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NON-CONTINGENT REINFORCEMENT IN A COUNSELING LIKE SITUATION

by

Robert B. Shelton, Jr.

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Psychology

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1973

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ABSTRACT

Non-Contingent Reinforcement in a Counseling Like Situation

by

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Utah State University, 1973

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Department: Psychology

The purpose of this study was to determine if a variable, non-contingent reinforcement, could account for a significant amount of the effect of psychotherapy. A sample of ninety subjects was drawn from basic psychology classes and randomly assigned to six groups in a variation of the Solomon 4-group design. The treatment groups were connected to sham GSR equipment and told that when a light flashed they had made an anxiety reducing statement and were becoming more mentally healthy. The subjects were given three by five cards upon which were typed positive-negative adjective pairs and told to use the cards as cues to talk about themselves. The subjects were placed on a variable interval schedule with a mean of 10 seconds. No significant difference was found for the treatment.

(28 pages)

CHAPTER I

INTRODUCTION

In perusing psychological research and literature, the reader tends to become swamped by the numerous differing theories of psychotherapy. Since some of the theories of psychotherapy are mutually exclusive, by definition, it would seem highly relevant to do some basic research into areas of conflicting rationale.

Although some authors (Eysenk, 1965) contend nothing happens in usual counseling sessions, the majority of authors claim something does happen in counseling that leads to changes in the client. The problem, then, becomes one of finding the underlying variables that lead to client change.

This study attempts to look at one variable, non-contingent reinforcement, to see if this previously unresearched variable can lead to client change.

Definition

The purpose of this study is to determine whether, under the experimental conditions, a generalization effect can be demonstrated for non-contingent reinforcement. Specifically, the objectives of the study are two fold. The first objective is to determine if anxiety, as measured by the Pittsburgh Short Form of the Taylor Manifest Anxiety Scale, decreases as a result of non-contingent reinforcement. The second objective is to determine if self concept, as measured by

ratings on Q-sort items, increases positively as a result of non-contingent reinforcement.

In order to focus more fully upon the purpose of the study, the following four null hypotheses will be tested.

1. The mean difference between pretested and non-pretested groups on the Pittsburgh Short Form of the Manifest Anxiety Scale will not be significant.

2. The mean differences among experimentally treated, control treated, and the non-treated groups on the Pittsburgh Short Form of the Manifest Anxiety Scale will not be significant.

3. The mean difference between the pretested and non-pretested groups on the Q-sort ratings will not be significant.

4. The mean differences among experimentally treated, control treated, and non-treated groups on the Q-sort rating will not be significant.

CHAPTER II
REVIEW OF LITERATURE

Counselors have long been concerned with determining those variables within the counseling interview which have a positive effect upon the client (Krasner, 1961). Greenspoon (1962) stated that the S^D (discriminative stimulus) value of verbal behavior may be the means by which self control or self regulation of behavior is achieved. Krasner (1961) extends that idea by stating that psychotherapy is a subtle manipulation of the patient's behavior by the therapist's reinforcing behavior. In line with reinforcement theory, one variable of the counseling interview to be explored is the effects of reinforcement on varying types of client statements.

Stimuli used in reinforcing behavior have ranged from buzzers, points, lights, clicks, to "in depth clinical interpretations." When made contingent on a specific behavior each of the above has been shown to have reinforcing properties (Adams and Frye, 1964; Klein, 1964, Nutham, 1957; and Rogers, 1960). The types of subject statement that have been reinforced have included affect statements (Krasner, Ullman, Weiss and Collins, 1961); "hallucination," (Debie, 1959); opinions and attitudes (Ekman, 1958; Verplanck, 1955); and "acceptance of self," (Nuthman, 1957).

Investigators have also been concerned with whether reinforcement of specific behavior within an interview setting would decrease anxiety and/or yield an improved self-concept, i.e., generalize to behavior outside of the interview sessions. Rogers (1960) employed self-

description tests following conditioning and could not demonstrate generalization effects. He has not been alone. Moos (1961), Tobias (1960) and Weide (1960) were also unable to show significant effects in generalization with the approaches they used.

Klein (1964) was unable to demonstrate generalization for positive self-referent statements but was able to show generalization for negative self-referent statements. Aiken and Parker (1965) were, however, able to show significant generalization effects for positive self-referent statements. The subjects were reinforced for positive self-reference statements. The effects of reinforcement were measured by higher scores in positive self-concept, as indicated on positively and negatively stated Q-sort items.

The above studies tend to indicate that operant conditioning theorists, such as Greenspoon and Krasner, are correct in their belief that one of the variables in psychotherapy is the reinforcement of specific behavior. However, there appears to be no research as to the effect of stimuli found to be reinforcing (buzzers, tones, lights, etc.) upon client behavior outside of an interview session when these stimuli are not contingent upon a specific behavior. If there are generalization effects (generalization effects being defined as a reduction of measured anxiety and/or an increase in positive self-concept) as a result of non-contingent stimuli presentations, an important alternative hypothesis for many of the successful generalization studies may have to be found. The hypothesis would be that the reinforcing stimulus itself may be related to part, if not all, of the generalization effects detected in the data.

Some theorists contend that variables other than reinforcement of specific behaviors in an interview situation could be related to changes in personality measures. Rogers (1951) stated:

The therapist must lay aside his preoccupation with diagnosis and his diagnostic shrewdness, must discard his tendency to formulate an accurate prognosis, must give up the temptation to subtly guide the individual, and must concentrate on one purpose only, that of providing deep understanding and acceptance of the attitudes consciously held at this moment by the client as he explores step by step into the dangerous areas which he has been denying to consciousness. (Rogers, 1951, p. 30)

Rogers (1951) also indicated that "unconditional positive regard" is a major variable in client change. This seems to imply that non-contingent reinforcement (unconditioned positive regard) is one of the variables important to counseling.

Carkhuff and Berenson (1967) indicated that the important dimensions of client change are empathetic understanding, positive regard, and genuineness on the part of the therapist. Reinforcement for specific behaviors is not mentioned.

Theorists on both sides of the specific reinforcement question are agreed that generalization effects as indicated on personality measures are important research areas (Aiken and Parker, 1965; Carkhuff and Berenson, 1967; Klein, 1964; and Rogers, 1951, 1960, 1961). Authors also stated that personality measures can be used as an index of positive subject change (Aiken and Parker, 1965).

In summary, some reinforcement theorists hypothesize successful psychotherapy (defined as client change on personality measurement indices) is the end product of the reinforcement of specific behaviors.

The review of literature reveals that a variable, non-contingent reinforcement has not been researched, even though it has been implied (Carkhuff and Berenson, 1967; Rogers, 1951).

CHAPTER III

METHODOLOGY

Population and Sample

The population consisted of all the approximately 200 students in a basic psychology course held during summer quarter, 1971, at Utah State University in Logan, Utah. The preponderance of the students in the class were freshmen, because the class fills a basic requirement of the university. The students in the class came from a wide variety of backgrounds and majors.

A sample of 90 students was drawn by random selection from the class rolls. It was arranged for the sample subjects to participate in the research in lieu of outside assignments and receive full credit for those assignments. The grade in the class was made contingent upon the students' participation as subjects in the research.

Design

The experimental subjects were randomly divided into six groups of fifteen subjects each; an adaptation of the Solomon 4-group design. The figure below indicates how each group was treated. Pretesting and

	Groups					
	1	2	3	4	5	6
Pretested	X	X			X	
Experimental treat.		X	X			
Control treatment	X			X		
No treatment (45 min. wait)					X	
Posttests	X	X	X	X	X	X

Figure 1. The subject groups and their treatment.

posttesting, when conducted, were separated by 45 minutes of treatment to be described later.

The control treatment consisted of the following:

1. The subjects were brought into the experimental session room and seated at a desk facing the experimenter. Between the subject and the experimenter was a fiberboard screen so they could not see each other. This was to prevent facial expression and other behavior on the part of the experimenter from providing cues to the subject. There was a small red light bulb placed about eye level on the screen. A microphone was suspended from the ceiling.

2. The subject was told he was participating in an experiment to determine if galvanic skin response readings (GSR readings), which detects bodily reactions to tension reduction, could be related to statements about one's self. The subject was further informed that as he talked, his statements and GSR tension reduction readings were being recorded in the other room. The subjects were told that tension reduction as indicated by the GSR is psychologically healthy. As the subjects talked and tension reduction occurred, they would become more psychologically healthy. As with Aiken and Parker (1965) sham GSR equipment was used to provide the subjects with "non subjective - scientific" feedback.

3. At this point, sham finger electrodes were attached to the subject.

4. The subject was then told to go through 15 three by five cards, one at a time. On the cards was printed, "Generally speaking I am" followed by a positive-negative adjective pair. The positive-negative adjective pairs were: lack self respect--have self respect, honest with self--self deceiving, unsociable--sociable, immature--mature, fearful--

courageous, socially awkward--socially smooth, slow--alert, avoid facing problems--face problems, emotionally unstable--emotionally stable, depressed--happy, unrealistic--realistic, insecure--secure, tense--calm, foolish--wise, and dependent--independent.

As with Aiken and Parker (1965), the three by five cards were shuffled three times to give them a random arrangement of the adjective pairs for each subject. The subjects were asked to use each card as a cue to talk about themselves in any way the card might suggest. The only restriction was a time limit of three minutes per card. If a subject finished the cards before the end of the 45 minute session, the cards were reshuffled three times in order to preserve randomness, and presented until the session finished.

5. The subject was informed that for purposes of research control, the experimenter was not allowed to talk with the subject during the session. The author met with all the subjects in the groups.

6. The treatment session lasted 45 minutes. The subject verbalized about the cards during this time, but received no reinforcing stimuli.

7. Immediately after the session, the subjects took the posttest and were excused.

The experimental treatment was as follows:

1. Same as control treatment.
2. Same as control treatment with the exception that the subjects were told that it was not always possible for the subject to know when tension reduction had taken place. The subjects were informed that to help them determine when tension reduction had taken place, the equipment had been set up in such a way that the red light would come on whenever this healthy tension reduction had occurred. The subjects were told that the red light coming on was an indication that they had

or were making a particularly insightful statement about themselves.

3. Same as control treatment.
4. Same as control treatment.
5. Same as control treatment.
6. Same as control treatment except that the subjects were placed on variable interval reinforcement (red light) schedule with a mean of 10 seconds.

Data and Instrumentation

The pretest was given when the subject came for the research session, prior to the session with the experimenter. The posttest was administered directly after the session. The administration of two testing instruments constituted the pre and posttesting.

The Pittsburgh Short Form of the Taylor Manifest Anxiety Scale (MAS) was the first instrument used. It will be remembered from the review of the literature that reduction of anxiety is considered an important outcome of psychotherapy. Two studies (Boss, 1955; Hoyt, 1954) have indicated that a majority of the 50 items of the MAS are not valid in predicting clinical criteria of manifest anxiety. The studies suggested that a short form of the Taylor Manifest Anxiety Scale, retaining only the credible items, would be more valid.

Bendig (1956) concluded that the 20 item Pittsburgh revision of the Taylor Manifest Anxiety Scale (a) had eliminated the standard MAS items of low internal consistency and validity, (b) provides scores that are about as highly reliable (.78 short form compared to .82 long form) as the 50 item MAS and are highly related to scores on the standard form. (The total score of the short form correlates .93 with the total score of the long form), (c) is more parsimonious of testing time,

(d) probably more valid than the longer MAS. Consequently, the short form of the MAS was used in this experiment.

The second instrument used was the same as that used by Aiken and Parker (1965), 16 positive-negative adjective Q-sort self descriptions. The Q-sort self descriptions were rated on a four-point scale defined by the words "almost always," "often," "occasionally," and "almost never."

Analysis

A two by three way analysis of variance was conducted using posttest mean scores. Table 1 illustrates the procedure.

Table 1. The two by three analysis of variance illustrated.*

	No treatment	Control treatment	Experimental Treatment
Pretested	\bar{X}_5	\bar{X}_2	\bar{X}_1
Non-pretested	\bar{X}_6	\bar{X}_4	\bar{X}_3

*The .05 level of significance was used in all tests of significance.

The above analysis of variance is used in this study with a variation of the Solomon Four Group design to look at differences between pretested and non-pretested control and treatment groups.

Results

Null hypothesis 1 states: The mean difference between pretested and non-pretested groups on the Pittsburgh Short Form of the Manifest Anxiety Scale will not be significant.

This hypothesis cannot be rejected. Table 2 summarizes the results of the statistical comparison performed to test null hypotheses 1.

Table 2. Analysis of Variance Table: Pretest vs. posttest by experimental vs. control vs. non-treated for the Pittsburgh Short Form of the Taylor Manifest Anxiety Scale.

Source	d.f.	mean square	F
Pretest Non-pretest group	1	16.8999	1.0895
Treatment group	2	0.0999	0.0064
Interaction	2	53.4333	3.4448
Error	84	15.5111	

An inspection of the above data indicates that no significant difference exists between pretest and non-pretested scores on the Pittsburgh Short Form of the Taylor Manifest Anxiety Scale.

Null hypothesis 2 states: The mean differences among experimentally treated, control treated, and the non-treated groups on the Pittsburgh Short Form of the Manifest Anxiety Scale will not be significant.

This hypothesis also cannot be rejected. Table 2, above, summarizes the results of this statistical comparison. An inspection of the data

shows that no significant difference exists between treatment groups, i.e. experimental treatment, control treatment, non-treatment groups.

Null hypothesis 3 states: The mean difference for the pretested and non-pretested groups on the Q-Sort ratings will not be significant.

Again, this hypothesis cannot be rejected. Table 3 summarizes the results of the statistical comparison performed to test hypothesis 3.

Table 3. Analysis of Variance Table: Pretested vs. posttested by experimental vs. control vs. non-treated for the Q-Sort rating.

Source	d.f.	mean square	F
Pretested Non-pretested group	1	2.1777	0.0217
Treatment group	2	22.0777	0.2199
Interaction	2	9.6777	0.0964
Error	84	100.3555	

A review of Table 3 indicates that no statistically significant differences in pretest-non-pretest group exists.

Null hypothesis 4 states: The mean differences among experimentally treated, control treated, and non-treated groups on the Q-Sort rating will not be significant.

As before, this hypothesis stands. A perusal of table 3, above, substantiates that there is no significant statistical difference between treatment control and non-treated groups.

In summary, the results of this research indicate that the treatment had no effect on anxiety as measured by the Pittsburgh Short Form of

the Taylor Manifest Anxiety Scale. There was also no effect on self concept as measured by the Q-Sort ratings.

Discussion

The statistical data presented in this study indicates that anxiety as tested by the Pittsburgh Short Form of the Manifest Anxiety Scale was not reduced. Self-concept as measured by the Q-Sort rating was equally resistant to change. It will be the purpose of this discussion to explore five possible explanations for the results.

Two possible reasons are statistical in nature and the discussion will concern itself with the method of gathering the data and the possibility that the groups were initially different to some significant extent. In addition, we will also look at weaknesses in the study and problems of the sample.

Statistical Problems

The sample size in each of the groups was limited to fifteen subjects. Differences occurring in small samples frequently must be very large in order to be considered statistically significant. Therefore small sample size may be masking a significant experimental occurrence. If this is true, repeating the experiment with a larger sample might very well change the results of the study.

Another problem which may have affected the statistical measures is that no attempt was made to match the control groups on the basis of susceptibility to the reinforcing stimulus. Disparity in the above could affect the outcome of the data and should be controlled for in any future investigations of this nature.

Weaknesses in this Study

The effects of non-contingent stimulus may have been limited due to the relatively short amount of treatment time used in the experiment. It may be that if there had been more sessions or a longer initial session the subjects could have been more refractory to the treatment variable. Another potential problem is contained within the reinforcing stimulus itself.

It is conceivable that the light used as a reinforcing stimulus was not conspicuous enough. There is some anecdotal evidence to support this. Three experimental subjects mentioned after testing that they "hardly noticed the light at all." Had the reinforcing stimulus been more apparent it might have resulted in a change in the data.

Problems of the Sample Itself

Some element of force was involved in that those subjects selected for the experiment had their grade in a class made contingent upon participating. This coercion could cause a certain amount of emotionality in the subjects which might then bias in some way their response to the experiment.

Another possible cause for the lack of results in this study is that the subjects of the experiment may be qualitatively different from the clients seen in a clinical setting. It may be that clients seen in a clinical setting are more anxious and far more refractory to change in both anxiety and self-concept. This condition, if valid, could lead to greater susceptibility to non-contingent reinforcement.

Summary

Even though I have listed various reasons why this study has not

proven statistically significant, it may very well be that this type of reinforcement is in fact ineffective as a type of stimulation. As Rogers (1960) stated concerning his own results when conditioning verbal behavior, "It may be that the quasi therapy is more quasi than therapy and that, therefore, the findings have little but analogic meaning for psychotherapy."

It is interesting to note that those who support the anti-thesis, i.e., specific reinforcement, have also failed to garner supporting evidence as to the generalization of specific reinforcement in counseling. More research in both areas may prove beneficial in both counseling theory and practice.

CHAPTER IV
SUMMARY AND CONCLUSION

The purpose of this study was to determine if a variable, non-contingent reinforcement, could account for a significant amount of the effect of psychotherapy. A review of the associated literature indicated that the underlying causes of client change in psychotherapy were still undetermined. The "operant" school of thought proposed that client changes are brought about by subtle manipulations on the part of the therapist. The therapist then merely functions as a powerful reinforcer and shapes behavior. The eclectic or non-operant theorists suggest various other reasons for client change, i.e., "unconditional positive regard" and one implied variable is non-contingent reinforcement.

In order to test non-contingent reinforcement a sample of ninety students was drawn from basic psychology classes and randomly assigned to six groups in a variation of the Solomon 4-group design. The treatment groups were connected to sham GSR equipment. The subjects were told that when a light appeared they had made or were making an anxiety decreasing statement and becoming more mentally healthy. The subjects were then given three by five cards upon which were typed positive-negative adjective pairs. They were told to use the cards as cues to talk about themselves in any fashion that seemed appropriate. If the subject finished responding to the cards before the 45 minute treatment session was up the cards were reshuffled and the verbalization continued until time was up. The subjects were then placed on a variable interval schedule with a mean of 10 seconds.

The control groups were connected to the same equipment and given basically similar instructions with the exception that they received no reinforcement. The non-treatment groups were used as a control for the effects of testing and to control for the "Hawthorne" effect.

The results of the research were not significant and none of the null hypotheses could be rejected. Five possible reasons for the results were discussed. Two reasons were statistical and the rest of the problem centered around methodology.

Conclusions

1. Non-contingent reinforcement as used in this study appeared to have no significant effect.

2. The problems in methodology were such that the variable, non-contingent reinforcement, should not be dismissed without further research.

3. It is suggested that further research include subjects drawn from the clinical setting and that they be matched for susceptibility to the reinforcing stimulus.

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APPENDIX

Name _____

Number _____

Read each of the following questions carefully. Circle the appropriate number as it applies to you. Try not to let previous answers influence the question you are currently doing.

REMEMBER: ANSWER THE WAY YOU FEEL THIS MOMENT.

- | Almost always | Often | Occasionally | Almost never | | |
|---------------|--|--------------|--------------|---|---|
| 1 | 2 | 3 | 4 | | |
| 1. | It takes a lot to make me angry. | 1 | 2 | 3 | 4 |
| 2. | I lack self-confidence when competing against others. | 1 | 2 | 3 | 4 |
| 3. | I manage my life so that it runs smoothly and without conflict. | 1 | 2 | 3 | 4 |
| 4. | I am very dependent on the judgment of my friends. | 1 | 2 | 3 | 4 |
| 5. | When decisions are called for I have no difficulty in making them. | 1 | 2 | 3 | 4 |
| 6. | I find it difficult to stick to any routine. | 1 | 2 | 3 | 4 |
| 7. | I have a good deal of self control. | 1 | 2 | 3 | 4 |
| 8. | I become disturbed when my daily habits are disrupted. | 1 | 2 | 3 | 4 |
| 9. | I am fresh, enthusiastic and ready for anything. | 1 | 2 | 3 | 4 |
| 10. | I feel nervous and anxious in unfamiliar situations. | 1 | 2 | 3 | 4 |
| 11. | I think well under pressure. | 1 | 2 | 3 | 4 |
| 12. | I give up too easily. | 1 | 2 | 3 | 4 |
| 13. | I influence others more than they influence me. | 1 | 2 | 3 | 4 |
| 14. | I worry about my ability to succeed. | 1 | 2 | 3 | 4 |
| 15. | I stick to a difficult job even when the results are discouraging. | 1 | 2 | 3 | 4 |
| 16. | I find it difficult to sort out irrelevant ideas and pin myself down to one line of thought. | 1 | 2 | 3 | 4 |

Name _____

Number _____

- T F 1. I believe I am no more nervous than most others.
- T F 2. I work under a great deal of tension.
- T F 3. I cannot keep my mind on one thing.
- T F 4. I am more sensitive than most other people.
- T F 5. I frequently find myself worrying about something.
- T F 6. I am usually calm and not easily upset.
- T F 7. I feel anxiety about something or someone almost all the time.
- T F 8. I am happy most of the time.
- T F 9. I have periods of such great restlessness that I cannot sit long in a chair.
- T F 10. I have sometimes felt that difficulties were piling up so high that I could not overcome them.
- T F 11. I certainly feel useless at times.
- T F 12. I find it hard to keep my mind on a task or job.
- T F 13. I am unusually self-conscious.
- T F 14. I am inclined to take things hard.
- T F 15. I am a high-strung person.
- T F 16. Life is a strain for me much of the time.
- T F 17. At times I think I am no good at all.
- T F 18. I am certainly lacking in self-confidence.
- T F 19. I sometimes feel that I am about to go to pieces.
- T F 20. I shrink from facing a crisis or difficulty.

VITA

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Candidate for the Degree of

Master of Science

Thesis: Non-Contingent Reinforcement in a Counseling Like Situation

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