinforcement Session
(E.g., 66% Reinforcement)

Again today the purpose of this study is to help you get to know each other on a personal basis. I am asking you to interact for a period of 60 minutes using these five categories (pointing to cards).

During this session we will again provide you with feedback about how well you are using the categories. However, today the procedure will be somewhat different. Two-thirds of the time you make a response fitting one of the categories, I will advance the counter in front of you. Let me repeat that. I will advance the counters on the average of two-thirds of the times you use a category. Do you understand exactly what I mean?

Your conversation will be interrupted less, yet we will continue to provide you with feedback on your performance.

(Repeat information about lights.)

APPENDIX D

QUESTIONNAIRE

Name _____

Date _____

Rate yourself by making an X at the appropriate point on each scale.

1. To what extent did you understand the precise meaning of the response categories?

Com- plete- ly	To a great degree	To a large degree	Moder- ately	Some- what	Very little	Not at all

2. To what extent did you _desire_ or _intend_ to use the response categories?

Com- plete- ly	To a great degree	To a large degree	Moder- ately	Some- what	Very little	Not at all

3. How hard did you try to use the response categories?

Com- plete- ly	To a great degree	To a large degree	Moder- ately	Some- what	Very little	Not at all

4. To what extend did you enjoy using the response categories in interacting with the others?

Com- plete- ly	To a great degree	To a large degree	Moder- ately	Some- what	Very little	Not at all

5. To what extent was this session a worthwhile experience for you?

Com- plete- ly	To a great degree	To a large degree	Moder- ately	Some- what	Very little	Not at all

APPENDIX E

INDIVIDUAL RESPONSE TOTALS

	Sessions								
Subjects	1	2	3	4	5	6	7	8	9
PRF									
S1	14	19	29	7	12	3	4	19	26
S2	11	16	18	17	14	4	9	24	27
S3	7	13	18	9	11	6	1	19	16
S4	18	10	19	7	9	7	5	13	15
CRF									
S1	8	27	18	23	28	40	15	18	16
S2	7	16	10	20	36	23	28	24	27
S3	3	11	15	24	24	31	15	29	26
S4	3	13	14	11	7	11	14	17	14

TABLE V

INDIVIDUAL QUESTIONNAIRE RESPONSES

	Item 1			Item 2			Item 3			Item 4			Item 5		
	ES		TS	ES		TS	ES		TS	ES		TS	ES		TS
	Base	Gen	n=3	Base	Gen	n=3	Base	Gen	n=3	Base	Gen	n=3	Base	Gen	n=3
CRF															
S1	5	7	556	3	5	425	3	4	524	2	3	725	4	4	524
S2	6	7	634	5	5	644	4	4	625	4	5	524	5	6	477
S3	5	4	456	4	5	554	3	4	456	4	5	665	4	6	674
S4	5	6	564	3	6	442	4	5	353	3	3	431	5	2	543
PRF															
S1	5	6	342	5	6	335	5	6	423	4	5	213	6	4	422
S2	5	6	454	5	6	655	5	6	555	2	7	442	4	6	563
S3	3	7	364	4	5	463	5	5	653	2	4	364	3	3	363
S4	4	6	554	6	6	647	6	6	444	4	5	242	5	4	414

VITA

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