VERBAL CONDITIONING AND TRANSFER EFFECTS IN AN INTERVIEW SETTING

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ABSTRACT

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IN AN INTERVIEW SETTING

By Calvin R. King, Jr.

A study was designed attempting to (1) condition negative and positive self-references within a series of three 20-minute interviews, using reflection as the verbal reinforcer; (2) demonstrate transfer of conditioning effects to a battery of five self-evaluative measures (two Semantic Differentials, two Q-Sorts, and the IPAT Anxiety Scale) administered pre- and post- interview. Seventy-five Ss were randomly placed in five experimental and control groups, 15 Ss to a group. Group E_1 was reinforced for positive self-references; Group E_2 was reinforced for negative self-references; Group E_3 for both positive and negative self-references; Group C_1 was an interview control group; Group C_2 was a test-retest, no interview control group. The self-evaluative test battery was administered immediately before the first interview and immediately following the last interview, except in the case

of C_2 controls who received the battery on a three to four day test-retest interval.

Self-reference data were subjected to a nested analysis of variance design. Individual comparisons were made among cell members of the Group x Interview x Response interaction. Results confirmed that conditioning had occurred as predicted. Both positive and negative self-references were shown to be amenable to conditioning employing reflection as the reinforcer.

Each self-evaluative measure was subjected to an analysis of covariance. Only changes on the IPAT Anxiety Scale reached significance. However, individual comparisons applied to the IPAT data demonstrated that conditioning did not effect transfer whereas being interviewed did. Thus, all hypotheses regarding transfer were rejected.

Implications of the conditioning results were noted, with specific reference to client-centered psychotherapy and to the concept of shaping as applied to verbal conditioning within therapy interviews. The personal and interpersonal context of verbal conditioning within interviews was stressed.

Comments on the absence of transfer effects attributable to conditioning were made. Reference was made in particular to the concept of stimulus generalization and to the hypothesized desensitization rationale. It was suggested that variables affecting decreased anxiety scores were imbedded within the interpersonal context of the interviews.

In essence, the study again demonstrates that verbal behavior can be modified through reinforcement in a quasi-therapeutic setting, but that the issue of transfer remains equivocal.

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By

Calvin R. King, Jr.

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DEDICATION

To Jeanne, who contributed in so many immeasurable and thoughtful ways to her husband's graduate career, not the least of which was her patient faith and optimism that this dissertation would be completed.

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VERBAL CONDITIONING AND TRANSFER EFFECTS IN AN INTERVIEW SETTING

INTRODUCTION

The past decade has witnessed tremendous growth in the volume and quality of research in psychotherapy as efforts have been directed toward unraveling the "mystery" of this once rather sacrosanct subject and exposing it to rigorous investigation. Among the several strategies employed to seek out and define the variables affecting psychotherapeutic process is the application of the principles and techniques of reinforcement learning. This is the framework of this dissertation.

Krasner (1962, p. 61) states two assumptions involved in a reinforcement learning approach in the study of psychotherapeutic processes:

> (a) Psychotherapy is a lawful, predictable, and directive process which can be investigated most parsimoniously within the framework of a reinforcement theory of learning. (b) The variables which affect the therapy process are the same as those in other interpersonal situations

> which involve the reinforcement, control, manipulation, influencing, or redirection of human behavior.

Hence, psychotherapy, regardless of the expressed or inferred orientation of the therapist, may be subjected to investigation within this framework.

The major overt events in psychotherapy sessions are the words spoken by the patient and the psychotherapist. Research shows that the psychotherapist controls the frequency of many classes of words, phrases, and other aspects of verbal expression by selective attention and responsiveness. The client verbally expresses a thought or action, feeling or attitude. The therapist may or may not respond, and if he does, he may do so in a number of ways, including a verbal response which may serve as a stimulus for a further response from the client. Assuming that the psychotherapist has, in his concept of therapy, some notion as to what the client should and should not be talking about, the therapist responds in such a way as to reinforce some statements and extinguish others (Bandura, 1961, p. 150). In essence, the psychotherapist is manipulating the verbal behavior of his client.

Granting that the therapist can modify the verbal behavior of the client during the therapy hour, associated behavioral changes outside the office should be studied. Kanfer (1961, p. 690), commenting upon this issue, notes that

> the ultimate goal of therapy is to return control over the patient's behavior once again to the patient, after the controlling responses themselves and the behavior on which they are contingent have been modified. Continued self-reinforcement should allow the patient to progressively strengthen those behavioral patterns and new perceptions which have been acquired during the therapy hours.

What needs to be demonstrated, then, is that the modification of verbal behavior during the therapy hour is associated with desirable changes outside therapy, rather than merely demonstrating that the client learns to talk differently with few or no concomitant changes.

However, establishing a relationship between verbal conditioning within the psychotherapy hour and favorable changes in behavior outside the therapist's office is problematic. Winder (1957, p. 320), commenting on a study of the control of verbal behavior, states:

> One line of thought would consider psychotherapy as a complex and not always efficient conditioning process in which the patient learns to talk

> differently and little else. Another line of speculation . . . is that while there are orderly changes in verbal behavior, the essential correlates are changes in the patient's perception of himself as a result of the fact that someone else spends time with him, takes what he says seriously, and shows him respect. Or, one might suppose the reorganization of verbal behavior would be accompanied by substantial modifications in other behaviors, especially those which are talked about.

After some years of research, the issue still remains in doubt:

> Thus, most investigators continue to report successful conditioning, even of complex phenomena. However, evidence for generalization or transfer of such effects is equivocal (Matarazzo, 1965, p. 212).

BACKGROUND

The review of the literature will cover those studies which have employed the verbal conditioning strategy and have sought to demonstrate transfer or generalization effects as an approach to the investigation of the psychotherapy interview. Within this framework, relatively few studies have dealt with both issues, conditioning and generalization, and the results of those studies generally support Matarazzo's conclusion (above).

Rogers (1960), utilizing a quasi-therapy setting, hypothesized that the interviewer can produce changes in a S's self-reference verbalizations by applying simple reinforcements and that such reinforcements can alter a S's concept of himself. A series of free interviews was conducted with 36 introductory psychology students in which they described themselves. Ss were placed in two experimental groups and one control. In one experimental group, Ss were conditioned for positive self-references, with reinforcement occurring via a head nod and "mmm-humm." In the other experimental group, Ss were similarly

reinforced for negative self-references. The controls were not conditioned. Prior to the experimental sessions, Ss received an adjective self-description test and a sentence completion test to induce "set." Pre- and post-interview measures were obtained on the Taylor Anxiety Scale and on a Q-Sort Emotional Adjustment Test. As for the experimental manipulations themselves, Rogers found that negative self-references conditioned, whereas reinforcement prevented positive self-references from extinguishing. On the relationship between conditioning and pre- and post-test scores, the results indicated that conditionability was not related to initial level of either anxiety or emotional adjustment, and that successful conditioning of self-references in the interview did not modify self-references outside the interview or alter scores on tests of anxiety or emotional adjustment. Thus, no transfer effects were found.

Moos (1963) designed a study to determine whether established complex verbal habits could be conditioned in free interview situations, whether this conditioning effect would be retained, and whether it would generalize to a different although similar situation. The S response

categories conditioned were (1) expressions of independence and self-assertion, and (2) expressions of affection. Ss received eight 20-minute sessions, including a preconditioning session with a co-experimenter, a preconditioning session with E, four conditioning sessions with E, a postconditioning session with E, and a postconditioning session with the co-experimenter. In the conditioning sessions, one group was reinforced via a head nod and "mmm-hmm" after each independence and assertive approach statement; a second group was likewise reinforced after each affection approach statement; the controls were reinforced every 30 seconds regardless of what they were talking about. Moos hypothesized that (1) the reinforced categories would increase during the conditioning sessions for the experimental groups but not for the controls, i.e. conditioning would occur; (2) the reinforced categories would be used more frequently in the postconditioning session with E than in the preconditioning session with E, i.e. retention would occur; and (3) the reinforced categories would be used more frequently in the postconditioning session with the co-experimenter than in the preconditioning session with the co-experimenter, i.e., generalization would

occur. The results demonstrated that conditioning and retention occurred. With respect to generalization, an intragroup comparison, using percentage of category used in preconditioning with co-experimenter, revealed a generalization effect for the independence-assertion group but not for the affection group. However, when changes in the experimental groups were compared with the changes in the control group, no generalization was demonstrated, although differences were in the expected direction. Moos concluded that, at best, only a small generalization effect occurred.

In a non-interview situation, Wimsatt and Vester (1963) designed a study to test whether the selective reinforcement of responses to items of the Si scale of the MMPI could affect scores on the G, E, S, and A scale of Guiford-Zimmerman Temperament Survey and the Withdrawal Scale of the Psychotic Reaction Scale. All five scales were known to correlate significantly with the Si scale. Ss, who were psychiatric patients, were assigned to three groups. For one group, each Si scale item responded to in the scored direction was reinforced by "good." In the second experimental group, responses to items in the

non-scored direction were similarly reinforced. The third, or control, group received no reinforcement. Although a significant conditioning effect was demonstrated, no extra-experimental effects were found.

Cole (1965) assigned Ss to one of two conditions. In one, Ss received recorded verbal reinforcement while discussing negative aspects of themselves; in the other, Ss were similarly reinforced while discussing negative aspects of a "neutral" vocational topic. As a pre- and post-test measure, Ss rated six concepts on a sematic differential: "me at my best," "me as I am today," and "me at my worst," and three vocational concepts, most desirable, neutral, and least desirable, obtained from an initial interview. The results indicated that reinforcement produced a decrement in the response rate of the group exposed to reinforcement while discussing negative aspects of themselves, whereas for the group reinforced while discussing negative aspects of a neutral vocational topic, response rate was maintained at a high level. Generalization occurred only for the latter group, which showed a decline in the evaluation score on the semantic differential for the neutral vocational concept.

In a recent investigation by Koenig (1966), positive and negative aspects of the response class, academic self-statements, were reinforced. Pre- and post-experimental scores were obtained on two scales intended to measure anxiety, and the primary goal of the study was to determine whether reinforcement of the response classes would affect postexperimental scores on the anxiety measure. Specifically, it was hypothesized that reinforcement for positive academic self-statements would result in lowered anxiety scores while reinforcement of negative academic self-statements would result in heightened anxiety scores. Results indicated that reinforcement significantly influenced the emission of negative academic self-statements but did not affect positive academic self-statements. Contrary to the hypothesis, reinforcement of negative academic self-statements led to a significant decrease in the anxiety score, whereas the other condition led to only a slight reduction in anxiety. Koenig suggests that such anxiety changes resulted from the process of reciprocal inhibition, that is, anxiety associated with negative academic self-statements became desensitized in the nonthreatening interview, leading to a reduction of academically generated anxiety.

Ullmann et al. (1961) used conditioning as the independent variable in a study of the effects of reinforcement upon scores on the Palo Alto Group Therapy Scale. The verbal class reinforced was "emotional words," which had previously been shown to correlate significantly with group therapy ratings. Ss, hospitalized patients in group therapy, were assigned to one of three conditions: (1) positive-personal reinforcement group in which E responded to the verbal class with a head nod and "mmm-hmm;" (2) the impersonal unstructured reinforcement group in which E responded by pushing a button which emitted a loud click; (3) no reinforcement group in which E made no responses. Conditions were maintained through four story-telling sessions. The results indicated that significant gains in the GTS ratings were obtained for the positive-personal reinforcement group, but not for the others, supporting the conclusions that one person may influence the behavior of another in a positive way, that the change can be measured by an independent criterion situation, and that this change may be demonstrated to be associated with specific behavior on the part of E.

PROBLEM

Essentially, the study is directed toward determining (1) whether a specific approach response, reflection, can be employed as a verbal reinforcer of a specific subject response class, self-references, within the framework of a series of three interviews; (2) whether a transfer effect can be obtained on a set of criterion measures gathered pre- and post- interview; and (3) whether, if a transfer effect is found, it can be shown to be related to the conditioning procedure during the interviews.

Thus, there are three basic issues or questions to be investigated in the study. The first is to demonstrate verbal conditioning using the given verbal reinforcer and subject response class to be reinforced. This is the central problem in the issue of the modification of verbal behavior. The second problem is to demonstrate a test-retest change, on a set of criterion measures, that can be shown to be the result of an intervening experience, the interviews. This is the issue broadly referred to as generalization or transfer. The third question is perhaps

more implicit--the relationship between verbal conditioning during the interviews and transfer of effects to an extra-interview situation, in this case the criterion measures. Here, it would be possible to get conditioning within the interviews but show no transfer effects. It is also conceivable that transfer would be demonstrated but not conditioning, that transfer might have more to do with talking to an attentive ear, or the "match" between E and S, or any number and combinations of pertinent but uncontrolled variables.

Hypotheses will be stated operationally in a later section. In general, it is predicted that the frequency of positive and negative sub-classes of self-reference responses will be amenable to modification when reflection is applied as a reinforcer, and that the effects of reinforcement will transfer to a set of self-evaluative measures.

METHOD

Definitions

To lend clarity to this section, two of the principal concepts to be employed will first be defined.

Conditioned Response: The general response class that E will approach during the interviews for the experimental groups is "Self-references," defined by Rogers (1960) as ". . . a verbal response by S which describes himself in some way, tells something about him, or refers to some affect he experiences." This general response class is then divided into two subclasses, positive or favorable self-references, and negative or unfavorable self-references.

Verbal Reinforcer: Therapists' responses in psychotherapy interviews have been subjected to several classification schemes. One such classification is that used by Bandura et al. (1960) and by Winder et al. (1962) in which therapists' responses are first classified as either approach or avoidance responses, and are then divided into

further subclasses. This research utilizes an approach response, defined (Mills, 1964) as "any verbalization by the therapist which seems designed to elicit from the patient further expressions or elaborations of feelings, attitudes, or actions." The particular approach response employed in this study as the verbal reinforcer is reflection, a response in which E repeats or restates a portion of S's verbalization of feelings, attitudes, or actions, and may use phrases of synonymous meaning.

A second E response class, "exploration," was used to elicit responses in the event that S became silent for thirty or more seconds. Exploration includes remarks or questions that encourage S to further describe or express his feelings, attitudes, and actions.

Subjects

Ss were volunteers from introductory psychology classes. In an effort to reduce the inconvenience of "no-shows," to eliminate the disinterested and to establish superficial rapport, each potential S was contacted

individually and given a brief description of the procedure in which he would be involved.

Seventy-five Ss were randomly assigned to one of five groups of 15 Ss each, with the one stipulation that each group be identical in number of male and female Ss. Each group, then, had six male and nine female Ss.

Groups

Groups are defined by the experimental or control conditions employed:

1) E_1: Positive or favorable self-references are reinforced.

2) E_2: Negative or unfavorable self-references are reinforced.

3) E_3: Positive and negative self-references are reinforced.

4) C_1: No reinforcement.

5) C_2: Test-retest, no interviews.

Interviews

Each S in the experimental groups (E_1, E_2, E_3) and the interview control group (C_1) participated in a series of three 20-minute interviews scheduled over a three to four day period. Four discussion topics were randomly selected without replacement from a set of twelve topics for use in each interview (see Appendix A). Thus, over the series of interviews, each topic was covered. These topics, dealing with social and college activities, appeared conducive to discussion during pilot work; that is, they appeared to stimulate interest in the Ss or pertained to issues in which Ss might be ego-involved. Ss were instructed to discuss each topic for approximately five minutes, referring especially to their own feelings, attitudes, and actions, under the guise that they were participating in a public-opinion polling experiment. This procedure was generally well-received and appeared to reduce defensiveness.

Criterion Measures

A battery of five self-evaluative scales was administered prior to and immediately following the series of interviews as a criterion to determine whether the experimental conditions influenced self-attitudes and level of anxiety. These scales were administered to all Ss, including a test-retest control group which received the battery on a three to four day intertest-interval, four days being the limit within which the other Ss were interviewed. (The rationale for the use of these scales will be discussed in the hypotheses section.)

These scales included:

1) The IPAT Anxiety Scale (Cattell and Scheier, 1963), which has been successfully used in other behavioral modification studies (for example, Paul, 1966). It was employed here to determine whether the experimental conditions would affect anxiety level.

2) A scale of the Semantic Differential type (Osgood, et al., 1957), composed of 25 pairs of polar adjectives anchored at one end by an adjective judged

to reflect favorable self-attitude and anchored at the opposite end by an adjective judged to reflect unfavorable self-attitude. Each of the 25 polar adjective scales was rated on a seven-point scale (after Osgood's technique). The complete scale was rated twice by each S, once as he saw himself socially ("myself socially") and once as he saw himself academically ("myself as a college student"). The Standard Semantic Differential instructions were given (see Appendix B).

3) Two Q-sorts, each composed of 26 items selected from the California Q-sort (Block, 1961) and from the Chicago Counseling Center Q-sort (Rogers and Dymond, 1954). Half of each set of items were judged to reflect favorable self-attitudes and half unfavorable self-attitudes. A seven-point, forced-distribution scale was used (distribution of items: 1-3-5-8-5-3-1), ranging from self-ratings of "very much like me" to "very much unlike me." The same self-concepts rated on the Semantic Differential technique were used here. (See Appendix C.)

These five self-evaluative scales were administered in random order, and Q-sort cards were shuffled after each sort.

Procedure

Figure 1 illustrates the experimental operations for the research (under interviews, a "+" or "-" sign indicates that either positive or negative self-references were reinforced, respectively). All groups except C_2 received the battery of self-evaluative measures prior to the first interview and following the last interview. The C_2 group received the measures on a three to four day test-retest interval.

Groups	Pre-Test	Interviews 1	2	3	Post-Test
E_1	Yes	Operant	Condition +	Condition +	Yes
E_2	Yes	Operant	Condition -	Condition -	Yes
E_3	Yes	Operant	Condition +&-	Condition +&-	Yes
C_1	Yes	Operant	Operant	Operant	Yes
C_2	Yes	None	None	None	Yes

Figure 1.--Experimental design.

The first interview for the three experimental groups served to establish the operant level of emission of self-references. During this interview, E responded to S only with exploration responses. The second and third interviews served as the verbal conditioning interviews. During these, self-references of the subclass to be conditioned were reinforced on as close to a one hundred percent schedule of reinforcement as possible in order to maximize the possibility of conditioning occurring.* The interview control group (C_1) continued to receive exploration responses; at no time were self-references approached for these Ss.

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*The author wishes to thank Dr. Wm. Stellwagen for his advice on the schedule of reinforcement.

HYPOTHESES

Verbal Conditioning

It is hypothesized that conditioning of the S verbal response class, positive or negative self-reference, will occur over a series of interviews when, contingent upon and immediately following the emission of a self-reference of the subclass to be approached, E responds with a reflection of S's self-reference.

Essentially, this is a Skinnerian approach to the conditioning of verbal behavior (see Skinner, 1957). It assumes, basically, that verbal behavior can be modified through a reinforcement procedure. Additionally, it assumes that verbal behavior can be divided into response classes for purposes of investigation, and that the response class chosen for investigation may occur ". . . with some ascertainable frequency prior to the introduction of any specific set or sets of operations by the experimenter (Greenspoon, 1962)." The specific set of operations is the application of the verbal reinforcement, in

this study the E response class "reflection," although it seems erroneous to refer to a specific E response as a reinforcer until it has been shown to function as one.

Self-reference was selected as the S response class to be manipulated (the dependent variable) because, first of all, it has been shown to be manipulable in other verbal conditioning studies (Rogers, 1960, for example); secondly, since a self-reference has S as its object, it was assumed that it would already be operant within S's speech, especially within the context of the interviews and their topics.

Reflection was selected as the independent variable because of its frequent use in psychotherapy interviews, especially of the "client-centered" type (Rogers, 1951, 452-455). Secondly, E wanted to avoid the use of the simple social reinforcers such as "good," "um-hmm," or a head nod, and employ a verbal response that might be more analogous to a "natural" interview.

A final reason for selecting these two variables is that an element of "bare faced" empiricism still exists in attempting to demonstrate verbal conditioning employing the two response classes used here.

Transfer

The term transfer is used in this study to refer to changes in the test-retest "criterion" measures which can be attributed to the intervening experience of the interviews in general and the experimental manipulations (conditioning) in particular.

A. Self-evaluative measures: Semantic Differentials and Q-Sorts:

At an initial glance, this might first be considered a question of response generalization. This assumes that the responses emitted and reinforced during the conditioning phase bear a similarity to the responses elicited by the self-evaluative measures, a point stressed by Krasner (1962). It is postulated here that self-references, having S as the object, tap the same behavioral domain as do the responses to the self-evaluative measures, namely, S's self-perceptions or his self-concept. From a response generalization viewpoint, then, it would be predicted that an increase in favorable or positive self-references via reinforcement during the interviews would generalize to an increased favorableness of self-report on the evaluative measures. Similarly, an increase in unfavorable or

negative self-references in the interviews would generalize to an increased unfavorable self-report.

However, the author would like to suggest that transfer of effects from the conditioning of negative self-references to the self-evaluative measures is not a matter of response generalization. When S is responding with a negative self-reference, it may be considered that he is discussing an aspect of himself that is an expression of an event or events in his history which are associated with anxiety. Now, the essence of reflection lies not so much in the technique itself as it does in conveying from E to S, in a nonthreatening manner, a sense of understanding and acceptance as opposed to anxiety-generating disapproval. Thus, it is reasoned, the condition of reflection of negative self-references would tend to desensitize the anxiety associated with the negative self-reference. This would occur through a process of reciprocal inhibition (Wolpe, 1958) in which, in this case, it is conceptualized that a feeling of being understood, accepted, and unthreatened is incompatible with a feeling of anxiety. Finally, since the anxiety associated negative self-reference would tend to devaluate a person's self-concept, desensitizing the

anxiety should eventually lead to a more favorable self-evaluation. (Admittedly, this bit of theorizing is novel if for no other reason than that it spans two "schools" of psychotherapy, namely, client-centered and behavior therapy.)

With respect to the above comments, the following hypotheses are offered:

1) It is predicted that favorableness of self-report will increase in the E_1 group (conditioning of positive self-references). This is predicated on the basis of response generalization.

2) It is predicted that favorableness of self-report will increase in the E_2 group (conditioning of negative self-references). This is formulated on the basis of desensitization.

3) It is predicted that favorableness of self-report will increase in the E_3 group (conditioning of both positive and negative self-references). This hypothesis is established on the basis of both response generalization and desensitization. Here, it might also be speculated that positive changes

in self-evaluation would be greater for this group than for the other groups.

4) It is predicted that there will be no change in self-evaluation for the C_1 group (interview control) since there is no systematic attempt to manipulate any variable in this group.

5) It is predicted that there will be no change in self-evaluation in the C_2 group (test-retest, no interviews). This is essentially a test-retest reliability group.

B. Self-evaluative measure:
Anxiety Scale:

Continuing with the rationale for desensitization presented above, Ss reinforced via reflection of negative self-references should experience a reduction in anxiety associated with the events underlying and prompting their negative self-reference. Consequently, it is predicted that in the two groups (E_2 and E_3) in which negative self-references are reflected, a decrease in measured anxiety will occur. As for the other groups, no change in measured anxiety is predicted.

RESULTS

Verbal Conditioning

The initial step in the analysis of the interview data was to demonstrate that positive and negative self-references could be reliably coded from taped interviews. There were three twenty-minute interviews for each of the 60 Ss, or a total of 60 hours of recorded interviews to code. Because E represented one of the judges, an effort was made to eliminate examiner bias by coding interviews selected randomly so that E did not know to which group or interview a particular interview segment being coded belonged until the final data were reassembled by groups and interviews. A second judge was trained on pilot tapes to code self-references, and then coded a stratified random sample of twelve interview segments from each of the four groups without knowledge of the group and interview from which each tape segment was selected. A Pearson product-moment correlation coefficient was then computed between the codings of E and the codings of the second judge for

positive and negative self-references from the 48 twice-judged interview segments. This yielded an r = 0.86 which was considered a satisfactory indication of the reliability of coding self-reference responses.

The self-reference data, in the form of raw number of self-references, were then subjected to a nested analysis of variance design (see Edwards, 1968) in which Ss are nested within groups within response subclasses within interviews. This design permitted the following significance tests:

1) Groups (G): Differences among the four groups across interviews and response subclasses.

2) Interviews (I): Differences among the three interviews across groups and response subclasses.

3) Responses (R): Differences between the two response subclasses (positive and negative self-references) across groups and interviews.

4) Groups x Interviews Interaction (G x I): Differences among group by interview entries across response subclasses.

5) Groups x Responses Interaction (G x R): Differences among group by response subclass entries across interviews.

6) Interviews x Responses Interaction (I x R): Differences among interview by response subclass entries across groups.

7) Groups x Interviews x Responses Interaction (G x I x R): Differences among group by interview by response subclass entries.

Table 1 summarizes the nested analysis of variance design for the self-reference data. It should be noted that the error (a) mean square (based on the sum of squares between Ss nested within groups) is used for testing the significance of the group mean square, while the error (b) mean square (residual error term based on the pooled interaction sum of squares involving interactions of Ss and combinations of I and R) is used for testing the significance of all other mean squares.

The F-test for Groups (G) is insignificant, meaning that summing across interviews and responses, there are no significant differences among the group means.

Table 1

Nested Analysis of Variance for Self-Reference Data

Source	SS	df	MS	F
G	75.631	3	25.210	1.357 NS
Error (a)	1040.552	56	18.581	
I	117.505	2	58.753	27.506 **
R	40.670	1	40.670	19.040 **
G x I	56.358	6	9.393	4.397 **
G x R	20.720	3	6.907	3.234 *
I x R	1.907	2	0.954	0.447 NS
G x I x R	55.612	6	9.269	4.339 *
Error (b)	597.976	280	2.136	
Total	2006.931	359		

**Significant at .01 level
*Significant at .05 level

The F-test for Interviews (I) is significant, meaning that summing across groups and responses, there are significant differences among the three interviews in mean self-references.

The F-test for Responses (R) is significant, meaning that summing across interviews and groups, there is a

significant difference between positive and negative self-references, with a greater number of the former than of the latter.

The Groups x Interviews (G x I) interaction is significant, meaning that significant differences exist among mean self-references (both positive and negative combined) within interviews within groups.

The Groups x Responses (G x R) interaction is also significant, meaning that significant differences exist between mean positive and mean negative self-references among groups, summing across interviews.

The Interviews x Responses (I x R) interaction is insignificant, meaning that no significant differences exist between mean positive and mean negative self-references within interviews summing across groups.

Finally, the Groups x Interviews x Responses (G x I x R) interaction is significant, meaning that there are significant differences among the means for positive and for negative self-references within interviews within groups.

Table 2 provides a breakdown by mean self-references of the group, interview, response, and all the interaction

Table 2

Breakdown by Mean Self-References of Main and Interaction Effects for Nested Analysis of Variance Design

Groups

E_1	E_2	E_3	C_1
21.200	21.133	20.667	14.667

Interviews

1	2	3
4.967	6.717	7.733

Responses

+	-
10.717	8.700

Groups X Interviews

Groups

		E_1	E_2	E_3	C_1
	1	5.333	4.867	4.533	5.133
Interviews	2	7.133	7.333	7.533	4.867
	3	8.733	8.933	8.600	4.667

Table 2.--Continued

Groups X Responses

		Groups			
		E_1	E_2	E_3	C_1
Responses	+	12.600	10.533	11.400	8.333
	-	8.600	10.600	9.267	6.333

Interviews X Responses

		Interviews		
		1	2	3
Responses	+	2.717	3.750	4.250
	-	2.250	2.967	3.483

Groups X Interviews X Responses

		Interviews					
		1		2		3	
		Responses					
		+	-	+	-	+	-
Groups	E_1	2.533	2.800	4.333	2.800	5.733	3.000
	E_2	2.933	1.933	3.800	3.533	3.800	5.133
	E_3	2.667	1.867	4.000	3.533	4.733	3.867
	C_1	2.733	2.400	2.867	2.000	2.733	1.933

effects. For purposes of further analysis of the data, however, the Groups x Interviews x Responses (G x I x R) interaction is referred to, for it is the most important of the F-tests in terms of interpreting the data in light of the specific hypotheses about conditioning. If the G x I x R interaction is envisioned as a 24 cell design (see Table 2), with each cell containing the mean responses for a specific response subclass for a specific interview for a specific group, the salience of this interaction becomes clearer. It can then be stated that among those 24 cells significant differences exist.

To test each specific hypothesis, it was necessary to make individual comparisons among the G x I x R cell means. The procedure used was Duncan's new multiple range test (see Edwards, 1968, ch. 8), selecting only those cell means that were relevant to the hypotheses. Table 3 summarizes the data employed in the multiple range test; specific cell means used are referred to by group, interview, and response. Hence E_1I_1R+ denotes the cell mean for group E_1, interview 1, positive self-references.

It was first necessary to demonstrate that no significant differences existed between first and third

Table 3

Duncan's New Multiple Range Test Applied to the Differences Between Selected G x I x R Mean Self-References

	Means		A. E_3I_1R- 1.867	B. E_2I_1R- 1.933	C. C_1I_3R- 1.933	D. C_1I_1R- 2.400	E. E_1I_1R+ 2.533	F. E_3I_1R+ 2.667	G. C_1I_1R+ 2.733	H. C_1I_3R+ 2.733	I. E_3I_3R- 3.867	J. E_3I_3R+ 4.733	K. E_2I_3R- 5.133	L. E_1I_3R+ 5.733	Shortest Significant Ranges p=0.01
A.	E_3I_1R-	1.867	-----	0.066	0.066	0.533	0.666	0.800	0.866	0.866	2.000	2.866	3.266	3.866	1.3749
B.	E_2I_1R-	1.933		-----	0.000	0.467	0.600	0.734	0.800	0.800	1.934	2.800	3.200	3.800	1.4326
C.	C_1I_3R-	1.933			-----	0.467	0.600	0.734	0.800	0.800	1.934	2.800	3.200	3.800	1.4719
D.	C_1I_1R-	2.400				-----	0.133	0.267	0.333	0.333	1.467	2.333	2.733	3.333	1.5013
E.	E_1I_1R+	2.533					-----	0.134	0.200	0.200	1.334	2.200	2.600	3.200	1.5247
F.	E_3I_1R+	2.667						-----	0.066	0.066	1.200	2.066	2.466	3.066	1.5439
G.	C_1I_1R+	2.733							-----	0.000	1.134	2.000	2.400	3.000	1.5605
H.	C_1I_3R+	2.733								-----	1.134	2.000	2.400	3.000	1.5745
I.	E_3I_3R-	3.867									-----	0.866	1.266	1.866	1.5870
J.	E_3I_3R+	4.733										-----	0.400	1.000	1.5983
K.	E_2I_3R-	5.133											-----	0.600	1.6081
L.	E_1I_3R+	5.733												-----	

A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.

Any two G x I x R means not underscored by the same line are significantly different.
Any two G x I x R means underscored by the same line are not significantly different.

interviews for the control group (C_1) for both positive and negative self-references. Comparisons between C_1I_1R+ and C_1I_3R+, and between C_1I_1R- and C_1I_3R- showed this to be the case.

Stated specifically, the hypothesis predicted that in group E_1, where positive self-references were reflected, conditioning would occur across interviews. To test this hypothesis, first the E_1I_1R+ and the E_1I_3R+ cell means were compared and found to differ significantly. Then, to "double-check" for conditioning, the first and third interviews for positive self-references in the E_1 group were compared respectively with the first and third interviews for positive self-references in the control group (C_1). It was expected that there would be no differences in first interview comparisons, since the first interview served to establish operant level of responding. However, differences between third interview comparisons were expected if conditioning of positive references had occurred in the E_1 group. Both of these expectations were borne out by the data analysis. Thus, conditioning of positive self-references occurred.

The hypothesis also predicted that in group E_2, where negative self-references were reflected, conditioning of those responses would occur. As above, a comparison was first made between the first and the third interviews for negative self-references which obtained significance. Similarly, comparisons were made between the E_2 and C_1 groups for first and third interviews respectively, for negative self-references. No difference was found for the first interview comparison, but the third interview comparison obtained significance. Thus, the prediction of conditioning of negative self-references was supported.

As for the third group, the hypothesis predicted that both positive and negative self-references would be conditioned since both were reflected during the second and third interviews. Comparisons were made between the E_3I_1R+ and the E_3I_3R+ cell means, and between the E_3I_1R- and the E_3I_3R- cell means, both of which yielded significant results. Comparisons for both response subclasses were made between E_3 and C_1 first interviews and between E_3 and C_1 third interviews, the latter of which obtained significance. Again, the hypothesis was supported.

Thus, the conclusion is reached that conditioning occurred as predicted, that when positive or negative self-references are approached with reflection, reflection acts as a verbal reinforcer.

Transfer

The data of each of the five self-evaluative measures were subjected to an analysis of covariance design (Edwards, 1968, ch. 16). The results of these analyses are summarized in Table 4. In these analyses, the pre-interview raw test scores constituted the X measures (or supplementary measures); the post-interview raw test scores constituted the Y measures (or dependent measures). Analysis of covariance was used because it was assumed that the X and Y measures were substantially correlated; covariance analysis, then, takes into account the regression of the Y measures on the X measures and yields a lower error estimate than would be obtained from an analysis of variance.

It is immediately apparent that, of the five measures employed, the only one to yield significant results

Table 4

Analyses of Covariance of Self-Evaluation Measures

IPAT Anxiety Scale

Source	SS	df	MS	F
Treatments	274.231	4	68.558	2.958*
Error	1599.068	69	23.175	
Total	1873.299	73		

*Significant at the 0.05 level.

Semantic Differential (Social)

Source	SS	df	MS	F
Treatments	182.116	4	45.529	0.631 N.S.
Error	4982.469	69	72.710	
Total	5164.585	73		

Semantic Differential (College)

Source	SS	df	MS	F
Treatments	54.497	4	13.624	0.148 N.S.
Error	6352.721	69	92.068	
Total	6407.218	73		

Q-Sort (Social)

Source	SS	df	MS	F
Treatments	20.219	4	5.055	0.770 N.S.
Error	453.035	69	6.566	
Total	473.254	73		

Table 4.--Continued.

Q-Sort (College)				
Source	SS	df	MS	F
Treatments	16.324	4	4.081	0.745 N.S.
Error	378.217	69	5.481	
Total	394.541	73		

was the IPAT Anxiety Scale. An inspection of the data of the other four measures reveals very few, and unsystematic, changes between scores on the first and scores on the second administration of those measures. Thus, the hypotheses predicting changes in the direction of more favorable self-reports for the experimental (conditioned) Ss are rejected.

The analysis of covariance for the data yielded by the IPAT Anxiety Scale resulted in an $F = 2.958$ which, for 4 and 69 degrees of freedom, indicates that the adjusted treatment mean square is significant at the .05 level. From this analysis it may be concluded that significant differences exist among the adjusted treatment means.

Tests of comparisons were then made among those adjusted treatment means (Edwards, 1968, p. 341). Taking the largest adjusted mean, which is for the C_2 group

(test-retest control, no interviews), and the second largest adjusted mean, which is for the E_3 group (reinforcement of both positive and negative references), a t-test was computed for the difference between these two means. This yielded a t = 2.311 for 69 degrees of freedom which is significant at the .025 level. It may then be reasoned that differences between the adjusted mean for C_2 and the adjusted means for E_1, E_2, and C_1 would also reach significance, for each of these means when compared with the C_2 adjusted mean yield differences greater than that between the C_2 and E_3 means used in the t-test. As a further check on the data, a t-test was computed on the difference between the largest and smallest adjusted means among E_1, E_2, E_3, and C_1, that is, between E_3 and E_1. This yielded a t = 0.670 with 69 degrees of freedom which is insignificant. Thus, there are no significant differences between any combination of E_1, E_2, E_3, or C_1 adjusted means.

It may then be concluded from this analysis of the data of the IPAT Anxiety Scale that all four of the groups which participated in the interviews differ significantly from the test-retest, no interview control group (C_2).

Each of the four interview groups showed a decrease in measured anxiety while the C_2 group showed an increase in measured anxiety on inspection of the data. Considering the fact that there are no significant differences among the four interview groups themselves, it may further be concluded that the factors accounting for the observed differences between the interview groups and the no-interview group are to be found in the interviews but not in the modification of verbal behavior.

DISCUSSION

Verbal Conditioning

The analysis of the self-reference data confirms the hypothesis which predicted that when a reflection is made contingent upon and immediately following a self-reference of the particular response subclass approached, the frequency of emission of such responses will increase. Reflection did, in fact, act as a reinforcer of both positive and negative self-references, demonstrating that self-references is a modifiable verbal response class when reflection is utilized as a verbal reinforcement.

These results have implications for the study of psychotherapy process. In a general sense, it lends support to the claim made by behaviorally-oriented psychotherapists that verbal modification can and does occur within psychotherapy sessions. More specifically, it has implications for the "client-centered" approach to psychotherapy in which reflection is often employed as a therapist response. Traditionally, client-centered

psychotherapy does not explicitly deal with the issue of verbal (or, more generally, behavioral) manipulation, but the results of this study suggest that the specific technique of reflection may act to modify, through reinforcement, the verbal expressions of the client. Other classes of E and S verbal behavior employed in a client-centered or other "types" of psychotherapy could be explored. For example, recent studies by Truax (1966; 1968) suggest "the presence of significant differential reinforcement effects imbedded in the transactions of client-centered psychotherapy (1966, p. 7)," when the use of accurate empathy, nonpossessive warmth, and genuineness are viewed as reinforcers.

Another implication generated by the verbal conditioning data of this study is that verbal reinforcement in psychotherapeutic and other types of interviews is akin to what experimental psychologists refer to as <u>shaping</u>. Sidman (1962, p. 172) defines shaping as a technique used to establish a desired behavior "by reinforcing successively closer approximations to the behavior with which the experimenter ultimately wants to work." In a review of conditioning studies, Krasner (1966, p. 297) commented on shaping in psychotherapy interviews in his remark that

"one seemingly clear implication from such verbal conditioning studies is that the therapist shapes the behavior of his patient to his own biases." While it might present problems to attempt to demonstrate that the therapist reinforces "successively closer approximations" to the behavior he hopes to establish, nevertheless it does not seem unreasonable to assume that the therapist has some predetermined ideas about what the client should and should not be talking and that, consequently, he selectively responds to the client's verbalizations in such a way as to "shape" the verbal behavior of the client through reinforcement.

When the verbal conditioning results, per se, of this study are compared with those of other studies similarly involving conditioning of positive and negative self-references, both agreement and disagreement are found. Sarason and Ganzer (1962) successfully conditioned both positive and negative self-references, using "um-hmm," "I see," "yeah," or "uh-huh" as reinforcers; Adams and Hoffman (1960), who did not differentiate between positive and negative self-references, successfully conditioned the general response class of self-references, applying

attention (raising head and looking at S) and "mm-hmm," as reinforcement. These two investigations, and particularly the first, lend support to the findings reported here. However, as was previously noted, Rogers (1960) and Koenig (1966), attempting to modify positive and negative self-references and academic self-statements respectively, successfully conditioned negative responses but not positive responses. In addition, Rogers (1960) found that reinforcement prevented positive self-references from extinguishing. Finally, Sarason and Ganzer (1963), attempting to condition only negative self-references, reported successful results. Thus, it may be concluded that negative self-references constitute a modifiable response class, whereas conditioning of positive self-references is equivocal. With respect to the Skinnerian reinforcement strategy employed in the above studies, the results are not fully in accord with predictions generated by reinforcment theory, although those found by this author are. Precisely why this should be the case is unknown. In terms of psychotherapy, it is perhaps advantageous that negative self-references are amenable to reinforcement, especially if it is assumed that negative self-references are verbal

expressions of the troublesome behavior that prompted seeking psychotherapy in the first place.

Transfer

The hypotheses predicting changes in the direction of more favorable self-report for the experimental groups on the two Semantic Differential scales and the two Q-Sorts were rejected by the data analysis. This is most simply interpreted as indicating that insofar as these specific measures are concerned, the effects of the experimental manipulations did not transfer to the extra-interview situation. However, this begs the question of why no transfer effects were found. The first suggestion is simply that, in an interview situation, conditioning produces changes only in verbal behavior or, as has already been remarked, the Ss learn to talk differently and little else (Winder, 1957). A second possible source of failure to obtain transfer may lie in the insensitivity of the measuring instruments to detect changes, especially when any hypothesized changes are likely to be small considering that only three brief interviews were employed as the

intervening experience. Either or both of these two interpretations would fit the data.

However, there is a methodological reason which may underly the absence of transfer effects in this study (as well as in others). The concept of response generalization was presented earlier as a theoretical rationale for part of the predicted transfer effects. However, if generalization of responses is sought, it can be reasoned that there should be some similarity in the stimulus characteristics of the learning and the transfer phases of the experiment, or as Drennen (1963) conceives it, transfer may be assessed as a function of similarity of cues in the learning and the transfer task situations. Within the context of a study such as the one presented here, then, it may be reasoned that not only should the criterion measures of transfer elicit responses similar to those reinforced during the interviews (response generalization), but moreover, the stimuli eliciting those responses should also bear some similarity to the experimental stimulus conditions. To illustrate this point, two research investigations are cited:

Lovaas (1961) succeeded in increasing children's non-verbal aggressive behavior by conditioning their verbal

aggressive behavior. The operant level of play behavior with two toys, a "striking-doll" (aggressive) toy and a ball-toy (nonaggressive) was determined prior to conditioning. Then Lovaas conditioned verbal aggressive responses to a "bad doll" in one group of Ss and verbal nonaggressive responses to a "good doll" in another group, using trinkets for reinforcement. When again presented with the "striking-doll" toy and the ball-toy, the group conditioned for verbal aggressive behavior responded at a significantly higher level to the "striking-doll" toy than did the children conditioned for nonaggressive verbal responses.

D'Zurilla (1966) first rated Ss participation in a classroom setting. Then experimental Ss were assigned to treatment discussion groups in which E responded to S verbalizations with persuasion, praise, or neutrality, depending upon the treatment conditions. A control group remained within the regular classroom. Following a series of group (treatment) discussion sessions, treatment Ss returned to the classroom where their verbal participation was rated. Those Ss who had been involved in the treatment conditions participated at a significantly greater

level after returning to the classroom, even after a decrement in participation among control Ss was considered.

These two studies serve to emphasize the point that when considerable similarity exists in stimulus properties between the treatment and transfer phases, transfer effects are more likely to occur.

A point should also be raised regarding the predictions of transfer based on the author's theorizing on the issue of desensitization. In the absence of transfer effects, of course, it remains conceivable that desensitization occurred but not sufficiently to effect a change on the self-report measures, or the latter were lacking in sensitivity to such effects. However, it is also possible that the negative self-references elicited were not sufficiently "anxiety laden" to be affected by desensitization, if it was occurring; or, a feeling of understanding and acceptance conveyed by the reinforcer reflection was not "incompatible" with anxiety. Finally, the fact that there were significantly fewer negative self-references emitted overall than positive self-references may have contributed to the absence of effects by virtue of there having been limited opportunity for desensitization to occur, if it was occurring.

Only one of the self-evaluative measures, the IPAT Anxiety Scale, yielded data which obtained significance on the analysis of covariance. However, tests of comparisons among the adjusted means demonstrated that the significant differences were to be found between each of the interview groups (including the interview controls as well as the conditioned groups) and the no-interview controls. An inspection of the data indicated that each of the interview groups decreased in measured anxiety, whereas the no-interview control group increased in measured anxiety. Thus, the hypotheses regarding transfer effects on the IPAT Anxiety Scale were rejected, for it can not be concluded that conditioning contributed to the changes on the anxiety scale. It can only be interpreted as meaning that the variables influencing a decrease in anxiety were embedded within the context of the interviews, for example, within the interpersonal context of the situation.

Although transfer of the effects of conditioning to the extra-interview measures was not demonstrated in this study, it should not necessarily be concluded that transfer does not occur. The writer believes, however, that a potentially more fruitful view of the role of verbal

conditioning is to keep in mind that it occurs within the interpersonal context of psychotherapy. Application of reinforcement can no more be divorced from the person applying the reinforcer than the conditioned responses can be divorced from the person expressing those responses. Moreover, overriding separate considerations of the therapist and the client is the fact that they are interacting with one another, and that this interpersonal climate of psychotherapy may be the paramount factor in establishing behavior change and its transfer to the extra-interview life of the client.

SUMMARY

A study was designed attempting to (1) condition negative and positive self-references within a series of three 20-minute interviews, using reflection as the verbal reinforcer; (2) demonstrate transfer of conditioning effects to a battery of five self-evaluative measures (two Semantic Differentials, two Q-Sorts, and the IPAT Anxiety Scale) administered pre- and post-interview. Seventy-five Ss were randomly placed in five experimental and control groups, 15 Ss to a group. Group E_1 was reinforced for positive self-references; Group E_2 was reinforced for negative self-references; Group E_3 for both positive and negative self-references; Group C_1 was an interview control group; Group C_2 was a test-retest, no interview control group. The self-evaluative test battery was administered immediately before the first interview and immediately following the last interview, except in the case of C_2 controls who received the battery on a three to four day test-retest interval.

Self-reference data were subjected to a nested analysis of variance design. Individual comparisons were made among cell members of the Groups x Interviews x Responses interaction. Results confirmed that conditioning had occurred as predicted. Both positive and negative self-references were shown to be amenable to conditioning employing reflection as the reinforcer.

Each self-evaluative measure was subjected to an analysis of covariance. Only changes on the IPAT Anxiety Scale reached significance. However, individual comparisons applied to the IPAT data demonstrated that conditioning did not effect transfer wheras being interviewed did. Thus, all hypotheses regarding transfer were rejected.

Implications of the conditioning results were noted, with specific reference to client-centered psychotherapy and to the concept of shaping as applied to verbal conditioning within therapy interviews. The personal and interpersonal context of verbal conditioning within interviews was stressed.

Comments on the absence of transfer effects attributable to conditioning were made. Reference was made in particular to the concept of stimulus generalization and

to the hypothesized desensitization rationale. It was suggested that variables affecting decreased anxiety scores were imbedded within the interpersonal context of the interviews.

In essence, the study again demonstrates that verbal behavior can be modified through reinforcement in a quasi-therapeutic setting, but that the issue of transfer remains equivocal.

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APPENDICES

APPENDIX A

INTERVIEW INSTRUCTIONS AND TOPICS

Instructions

During this series of interviews I want you to discuss your opinions, your attitudes and feelings with reference to a variety of different topics which will be of interest to you. In a sense, I'd like you to "open up" about your opinions on these topics--anything you say will, of course, be kept in strict confidentiality, and you won't be identified to anyone but me. Just say what you think or feel as an individual.

There are twelve topics altogether, and I'll select four at random from each interview. As you can see, the interviews will be taped, but try to be "natural" as you discuss the topics.

Do you have any questions before we begin?

Topics

1. Your family--how it has influenced your attitudes and feelings about yourself and others, about college, goals, standards.

2. Impersonality of college life--your opinions about this issue; if you feel that college life is impersonal, why, how does it affect you, what do you do about it; if not, why you have found it a personal experience.

3. Adjustment to college--your opinions and reactions about making the transition to college; what, in terms of your experience, makes it easy of difficult.

4. The student as an activist in political, social, and moral issues--what would you say about his role here; what is your position; why.

5. Public and personal goals--what influences students' goals; what hopes and aspirations have you set for yourself.

6. Study habits and exam preparations--what have you learned about this from your experiences.

7. College rules and regulations--your opinions and feelings about such matters as late hours for coeds, visiting in dorm rooms between men and women, for example.

8. Dating habits--your opinion about dating patterns, behavior, marriage in college.

9. Values and standards of college students--changing, revising, developing personal values; what influences them.

10. Grading systems and examinations--how do you feel about the way you're graded and tested; why.

11. Social organizations--what opinions do you have about, for example, fraternities and sororities as opposed to remaining independent; what does joining a social club mean to you.

12. Relationship between students and instructors (and advisors)--what are your opinions in terms of your own experiences; for example, do you find that students can get personal assistance.

APPENDIX B

SEMANTIC DIFFERENTIAL INSTRUCTIONS AND SEMANTIC DIFFERENTIAL

Semantic Differential Instructions

The purpose of this study is to measure the meaning of the concept (ME) to various people by having them judge the concept against a series of descriptive scales. In taking this test, please make your judgments on the basis of what the concept means to you.

Here is how you are to use those scales:

If you feel that the concept at the top of the page is very closely related to one end of the scale, you should place your checkmark as follows:

fair _X_:___:___:___:___:___:___ unfair

fair ___:___:___:___:___:___:_X_ unfair

If you feel that the concept is quite closely related to one or the other end of the scale (but not extremely), you should place your checkmark as follows:

strong ___:_X_:___:___:___:___:___ weak

or

strong ___:___:___:___:___:_X_:___ weak

If the concept seems only slightly related to one side as opposed to the other (but is not really neutral), then you should check as follows:

active ___:___:_X_:___:___:___:___ passive

or

active ___:___:___:___:_X_:___:___ passive

The direction toward which you check, of course, depends upon which of the two sides of the scale seem most characteristic of the concept you're judging.

If you consider the concept to be neutral on the scale, both sides of the scale equally associated with the concept, or if the scale is completely irrelevant, unrelated to the concept, then you should place your checkmark in the middle space:

safe ___:___:___:_X_:___:___:___ dangerous

Important:

1) Place your checkmarks in the middle of spaces, not on the boundaries:

this not this

___:___:_X_:___:___:_X_:___

2) Be sure you check every scale for the concept--do not omit any.

3) Never put more than one checkmark on a single scale.

4) Make each item a separate and independent judgment. Don't puzzle over individual items. It is your first impressions, the immediate "feelings" about the items, that we want. On the other hand, please do not be careless, because we want your true impressions.

Thank you.

Semantic Differential

precise ___:___:___:___:___:___:___ vague

tasty ___:___:___:___:___:___:___ distasteful

happy ___:___:___:___:___:___:___ sad

withdrawing ___:___:___:___:___:___:___ outgoing

independent ___:___:___:___:___:___:___ dependent

worthless ___:___:___:___:___:___:___ valuable

kind ___:___:___:___:___:___:___ cruel

strong ___:___:___:___:___:___:___ weak

meek ___:___:___:___:___:___:___ aggressive

excitable ___:___:___:___:___:___:___ calm

constricted ___:___:___:___:___:___:___ expressive

sensitive ___:___:___:___:___:___:___ indifferent

clear ___:___:___:___:___:___:___ hazy

sharp ___:___:___:___:___:___:___ dull

awful ___:___:___:___:___:___:___ nice

submissive ___:___:___:___:___:___:___ self-assertive

cold ___:___:___:___:___:___:___ hot

open ___:___:___:___:___:___:___ closed

unfocused ___:___:___:___:___:___:___ focused

slow ___:___:___:___:___:___:___ fast

constrained ___:___:___:___:___:___:___ free

content ___:___:___:___:___:___:___ frustrated

tense ___:___:___:___:___:___:___ relaxed

adaptable ___:___:___:___:___:___:___ inflexible

incongruent ___:___:___:___:___:___:___ congruent

APPENDIX C

Q-SORT INSTRUCTIONS AND Q-SORTS

Q-Sort Instructions

Here is a set of 26 cards, each with a statement characteristic of people typed on it. You are to sort these statements into a row of 7 categories as you see in front of you. The number on each of the 7 categories is the number of statements that you will eventually place in each category. It might be convenient to first sort the cards into three piles, those you deem characteristic of you in one pile, those uncharacteristic of you in another pile, and the remaining statements in a third pile. Then pick the statement you feel is the most characteristic of you and place it in this category marked "most characteristic." Similarly, select the statement you feel is least characteristic (or most uncharacteristic) and place it in this pile. Work on through the categories, placing 3 statements you feel are "fairly characteristic" of you here, 3 statements that are "fairly uncharacteristic" of you here; then 5 statements in the "somewhat characteristic" category and 5 in the "somewhat uncharacteristic" category, and 8 in the middle, or essentially "neutral" category.

Since the instructions are somewhat complicated, take your time, but please try to be honest about yourself. Feel free to ask questions.

Now sort this set of cards with reference to how you see yourself as a (college student) (socially).

Q-Sort

"Myself Socially"

Favorable

1. I can usually live comfortably with the people around me.
2. I behave in a giving way toward others.
3. I have a warm relationship with others.
4. I value my independence and autonomy.
5. My behavior is consistent with my standards.
6. I have a sense of humor.
7. I am dependable and responsible.
8. I have an attractive personality.
9. I am socially perceptive.
10. My personality is attractive to the opposite sex.
11. I am assertive.
12. I am satisfied with myself.
13. I am the master of my environment.

Unfavorable

1. I have few values and standards of my own.
2. I am a poor mixer.
3. I am inconsiderate of others.

4. I put on a false front.

5. I often feel humiliated.

6. All you have to do is just insist with me and I'll give in.

7. I place the blame for my troubles on other people.

8. I keep a distance between myself and other people.

9. I feel cheated by life.

10. I feel insecure within myself.

11. I am afraid of a full-fledged disagreement with a person.

12. I am no one. Nothing seems to be me.

13. I am afraid of what other people will think of me.

Q-Sort

"Myself as a College Student"

Favorable

1. I value intellectual matters.

2. I am critical, skeptical, not easily impressed.

3. I am able to see the heart of important problems.

4. I am self-reliant.
5. I am intelligent.
6. I feel adequate.
7. I am productive, I get things done.
8. I have initiative.
9. I am a competitive person.
10. I feel relaxed and little really bothers me.
11. I am a hard worker.
12. I can usually make up my mind and stick to it.
13. I am a rational person.

Unfavorable

1. I usually feel driven.
2. I need somebody else to push me through on things.
3. I feel unsure of my abilities.
4. I have a horror of failing in anything I want to accomplish.
5. I am dissatisfied with myself.
6. I am an irresponsible person.
7. I can't seem to make up my mind one way or another.
8. I am disorganized.
9. My decisions are not my own.

10. I am confused.

11. I am a failure as a student.

12. I give up easily.

13. I am reluctant to commit myself to a course of action.