

BEHAVIOR CHARTING AS AN ADJUNCT
TO THE DYADIC COUNSELING RELATIONSHIP

By

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Abstract of Dissertation Presented to the Graduate Council
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This study investigated the effect of behavior charting, as an adjunct to counseling, upon changes in client behavior during counseling. Behavior charting refers to the procedure of counting one or more specified behaviors over a period of time and plotting their frequencies on Lindsley's Standard Behavior Chart.

The control condition required that each counselor engage in his customary therapeutic procedures with a randomly assigned client.

Under the experimental condition, the counselor used behavior charting as an adjunct to his usual counseling approach with a second client. The client charted three behaviors outside the session: positive statements about self and others (put ups), negative statements about self and others (put downs), and a third behavior agreed upon by

counselor and client as relevant to the client's concern. The counselor charted the client's in-session put ups and put downs. The counselor discussed all charted behaviors with the experimental client during each session. External, independent raters evaluated the taped counseling sessions of each experimental and control client for put ups, put downs, statements in the present tense, and statements in the past tense.

The hypotheses stated that clients whose counseling included behavior charting would show greater change than clients who received counseling without behavior charting in the following behaviors:

- a. self-referent statements measured by a pre- and post-treatment q-sort;
- b. a higher frequency of put ups;
- c. a lower frequency of put downs;
- d. a higher frequency of present tense statements;
- e. a lower frequency of past tense statements.

The hypotheses, as well as the chosen client behaviors, were based upon a Rogerian model of psychotherapy which assumes that the client's concept of self and others becomes more positive during counseling while his negative concept of self and others decreases; the client also exists increasingly in the present rather than the past.

Data for statistical and graphic analyses were available from five treatment pairs, each comprising a control and an experimental client. Clients, selected from the population of a university college of education, participated in six sessions of individual counseling over a three-week period. Counselors were advanced doctoral students in a program of counselor education. Raters were students from the departments of psychology and counselor education.

Statistical procedures revealed no significant differences between the experimental and control groups in the frequencies of any recorded behavior, including self-referent statements measured by the Dymond Q-Adjustment Score in pre- and post-counseling administrations. However, a study of plotted data showed individual differences in the rate of change in all behaviors between the experimental and control client of each treatment pair. Fifty percent of the predicted behavior changes were in the direction specified by hypothesis 2, a result at the level of chance. An unpredicted conclusion of the data analysis was the deceleration of all observed client behaviors on 70 percent of the occasions for behavior change.

Each client behavior frequency represented the geometric mean frequency of two independent behavior counts.

Interrater reliability averaged .65, while intrarater reliability reflected a high degree of stability in the mean correlation of .95 for eight of ten raters. The reliability of counselor-rater evaluations of an experimental client's put ups and put downs varied greatly, ranging from .97 to -.59. Counselors experienced difficulty in counting client behaviors when their interaction with the client became intense.

Both counselors and clients found behavior charting to be valuable in heightening the client's awareness of behaviors and facilitating positive behavior change. Future research may determine the types of clients and behaviors for which a systematic form of behavior counting, recording, and analysis is best suited.

CHAPTER I

INTRODUCTION

Counseling, as a mode of human interaction which has gained the status of a profession during this century, is puzzling to its supporters and antagonists alike. A mass of anecdotal data, as well as a gathering body of research, supports the effectiveness of counseling in changing the lives of some clients on some occasions. The testimony of grateful clients and scholarly journal reports bear witness that counseling at times meets an ultimate criterion of a profession: it makes a significant difference in the lives of those it serves. Just as medicine and law can literally save a life, so can counseling.

Yet counseling, unlike the medical and legal professions, has not clearly defined its role with respect to client outcomes, or the means by which desired changes can be effected in the life of a client. Counselors, for example, seem to agree that their principal object is the facilitation of positive client change or growth. Client "growth," however, is a vague outcome usually defined as a varying collection

of qualitative attitudes or dispositions, rather than a set of specified, measurable behavior changes. The lack of precision in defining "growth" has tended to obscure the analysis of the specific behavior of counselor and client during the counseling session, characteristically their only occasion for interaction. Moreover, an implied functional relationship between counselor behavior and client behavior has not been made explicit. Precisely what happens during counseling to promote client change, as well as why such events modify client behavior and attitudes, is the subject of current research in behavior change.

The forms or structure of counseling, if not the content and results, can be defined. "Counseling" is a generic label for "a special kind of interaction" between persons, designated counselor and client, who communicate directly through verbal and non-verbal exchanges. Such an interaction is instrumental in producing a "change of state" in the client (Pepinsky and Karst, 1964). At the same time, the interaction gives "both members of the dyad reinforcing power over the other's behavior . . . they have become mutually significant people" (Blocher, 1967). Client and counselor each modifies his behavior in relation to the other, but the focus of change is on the client, who is expected to generalize any new behavior or attitudes beyond the counseling interview to the "real world" of his everyday environment.

Since counseling has traditionally been offered by middle-class therapists to middle-class and upper-class individuals (Hollingshead and Redlich, 1958), successful client outcome seems to rest, in part, on an initial similarity of client and counselor. "By and large, counselors using traditional 'insight oriented' approaches to treatment do and probably should continue to select clients much like themselves; that is, clients who are middle class, achievement oriented, verbal and well-socialized" (Blocher, 1967).

A strong expectancy in the efficacy of counseling has not dispelled the specter of Hebb's (1949) or Eysenck's (1952) research. The "spontaneous remission" of psychopathological symptoms in control groups of patients without benefit of psychotherapy cast doubt that counseling was in fact better than no treatment at all. A decade later, Bixler echoed the earlier criticisms of counseling and its supporting research. That client and counselor believe in the counseling process is not sufficient; demonstrated and predictable changes in client behavior and attitude must become evident.

Until these workers can offer evidence that their techniques are more effective than placebos, we must look upon their contribution as no more than that. Faith and ad hominem arguments about the 'worth and dignity and integrity' of man may be

temporarily persuasive but they are very poor substitutes for evidence. (Bixler, 1963)

Unsubstantiated theory in counseling has been accompanied by a similar lack of definition in counseling practice. Speaking of public school counselors, Ohlsen concluded that

failure to define the unique nature of their services, the conditions under which these services can best be provided, and their willingness to permit employees to assign them inappropriate duties have been serious problems for counselors. (Ohlsen, 1969)

A vagueness in counseling theory and practice led to over-optimistic claims of success which could not be supported in divergent areas of social concern such as race relations, poverty, and a fuller utilization of academic talent. The discrepancy between expectations of counseling and the lagging efforts of the profession to establish standards for the role and preparation of counselors became apparent in the latter 1960s (Stripling, 1967). Neither the traditional practice nor research of counseling has substantiated the claimed impact of that "special kind of interaction" between client and counselor.

Purpose of the Study

This experimental study was planned to investigate the effect of behavior charting, as an adjunct to counseling, upon changes in client behavior. Behavior charting is the

procedure of counting a specified recurrent behavior over a given period of time, and plotting the frequency of that behavior on a graph. The Standard Behavior Chart (SBC) developed by Lindsley (1964) was used to record chosen client behavior frequencies.

This research was designed to compare clients who participated in behavior charting during counseling to clients who received counseling without behavior charting. Cumulative client change over the treatment period was indicated by a pre- and post-treatment administration of the Q-Adjustment Score (AS) (Dymond, 1954). The AS requires a q-sorting by the client of a set of self-referent statements. Independent raters counted the frequency of the following verbal behaviors which occurred during each counseling session:

(a) positive client statements about self and others, (b) negative client statements about self and others, (c) client verbal expressions in the present tense, and (d) client verbal statements in the past tense. These verbalizations represent specific observable behaviors based on a Rogerian model of psychotherapy (Rogers, 1961). Counseling is interpreted to bring about the following attitudinal changes inferred from the behavioral pinpoints above: (a) the client's concept of self and concept of others becomes more positive while (b) the client's

negative concept of self and others decreases and (c) the client exists increasingly in the here-and-now rather than the past.

The following hypotheses were tested:

1. Clients whose counseling includes behavior charting will show greater change in self-referent statements than clients receiving counseling without behavior charting, as measured by the AS.
2. Clients whose counseling includes behavior charting will show greater behavior change during counseling than clients receiving counseling without behavior charting in the following specific behaviors:
 - a. a higher frequency of positive statements about self and others
 - b. a lower frequency of negative statements about self and others
 - c. a higher frequency of verbal expressions in the present tense
 - d. a lower frequency of verbal expressions in the past tense.

Rationale of the Study

Any client "growth" or changes in attitudes which occur during the process of counseling will be evident as overt behavior changes in the client. These overt changes include the client's verbal behavior about himself and others in his

environment. "When we speak of a self-concept, we may simply be talking about the aggregate of sentences [one] says to himself (and others) about himself" (Homme, de Baca, Cottingham and Homme, 1968).

The behavior changes will be observable not only to the counselor and client, but to the raters who evaluate the client over the period of counseling. External raters will be able to indicate changes in the four specified client behaviors objectively in terms of their accelerating or decelerating frequency of occurrence.

An alteration of the environment produces behavior change (Skinner, 1953; 1971). Counseling, in the present study, represents an attempt to modify the antecedent and consequent events which are functionally related to the client's behavior. Counseling becomes a means of evaluating the effect of a client's environment so that alterations by counselor and client may lead to and support changes in the behavior of the client.

If counseling produces behavior change, the changes will become evident through the recording of specified client responses over the period of counseling. Counseling with and without behavior charting, as two differing environmental contingencies of client behavior, should produce observable differential changes in behaviors. Such changes can be

detected by a continuous record of client behavior manifested during each counseling session. Whether or not differences in behavior are present, plotting the response frequencies of designated client behaviors over all sessions will reveal a pattern of counselor-client interaction during counseling.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

A review of research reveals an abundance of studies concerning the role and function of counseling. Especially prominent is status-type research achieved by survey or questionnaire. Litwack (1968) highlights the need for experimental research directed at the process of counseling to supplement post hoc assessment of outcomes. "There is . . . a paucity of research that investigates methodology and success of either counseling or counselor education. The human relationship in counseling is still in the early stages of investigative effort." The scarcity of definitive experimental research stems from two sources. First, counseling traditionally has looked to global inferences of attitude and feeling such as "self-actualization" or "improved self-concept." Moreover, counseling research may have attempted an inappropriate comparison between client changes promoted by counseling and changes brought about by the passage of time, without counseling.

Krumboltz (1967) states that the counseling profession has not been served by an assumption that "some generality known as counseling is generally effective for general clients." In fact, research has not unequivocally demonstrated that counseling is better than no treatment at all. Part of the problem, according to Rice (1965), "arises from treating psychotherapy as a homogeneous 'treatment' variable in outcome designs, an assumption that ignores the tremendous variation which we know to exist even within a single theoretical orientation."

Characteristic of research which attempted to demonstrate a wide range of beneficial client outcomes from "counseling," as compared to no therapeutic treatment, are studies by Cartwright and Vogel (1960), and Barrows (1971). Cartwright and Vogel compared changes of 30 neurotic clients on the Minnesota Multiphasic Personality Inventory, the Thematic Apperception Test, and the Q-Adjustment Score during matched periods of therapy and no therapy. The measures showed conflicting results. Predicted outcomes for the therapy condition, including greater client change with longer time in therapy, and greater improvement with more experienced therapists, were only partially supported. Less client improvement over longer waiting periods without therapy could not be

confirmed; the authors indicate that "spontaneous remission" may have accounted for part of the unexpected client improvement with time.

Barrows (1971) investigated the effect of audiotape playback in secondary school counseling. Assuming the homogeneity of "secondary school counseling," he predicted that counseling with or without audiotape playback would produce greater improvement in counseled students' classroom behavior than would no counseling. The results were not significant. About 55 percent of the counseled students improved their classroom behavior, as judged by their teachers, compared with 33 percent of the control group of students who received no counseling. Barrows seems to have confounded the outcome by asking teachers to indicate which students from the total sample showed improvement. Although the teachers did not know which students of the sample had been counseled, they know that all subjects were involved in an experiment. Heightened teacher sensitivity to any behavior improvement, judged in retrospect, cannot be discounted as a source of error variation.

The Experimental Analysis of Behavior

A recent shift in research has been from an "among-treatments" design, comparing counseling as a unitary

variable to the effects of time, to a "within-treatment" design, comparing different methods and techniques of counseling. The change in focus follows from a renewed cognizance of the diversity of client problems, approached through individually tailored treatments.

The experimental analysis of behavior has direct implications for the practice and theory of counseling, since it provides a systematic means of an experimental manipulation and review of counselor and client process variables. Rice foreshadowed the necessity for a synthesis of scientific method and the study of human behavior found in the current approach known as the experimental analysis of behavior.

"The most fruitful approach to a field in which there is uncertainty even about the variable to be measured or controlled is that of a systematic, quantifiable, naturalistic observation" (Butler, Rice, and Wagstaff, 1963).

Skinner (1966) has described several characteristics of an "experimental analysis of behavior." Basic to the experimental approach is a record of the frequency of repeated instances of an operant, a class of behaviors which have a particular observable effect on the environment. The operant, as the behavior of interest, is the dependent variable which varies with the manipulation of independent antecedent and subsequent events in the organism's environ-

ment. Accordingly, the task of the investigator is to discover all the environmental variables which affect the operant. The experimental control of these variables, once discerned through a recording of the behavior of interest and its accompanying events, is preferred to a post hoc statistical evaluation. While the number of organisms studied is usually smaller in this longitudinal approach than in statistical cross-section approaches, the length of study is usually longer.

An applied study of behavior assumes that observable responses manifest prior learning experiences. The empirical-inductive approach thus proceeds from the empirical evidence of maladaptive behavior to a labelling of these responses, rather than proceeding from an a priori theory of behavior to a diagnosis of the client (McDaniel, 1966). The behavior of concern is recorded systematically according to its frequency of occurrence in the context of antecedent and subsequent environmental events. Modification or relearning of behavior can then emerge through environmental changes based on the charted responses (Bijou, 1966).

Counseling and the experimental analysis of behavior share a common goal to facilitate the realization of the client's individual potential. Whether conceptualized as an increased awareness and acceptance of organismic experi-

ence (Rogers, 1961) or as increased skill in the manipulation of one's own environment which controls behavior (Skinner, 1953), such "self-control" is a legitimate end of therapy. An ordered analysis of behavior can provide a powerful tool for facilitating the client's acquisition of self-control.

"Outreach" counseling as a helping relationship is supported by the contemporary involvement of the experimental analysis of behavior. Outreach counseling takes place in the client's environment whenever possible--in the home, special education class, prison, or mental institution--and actively seeks to modify that environment for the benefit of the client. A current index to journals in education reveals that behavioral counseling techniques in outreach counseling include relearning in public speaking, stuttering, interracial behaviors, soiling by an elementary school student, and risk-taking behavior. The literature offers profuse examples of outreach relationships which occur with the client in his own environment; involves parents, teachers, and peers significant to the client in that environment; and utilizes the counselor-client interaction to examine current behavior and feelings as a basis for desired client change.

A comprehensive experimental environment for learning

was created for a group of 16 student-inmates of the National Training School for Boys during 1965 (Cohen, Filipczak and Bis, 1967). The authors designed a learning environment which included potential behavior reinforcers such as a general classroom, a self-study area, a conference room, and a student recreation lounge with a store. A token economy of immediate extrinsic rewards (points exchanged for money) was implemented to achieve measurable improvement in educational and social behaviors. Academic progress in reading, language skills, and mathematics resulted in praise and attention from the staff, leading to acceptable social behavior more like that of public school students. Programed texts and individualized instruction allowed each student to work at his own pace. After he reached 90 percent accuracy on each unit of study, the student began the next unit. The boys were paid daily for the achievement points earned. Payment allowed the students to enter the recreation lounge where money could be spent for food or other desired items from the store. The success of the experimental learning environment is confirmed by a group Scholastic Aptitude Test score gain of one grade level in reading, arithmetic, and spelling, and a half-year gain in language skills over a nine-month period for student-inmates who had been termed failures in public school programs.

Phillips (1968) used token reinforcement procedures to shape a variety of social, self-care, and academic behaviors in a home-style treatment program for "pre-delinquent" boys. The three boys involved were rewarded with points for appropriate academic behaviors such as achieving 75 percent accuracy on assignments in arithmetic and reading. "Fines," or loss of awarded points, were levied for inappropriate social behaviors including tardiness, aggressive statements to peers, and incorrect grammar. Points could be exchanged weekly for an allowance, use of a bicycle, television viewing, and permission to stay up past bedtime. Phillips reported the treatment program to be practical, economical, and effective in the home-type environment during the three-month experimental period.

The studies by Cohen et al. and Phillips employed tangible, extrinsic rewards to provide environmental contingencies for behavior previously unaffected by largely unavailable natural consequences such as teacher praise or good grades. The behavior of the student-inmates became more nearly "normal" as it was shaped to respond to the natural contingencies usually overlooked in describing a person as "self-disciplined" or "motivated." A deliberate imposition of artificial consequences can play an important part in transforming behavior from "maladjusted"

to "adaptive" through controlled learning environments such as those described above.

Schaefer and Martin (1966) focused on the pervasive problem of "apathy" among patients in mental institutions. Assuming that the institutional environment reinforced "apathy," the researchers modified the environment to support alternate behaviors which could not be termed apathetic. From a group of 40 females who showed varying degrees of apathy, as noted in their medical records, 20 were randomly assigned to the treatment condition of a token economy, while the remainder served as a control group who received no treatment beyond their usual interaction with the hospital staff. Baseline data were collected on all subjects who were assigned daily "apathy scores" based on the severity of their observed isolation and the limitations of their behavior. Experimental subjects were reinforced over a three-month period for personal hygiene (e.g., showering, hair combing, use of cosmetics), social interaction (e.g., speaking up in group therapy sessions, playing cards with other patients), and adequate performance of assigned housekeeping chores. The rationale behind all reinforced behaviors was that the patient who emits such behaviors "cared" about people and objects in his surroundings and could not be called apathetic or uncaring. The experimental

group, although equivalent to the control group in mean initial apathy score at the end of the first month, showed significant within-group and between-group differences in behavior at the end of the second and third months of treatment. They showed a steady and significant decrement in apathy scores compared to their own initial mean and to the means of the control group for corresponding time periods. The main value of the study lies in a comparison between conventional hospital treatment, which had not changed "apathy" in the patients during the experimental period, and the deliberate application of reinforcers which changed behavior significantly in three months ($p < .005$ between overall experimental and control group means).

A 20-month study of 60 institutionalized chronic schizophrenics conducted by Atthowe and Krasner (1968) lends additional credence to the usefulness of a systematic contingency program. Tokens, established as positive reinforcers during a three-month shaping period, promoted significant gains in attendance at group activities, requests and use of passes to leave the ward, and discharge rate during the following 11 months. A six-month baseline period gave the researchers initial data on patient behaviors and potential reinforcing events. The authors found the token economy to be effective as a controlled

environment designed specifically for patient gains in "normal" behavior, contrasted to the usual institutional environment which served to maintain or intensify maladaptive behavior. The contingent reinforcement program represented by a token economy was successful in "combating institutionalism, increasing initiative, responsibility, and social interaction, and in putting control of patient behavior in the hands of the patient."

Although outreach counseling emphasizing behavior change has been chiefly concerned with segments of the population regarded by society as "abnormal," recent research concerns "normal," yet distressing client problems such as stuttering, overeating, or marital difficulties.

Webster (1970) devised a behavioral approach to the elimination of stuttering. Clients were eight severe stutterers, ages 15 through 47, who had previously experienced little success in speech therapy. Each client advanced through the fluency shaping program at a rate based on his performance during each phase of the program. Following a three-day baseline period when observers counted the frequency of speech blocks during reading sessions, each client learned to detect accurately his own stuttering responses as he read aloud. This "self-definition" of speech blocking involved the client actively in the fluency shaping process

and provided direct feedback as a foundation for ultimate self-control of stuttering. Continuous playback of client speech through a delayed auditory feedback technique prompted discrimination of speech blocks and helped establish self-maintained fluent, yet slow speech. The speech rate increased with laboratory conversation practice. Clients generated large amounts of spontaneous speech as they described magazine pictures during sessions of gradually increasing length. Pictures were then faded out, leaving smooth conversation without visual prompting. The effectiveness of the brief (10-40 hours) systematic fluency program is indicated by a followup study 10 months later. Only one client reported more than five blocks per day; after several hours of retraining he reported no further stuttering.

A program reported by Stuart (1967) applied the experimental analysis of behavior to the problem of overeating. The objective of the program, like Webster's program to eliminate stuttering, was the client's ultimate control of his own behavior. Thirty-minute treatment sessions were scheduled three times weekly over a four- to five-week period for eight female clients judged obese by their physicians. During these sessions Stuart instituted a number of environment changes to aid client discrimination and control of overeating. Each client kept a food data sheet

to record the quantity and circumstances of food intake, and a weight range sheet which showed the effect of food intake on body weight measured four times daily. An awareness of the circumstances and consequences of overeating was heightened further by the client's manipulation of his eating environment. The client interrupted his meals for several minutes to reinforce his ability to control his own rate of eating. He also made eating a "pure" experience without coupling it with such stimuli to overeating as watching television or reading in bed. Only foods which required preparation were used, one portion at a time. All such environmental changes were designed to make the client aware of, and thereby able to control, the various aspects of his eating behavior. A followup 12 months after the beginning of the program showed that the group of clients had lost an average of a pound per week during that year, although fluctuations in weight were common. Every client had lost at least 30 pounds during the program of weight reduction. Client interviews at the end of the year revealed no "symptom substitution" for overeating. In fact, three clients who were heavy smokers reported a substantial reduction in smoking through application of the principles of their eating control program.

Goldiamond (1965) summarized the consultative role of the counselor implicit in the experimental analysis of

behavior. The professional helper acts as a consultant to the client for a problem which can be expressed as a collection of behaviors that the client will be instrumental in modifying. Goldiamond, as consultant, cited cases in which he had instructed the client to arrange certain environmental changes; in other cases, he had trained the client in a functional analysis of behavior so that the client could determine for himself which changes to arrange. Weekly sessions afforded a time for the client to report the effect on his behavior of attempts to change the environment, and to formulate further changes.

A marital case illustrates the consultative relationship. The behaviors of concern were the client's alternate shouting and sulking for hours on end in the presence of his wife, who had been sexually unfaithful two years earlier. Goldiamond suggested procedures for stimulus change combined with new contingencies for shouting and sulking. The husband was to take his wife out for dinner once a week, and during that occasion he was to speak with the normal courtesy and consideration as he would give to any dinner partner. The husband could also sulk as long as he wished, but only while seated on his "sulking stool" in the garage. The client kept daily records of his sulking and civilized conversation with his wife. At the end of 10 weeks, "there

was no sulking in the garage and the partners were able to commune."

Precise Behavior Management

The practical application of the experimental analysis of behavior to a modification of the behavior's environment is known as precise behavior management. Lindsley (Duncan, 1971a) contrasted precise behavior management to behavior modification. Although both are derived from techniques of operant conditioning, precise behavior management emphasizes natural consequences of behavior, such as the teacher's praise or censure, rather than artificial extrinsic reinforcers such as tokens or candy. Extrinsic reinforcers or punishers may be used to promote behaviors of sufficient frequency and consistency to come under the control of consequences already a part of the environment. But such artificial events are acknowledged as behavior prosthetics, supportive tools to be replaced by events naturally occurring in the behavior's surroundings. The emphasis on ultimate natural consequences is balanced by an interest in natural antecedents of behavior. While behavior modification seems to strive for experimental control of the circumstances under which given behavior occurs, precise behavior management looks for natural

events which cue certain behaviors. These antecedents, once determined as causal events through observation, can then be manipulated in the ongoing situation.

Pennypacker (1972) amplified the differences between precise behavior management and operant techniques. First, the focus of precise behavior management is human, rather than animal behavior. Operant conditioning of animals served as a means to establish specific, consistent responses which could be observed under different treatment conditions. For example, operant conditioning techniques can institute bar-pressing behavior in rats. That behavior is observed to vary under different environmental circumstances, such as presentation of food or administration of shock, contingent on bar-pressing. Precise behavior management also employs operant conditioning to establish new behaviors in humans, but the purpose is not mere objectivity in recording specific responses. The acquisition of new or modified behavior is a learning experience designed to supplant maladaptive behavior. The change in behavior may be a relatively discrete observable event, such as talking with peers of the opposite sex, or it may be a collection of behaviors from which an attitude or tendency such as "apathy" or "aggression" is inferred.

Operant conditioning of laboratory animals, besides specifying uniform recordable responses, attempts a strict control of the experimental environment through physical isolation so that a single independent variable, e.g., presentation of shock, can be manipulated. All other concurrent environmental stimuli are regarded as potential sources of error variance. Precise behavior management, however, utilizes the person's natural environment, where the behavior is taking place, with the sum of all interacting environmental events impinging on behavior. Again, strict experimental control of the environment is subjugated to the functioning of the human involved. The objective of an experimental approach to the study of behavior is not the imposition of a mechanistic, impersonal technology but the implementation of planned behavior changes tailored to the individual.

Alper and White (1971) discussed pertinent characteristics of precise behavior management. First, it employs a common language system based on a precise description of behaviors and events which are observable and countable. The connotative confusion of such inferred labels as "aggression," "hyperactivity," or "lack of motivation" is reduced by pinpointing the group of behaviors which have fostered the labels. Moreover, the

specific behaviors observed are not "healthy" or "unhealthy," but are qualified as adaptive or maladaptive to the particular situation in which they occur. Precise behavior management furthers an understanding of the behavior through actual observation and precise specification of the behavior and surroundings. The behavior is considered an active participant in the process of environmental control as he "learns how to learn." The behavior and manager can both observe behavior, and the behavior can record the frequency of chosen responses as various attempts are made to alter the environment.

Bradfield (1970) delineated the components of a system of precise behavior management. The first is a precise pinpointing of behavior as a "movement cycle." The movement cycle is a unit of behavior with an accurately observable beginning and end. Once completed, the cyclic behavior may be repeated or replaced by a different behavior. For example, the movement cycle for a child's out-of-seat behavior may be defined as getting up from the desk, walking about the room, and returning to a sitting position at the desk. The child is then free to arise and return again, or to perform other behavior such as talking with a classmate while seated.

The behavior, once described as a movement cycle, is observed and recorded as a frequency, derived from a count of

the cycles over a given period of time. Behavior charting, the second component, is the "feedback" loop of the system. It provides the behavior and contingency manager with knowledge of the relationship of behavior and its circumstances.

The final component of the precise behavior management system is the Behavior Bank, an international computer bank which stores successful behavior management projects. By mid-1971, over 11,000 projects from the fields of education, psychology, social work, medicine, and nursing had been deposited. About 60 percent of these projects concerned applications to special education (Koenig, 1971).

Johnston and Pennypacker (1971) have used "precision teaching," precise behavior management in the context of the classroom, with psychology classes at the University of Florida. Their methods challenge a number of traditional concepts in education. First is the notion that only a fraction of the students can achieve a high grade through intraclass competition. Every student who met clearly specified performance criteria achieved the grade of A. Over 90 percent of the students in the class, whose enrollment averaged 75 students per quarter for the two years reported, reached the criteria designated as "A" performance. That is, most students could discuss the content of the course with the fluency and detailed knowledge

of an expert. The pervasive concept of education which separates the teaching and learning functions between professor and student was also disputed. "Contingency managers," students who had earned an "A" in the course previously, each shared a one-to-one relationship with five or six class members in the "performance session." The contingency manager met with his protege (class member) twice or three times weekly, for less than half an hour each time, to allow the protege to perform verbally on text and lecture material. The student discussed any errors with his contingency manager and plotted his rate of progress on a Standard Behavior Chart. Student, contingency manager, and instructor could quickly determine the student's past performance, project his future performance under similar circumstances, or compare his performance with that of any other class member. The continuous direct record of relevant academic behavior reflected the sequential evaluation of the student in relation to the announced standards of achievement as criterion rates of correct, incorrect, and irrelevant answers. The instructor was free to present lectures without the burden of evaluating 75 different students whose behavior might otherwise have been sampled through one or two hour-long tests during the quarter. Neither did he need to speak on all relevant textual material. The nature

of the contingency manager-protege schedule required the student to read and show verbal proficiency over short segments of the text before performance on the next segment was attempted. Johnston and Pennypacker, in summary, have implemented a learning model based on behavioral principles which support an active involvement of the learner in achieving specified criteria through continuous performance and evaluation of academic behavior.

Precision teaching has achieved success in classes for children disabled by emotional and physical handicaps. Roberts (1971) has recounted her experiences with a class of trainable mentally retarded children. She constructed a program of flash cards containing functional stimuli such as days of the week, traffic signals, and units of money. Reinforcement for each student was contingent upon a gradual increase in his rate of correct responses.

Duncan (1971b) applied precision teaching to thoughts or "inner behavior." A three-and-one-half-year-old girl who counted and charted her selfish thoughts as well as selfish actions during kindergarten substantially reduced the frequency of selfish actions while maintaining the level of selfish thoughts. A 12-year-old girl counted and charted angry feelings and angry outbursts toward her younger brother. Counting accelerated her thoughts and outbursts.

She then selected potentially reinforcing contingencies for a decrease in angry behavior. For 15 or less outbursts daily, she arranged to receive a dime; for 10 or less, 20 cents. Outbursts decelerated during these contingencies and continued to decrease when she returned to counting only. Similarly, angry thoughts dropped when she told each one to her teacher, and remained low when she resumed counting only.

The Counseling Relationship

The focus of this writer's research is an application of the rationale and methodology of precise behavior management to the counseling relationship, conceived as a learning environment. This section reviews the literature concerning pertinent aspects of this application to counseling..

Several researchers have examined the nature of the successful counseling relationship through a study of counselor and client characteristics. Blocher (1967), drawing on past studies, has noted the similarity between "successful" clients and their counselors. Both, compared to samples of "adults in general," tended to display greater anxiety and self-dissatisfaction (Lorr, Katz, and Rubenstein, 1958), have greater needs for achievement, and show a greater willingness to communicate problems and feelings to

others (Hiler, 1958). They also tended to belong to the middle and upper social classes (Bailey, Warshaw, and Eichler, 1959), to have more formal education (Hiler, 1958), and higher measured intelligence (Stieper and Wiener, 1965).

"Generally, the good prospect for counseling . . . is described as not very disturbed, well motivated, well educated and having good personal resources" (Stieper and Wiener, 1965).

Pepinsky and Karst (1964) have proposed a process of "convergence" to explain an increasing similarity between a therapist and clients termed "successful" by the therapist. Convergence implies that the client will increasingly modify his behavior toward his counselor's behavior as witnessed during the interview. "The key to the [convergence] process is the ability of the therapist to influence the client either to change his beliefs or to modify his behavior . . ." through the counselor's use of a "psychological grammar." This grammar comprises "categories of belief and action" presented by the counselor to the client, as well as "rules of belief and action" which the client learns to use during the counseling relationship. "Successful" client change, largely determined by the counselor, seems to depend heavily on the client's ability to model the counselor's verbal behavior and to infer standards of behavior acceptable beyond the session.

Reinforcement is a vital aspect in the convergence of counselor and client. The experimental analysis of behavior incorporates the use of reinforcing events to promote behavior change. "Insight" therapy also seems to utilize principles of reinforcement in establishing necessary conditions for therapy. Truax (1966) analyzed a taped session of Carl Rogers and client, and found evidence of selective counselor reinforcement of certain client behaviors. Measured on scales constructed by Truax, the therapist was observed to be more empathic, warm, and accepting, and less directive when the client expressed himself in a style similar to that of the therapist. The following classes of client behavior were positively reinforced by attention and verbal response from the therapist: (a) learning discriminations about self and feelings, (b) expressions of insight, (c) verbal expressions similar in style to therapist's expressions, and (d) awareness of a problem. Client discriminations, expressions of insight, and awareness of a problem were inferred from the client's verbal responses, while similarity of expression was observed directly.

Allen (1967) concurred with Truax's observation of therapeutic reinforcement:

It would appear that much more might be accomplished if it were clearly acknowledged that the success of the client-centered counselor turns on the fact that most human beings are more likely to repeat behaviors that are rather regularly succeeded by sensitive expressions of warmth and understanding by another positively regarded person than those that are not.

Truax and Carkhuff (1965) experimentally manipulated counselor levels of empathy and positive regard during a one-hour interview in which three therapists each met a different schizophrenic patient. The therapist attempted to provide high levels of empathy and regard during a 20-minute baseline period, to lower the conditions during the middle period, and to renew the higher levels during the last 20 minutes. Client levels of empathy, regard, and depth of intrapersonal exploration were observed to vary directly with the therapist's manipulations of empathy and positive regard. Truax and Carkhuff concluded that the findings suggested "a causal relationship between the level of some therapist-offered conditions and some of the patients' therapy behavior."

The reinforcing properties of the therapist were further discriminated in a study by Holder, Carkhuff and Berenson (1967). A group of clients were assessed on scales for empathy, respect, genuineness, concreteness, and depth of self-exploration. The three highest and three lowest ranked

clients were interviewed by a counselor who manipulated the conditions of empathy, warmth, and genuineness during the interview. Twenty-minute segments of high, low, and high counselor conditions were found to affect directly the levels of empathy, genuineness, and warmth of the lower functioning clients. The higher functioning clients did not vary significantly from their level of functioning at the start of the interview. This finding qualifies the earlier study of Truax and Carkhuff (1965). Client level of functioning, as well as that of the counselor, is an important variable in dyadic reinforcement.

Just as the counselor can selectively reinforce client behaviors under different levels of empathy, genuineness, and warmth, the client can differentially reinforce counselor behaviors. Carkhuff and Alexik (1967) found that counselors who rated high in empathy, warmth, and genuineness maintained their initially high level of function even though coached clients manipulated their level of self-exploration. Low-level counselors were dependent on the client level of self-exploration, and lowered their "core conditions" of empathy, warmth, and genuineness during the middle third of the interview.

Feedback

The counseling relationship, whether it fosters new insights leading to behavior change or, conversely, the acquisition of new behaviors which facilitate a change of feelings, may be viewed as a learning situation. "Inner" and "outer" behaviors are modified in successful counseling. Feedback, or knowledge of results, forms a significant link between initial overt or covert learner response to stimuli and a response modification through perception of the effects of the initial response. Azrin, Rubin, O'Brien et al. (1968) used a loud tone as immediate corrective feedback for slouching behavior, defined individually for each of 25 adult subjects. The researchers designed a lightweight cloth harness with a micro-switch and buzzer which sounded each time the subject rounded his shoulders beyond the critical point of adjustment for his harness. The results showed the feedback procedure effective in reducing slouching for all subjects during every period in which the harness was worn. The reduction in slouching averaged 86 percent during activation of the feedback mechanism. Immediate sensory feedback required the active participation of the subject to change his posture, rather than passive reliance on a rigid brace. In addition, the feedback apparatus encouraged the continuous use of relevant muscles rather than their sporadic use during an exercise period.

Greenspoon and Forman (1956) explored the effect of visual feedback on learning a motor task. Five groups of eight undergraduate students were given several trials to draw a three-inch line while blindfolded. Four groups received feedback by seeing the results of each trial after a delay of 0, 10, 20, or 30 seconds. The fifth group received no feedback between trials. Differences in accuracy between feedback groups were significant, with increasingly accurate lines drawn after decreasing delays of feedback. The group receiving feedback 30 seconds after each trial was found superior in accuracy to the group which got no feedback at all.

Chapanis (1965) designed an experiment to separate the effects of a varying amount, rather than a delay of feedback for a repetitious task. Sixteen undergraduate college students, divided evenly into four treatment groups, punched digits on a teletype tape for an hour daily for 24 days. Treatment conditions were no feedback, when the digit counter was not connected; minimal feedback through a cumulative count, when the digit counter was never reset to 0; feedback through actual count, when the digit counter was set to 0 for each hour session; and maximum feedback with actual digit count and subject's log entries of the count during every 15 minutes of each session. Chapanis

predicted that knowledge of digits punched would be a reinforcer for the subject, and that the greater the knowledge of results, the higher the subject's performance in punching digits. The prediction of performance differences between groups was not supported. However, Chapanis' conclusion that feedback may not improve performance cannot be generalized from his study since he did not test the arranged event of digit count knowledge before the experimental treatment to determine if it was in fact a positive reinforcer or accelerator of digit punching. The outcome of his experiment confirmed that knowledge of digits punched was not a reinforcer producing measurable differences in performance. The chief reinforcer for the monotonous task was likely the termination of the hourly session. An interval schedule dependent on the passing of time was prepotent over a ratio schedule dependent on response frequency.

Baller and Lower (1971) noted that professionals in the role of learning facilitator often fail to give precise, immediate feedback despite an impressive body of evidence supporting knowledge of results as a crucial element in learning. Counselors, as well as teachers, seem to have neglected the value of feedback. Baller and Lower posit feedback as a "basic human need" based on their observation

of man's goal-oriented behavior "motivated by the expectancy of obtaining a particular reward when he engages in certain behaviors." Johnston and Pennypacker (1971), citing the role of feedback in precision teaching, stated that

typically, the assessment process is viewed as divorced from the teaching process. This seems to sacrifice the opportunity for an immediate, continuous measure of the process of teaching as well as to ignore the instructional possibilities inherent in assessment situations. . . .

Lang (1966) has summarized the rationale underlying the use of feedback in a learning environment, particularly counseling. "Treatment is facilitated if clients have knowledge of results and are aware of the principles involved in the therapeutic task."

Description of the Instruments

The Standard Behavior Chart (SBC), developed by Lindsley (1964), has been described by Stephanie Bates, a kindergarten student who had learned to plot accurately some of her own behaviors (Bates and Bates, 1971). A paraphrase of her description follows:

The frequency of an observed behavior is plotted at the intersection of a vertical line, which shows the day of the week, and a horizontal line, which shows how often the behavior occurs. Some frequency points fall between the printed frequency lines on a day line. The chart

accommodates 140 consecutive calendar days marked according to simple plotting conventions. Days on which the behavior occurred and was counted are "rated days," marked with a point at the appropriate frequency. "Ignored days," during which the behavior happened but was not counted, are marked by a line connecting the rated days on either side. Days on which the behavior did not have a chance to occur are "no chance" days, and receive no mark on the chart.

When Stephanie counted her smiles to classmates, she placed a point on the chart for a rated day. When she did not count her smiles at kindergarten, she waited until another rated day had been plotted, and drew a line between the last rated day and the present one. On weekends, when she did not attend kindergarten, she did not mark Saturday or Sunday at all.

The SBC utilizes frequency, or rate, as the measure of behavior. Johnston and Pennypacker (1971) have observed that all behavior occurs in some quantity over some period of time. The expression of these two characteristics in a single statistic, frequency, is "the most useful and sensitive unit by which to measure many kinds of behavior." The SBC thus avoids the limitations of time-sampling techniques. Samples of behavior taken at discrete intervals,

no matter how closely spaced, place an artificial ceiling on a behavior occurring more frequently than the selected interval. For example, a recording at two-second intervals of facial tics occurring at a rate of one per second will show a restricted frequency of 30 instead of 60 tics per minute. The frequency of behavior happening less often than the time sample interval will vary directly with the length of the interval. That is, tics of one-second duration occurring five times per minute have an average frequency of .17 (5 occurrences/30 chances for observation) per minute on a two-second observation schedule, and at an average frequency of .42 (5 occurrences/12 chances for observation) per minute at a five-second recording interval.

Lindsley has reported that the SBC increased communication at least 10 times among a group of teachers sharing behavior data (Duncan, 1971a). When teachers made their own charts, about 30 minutes were required for them to make their data clear to the others. Standardizing data and terminology through use of the SBC provided an adequate range for recording behavior and reduced communication time to about three minutes. The six-cycle semi-logarithmic design has separate scales or cycles for behavior occurring from a thousand times a minute to once every thousand minutes. This feature insures that the

types of behavior measured are not biased by the nature of the chart (Duncan, 1971a).

The diversity of charted behaviors, as well as their temporal range, has increased during the last half-decade. Although behavior charting was developed to record external behavior measurable by any number of observers, "inner" behaviors have also been recorded by the behavior. Success thoughts, anxiety feelings, joy, love, and compassion have been charted. Lindsley believes that charting may be "one of the few sensitive techniques that we have to keep track of these inner thoughts, feelings, and urges" (Duncan, 1971a). Homme (1965) has referred to thoughts and feelings as "coverants," or covert operants which manipulate environment contingencies but are observable to others only through the verbal report of the behavior.

The SBC, in sum, provides a systematic and comprehensive method to record specified behaviors of diverse frequency and complexity with ease. Most importantly, the learner or behavior receives direct feedback on the effect of his behavior on the environment, as well as the impact of the environment on his behavior.

The Q-Adjustment Score (AS) was derived by Dymond (1954) from the Q-sort test of self-concept constructed by Butler and Haigh (1954). To obtain the adjustment criterion, two well-

trained practicing clinical psychologists divided the Butler-Haigh set of 100 self-referent statements into two categories, "unlike a well-adjusted person" and "like a well-adjusted person." The distributions of the two psychologists differed on only two of the 100 items. Both judges agreed that 26 items were irrelevant. The resulting set of 74 items was sorted by four judges into two equal piles, "like me" and "unlike me" for the well-adjusted person. The composite self-description of the well-adjusted person included 37 "positive adjustment indicators" in the "like me" category, and 37 "negative adjustment indicators" in the "unlike me" category. A person's resemblance to this ideal adjustment type is computed easily by counting the number of the 74 items the subject places in the same category as that assigned to the hypothetical well-adjusted person.

The reliability of the AS was estimated by the test-retest method for a control group ($n = 23$) not exposed to therapy. Reliability over the two-month period was .86. Test validity was determined through a correlation of AS scores and the Butler-Haigh Q-sort of self-concept. The rank-order correlation between the instruments for the 23 control subjects was .83, while the rank-order correlation after a two-month period was .92. The AS thus evidences satisfactory validity in its high agreement with the Butler-Haigh Q-sort of self-concept.

CHAPTER III

METHOD

Design

A multiple subject, dual treatment design was used to generate data concerning client behaviors during counseling. Fourteen clients (nine female, five male) were randomly assigned to seven counselors (four female, three male) for six 50-minute counseling sessions distributed over a three-week period. Each counselor was randomly assigned two clients who were then assigned at random to the experimental or the control condition. Thus, each counselor served as his own control by interacting with one client under each treatment condition.

The control condition stipulated that the counselor employ his customary therapeutic procedures to facilitate client change in attitude and/or behavior. The experimental condition added the treatment variable of behavior charting, and stipulated that the counselor employ behavior charting as an adjunct to his customary therapeutic procedures. In the experimental condition, the counselor charted the

client's positive statements about self and others (put ups) and his negative statements about self and others (put downs) during each counseling session. The client charted put ups, put downs, and a third behavior agreed upon by counselor and client as relevant to the client's concern, outside the counseling session.

The design of this study purposely incorporated a variety of counselor and client opportunities for behavior charting. The consideration of several behaviors and occasions for charting by both counselor and client afforded an opportunity to obtain differences between the control and the experimental procedures.

The Sample

Clients were drawn from the undergraduate and graduate populations enrolled in the College of Education at the University of Florida. The following criteria were used to select a pool of clients for this study:

- (a) The client was not currently participating in an individual counseling relationship.
- (b) The client indicated that he wished to discuss a legitimate personal concern of a social, educational, or vocational nature.
- (c) The client agreed to remain in counseling for at least six sessions over a period of three weeks, with provision for additional sessions if desired by the client.

All clients entered counseling voluntarily with the understanding that they were participating in a study to explore different modes of counseling. Three prospective clients withdrew from the study before their first counseling session, while another client withdrew after the first session. Two clients whose concerns were judged insufficient by both counselor and client to warrant six counseling sessions were terminated after their first session. A replacement for each terminated client was immediately selected from the client pool.

Procedure

At the beginning of the first counseling session under each treatment, the counselor administered the AS card set of self-referent statements as a pretest measure to each control and each experimental client. The following instructions were given by the counselor:

This deck of cards contains statements you might make about yourself. Sort the cards into a "like me" stack and an "unlike me" stack. If a statement is true about you more often than not, place it in the "like me" stack. If a statement is not true about you more often than not, place it in the "unlike me" stack. Place each card in the stack which you honestly feel describes you best at present. Please begin.

After collecting the sorted cards, the counselor arranged a schedule of twice-weekly sessions at times convenient to both client and counselor.

In the control condition, the counselor initiated a counseling relationship with his client, using his customary approach for the remainder of the first session through the final session. However, an additional statement was delivered by the counselor during the first session to each experimental client:

Keeping a record of some of your behaviors, including feelings, may help you to clarify those behaviors, and to change them if you wish. I would like for you to count three behaviors outside our counseling sessions, beginning today. "Put ups" are the positive statements you make about yourself or others, while "put downs" are negative statements you make about yourself or others. Keep a separate count of the put ups and put downs that you actually say. Positive or negative thoughts are not counted unless they are expressed aloud. I'd also like for you to count any behavior that we feel is relevant to your concern. It can be a behavior that others can observe, or it may be a thought or feeling you have.

The counselor gave the client an opportunity to ask any questions about the behaviors to be counted. After the counselor and client had chosen a relevant behavior which the client could identify accurately as it recurred, the counselor instructed the client in procedures of behavior charting. Copies of the Standard Behavior Chart and the Rate Computation Sheet were introduced as instructions were given to the client. The following instructions prepared by the researcher were closely paraphrased by

counselors during the first session under the experimental condition:

The behavior we've chosen is first counted. Keep a daily tally on a card that you carry with you. Make a mark after each occurrence of the behavior [counselor demonstrates], or keep count on a wrist counter [demonstrates]. Also keep track of the time during which the behavior happened. You can count a behavior all day, or for part of a day. If the behavior happens only in certain situations, then mark the time that you're in those situations.

Use the Rate Computation Sheet [show to client] to get the frequency of behavior. Divide the behavior movements you counted by the time over which you counted to get frequency [demonstrate].

Plot the frequency on the Standard Behavior Chart [show to client]. Place a point on the vertical line for the day you're plotting, at the frequency shown by the horizontal lines [demonstrate]. You have just plotted a rated day. An ignored day, when the behavior occurs but you don't count it, will have a line through it connecting the points for rated days on either side. A no chance day, when the behavior doesn't occur, gets nothing. Leave it blank.

The record floor is a line which puts a lower boundary on the behavior we've plotted. It shows the frequency of the behavior if it had occurred only once during the time you counted [demonstrate on chart].

The counselor answered any questions about procedures of behavior charting.

During each session, the counselor counted client put ups and put downs and shared their frequencies with the client at the end of the session. The client shared the frequencies of his put ups, put downs, and relevant behavior charted during the time since the last session.

All frequency data were plotted on the Standard Behavior Chart in the following manner: client put ups and put downs counted by the counselor during the session were plotted in contrasting symbols or colors on a single chart. The experimental client similarly plotted on a single chart his own put ups and put downs which occurred outside the session. By plotting two incompatible behaviors such as put ups and put downs on single charts, counselor and client could examine the daily changes in the relationship of these behaviors, both in and out of session. On a separate chart, the client plotted the behavior chosen by him and his counselor as relevant to his concern.

At the conclusion of the last session under both the experimental and the control conditions, the counselor administered the AS card set of self-referent statements to each client as a posttest measure. The instructions given to the client were identical to those preceding the pretest administration.

Selection and Training of Counselors

The counselors for this study were seven advanced doctoral students enrolled in graduate programs of counselor education or clinical psychology at the University of Florida. Each counselor had completed at least two years of supervised experience in individual counseling prior to the

study. Two counselors had used behavior charting, while the remainder had no previous experience with the technique. The counselors represented a variety of approaches within the client-centered tradition of counseling.

The counselors were trained by the researcher prior to the treatment period in the principles and techniques of behavior charting. During a two-hour training session, the researcher demonstrated charting procedures with the aid of a plastic transparency of the Standard Behavior Chart. Counselors next listened to a number of three-minute taped segments of counseling sessions to gain skill in detecting and discriminating client put ups and put downs. The counselors and researcher were free to stop the tape whenever one or more persons detected a put up or a put down. A consensus on the classification of each positive or negative statement was reached before the researcher advanced the tape. Finally, a brief simulation of a counseling session allowed the counselors further practice in the identification of client put ups and put downs. Two trainees role-played a "counselor" and his "client," while the other trainees independently counted put ups and put downs. Additional instruction in the methodology of behavior charting was available from the researcher throughout the treatment period. The researcher had no

direct contact with any client under either treatment condition, but acted only as consultant to the counselors.

Selection and Training of Raters

Raters were initially selected from undergraduate and graduate students who received psychology course credit for participation in the study. Additional raters were drawn from volunteers in the graduate program of counselor education at the University of Florida.

All 14 raters were trained by the researcher during the first two weeks of the treatment period. The training session comprised rater practice in the identification of client put ups, put downs, statements in the present, and statements in the past. Each rater was provided with a set of definitions for the four client behaviors (Appendix A). Next, raters listened to a series of three-minute taped segments of counseling sessions taken from sources other than this study. The first segment was played twice, with ample opportunity for raters or the researcher to stop the tape so that put ups and put downs could be identified and discussed. For the second taped segment, raters were instructed to count client statements in the past and present tense, as well as put ups and put downs. A replay and discussion of the client behaviors followed. A third

taped segment of client interaction was similarly rated. Finally, each rater independently counted the four specified client behaviors in a seven-minute calibration tape designed to assess intra-rater reliability in behavior counting. To provide a check on an individual rater's consistency over the period of the study, each rater listened to the calibration tape three times: before rating any tapes, after rating six tapes, and after rating all twelve assigned tapes.

CHAPTER IV

RESULTS AND ANALYSIS OF THE DATA

This study has examined the effects of a treatment variable, counseling with and without behavior charting, upon the outcome variable of client behavior. A statistical analysis provides a summary comparison of the control and experimental groups, while a graphic analysis furnishes an evaluation of behavior change during counseling for each of the five sets of clients paired by treatments.

Two of the original seven blocks of treatment pairs were lost for purposes of statistical and graphic comparison. A client who withdrew from school during the second week of the study was not replaced because of the short time remaining in the study. Another client chose to withdraw after the fifth session, when the rater evaluating the taped counseling sessions inadvertently violated the client's confidentiality. In each case, the treatment counterpart of the withdrawn client was not used for data analysis because of the randomized block design which matched subjects.

Client Self-Referent Behavioral Change

Hypothesis 1 states that "clients whose counseling includes behavior charting will show greater change in self-referent statements than clients receiving counseling without behavior charting, as measured by the AS." The AS, a q-sort of 74 self-referent statements, was administered as a pre- and posttest measure of cumulative change in self-referent behavior during counseling. An analysis of covariance (Table 1) revealed no significant difference, at the .05 level, between the experimental and control posttest scores adjusted for the variability of the pretest scores.

A study of the distribution of the AS raw scores supports the statistical evaluation. The scores within and across groups, with the exception of a single control score, are relatively stable and homogeneous, forming a cluster near the maximum score of 74 which indicates a hypothetical ideal of self-adjustment. Two possible deficiencies of the AS measure may offer an explanation of these results. First, the statements seem to possess a high face validity which would allow a client to score as "well-adjusted" in self-concept regardless of his true feelings. Moreover, the AS provided a limited sample of client behavior: some twenty minutes compared to about

TABLE 1

SELF-REFERENT SCORES OF CLIENTS BY TREATMENT

Control		Experimental	
Pretest	Posttest	Pretest	Posttest
69	67	54	54
31	59	64	60
69	70	55	60
63	63	71	68
63	50	68	72

Analysis of Covariance

Source of Variance	Sum of Squares			df
	XX	YY	XY	
Treatment	28.9	2.5	8.5	1
Blocks	478.6	60.6	105.9	4
Residual	771.5	387.0	250.5	4
Total	1279.0	450.1	364.9	9

Source of Variance	Adjusted SS	df	MS	F [1/3]	
Treatment	.026	1	.026	.0003	n.s.
Blocks		4			
Residual	305.665	3	101.888		
Total		8			

six hours of recorded client behavior which included the self-referent behaviors of put ups and put downs. A later discussion of the frequencies and changes in rate of put ups and put downs for each client during counseling will furnish a more comprehensive and accurate measure of self-referent behavior.

Recorded Client Behavior Changes

Hypothesis 2 concerns client change in four specified behaviors: put ups, put downs, verbal expressions in the present tense, and verbal statements in the past tense. The experimental treatment of counseling with behavior charting was predicted to effect a higher frequency of put ups and present tense statements and a lower frequency of put downs and past tense statements than the control condition of counseling without behavior charting. Independent t tests (Table 2) were conducted to compare the experimental and control group means of last-session frequencies for the four evaluated behaviors. No comparison of group means was significant. However, a comparison of behavior change in clients taken by treatment pairs (Table 3) reveals 10 acceleration changes in 20 possible comparisons of like behaviors in the directions predicted by hypothesis 2. In behavior charting, an acceleration is defined as

TABLE 2
 INDEPENDENT t TESTS OF LAST-SESSION
 BEHAVIOR FREQUENCIES BY TREATMENT

	\bar{X} Experimental	\bar{X} Control	df	t	
Put ups	.15	.15	8	.000	n.s.
Put downs	.14	.09	8	.394	n.s.
Present statements	1.20	1.43	8	.212	n.s.
Past statements	.49	.75	8	.226	n.s.

TABLE 3

CLIENT BEHAVIOR ACCELERATIONS BY TREATMENT

Behavior	Counselor	Treatment	
		Experimental	Control
Put ups	1	.484	.954
	2	.889	.960
	3	1.172	2.766
	4	.768 ^a	.706
	5	.900 ^a	.344
Put downs	1	.404	.391
	2	.834 ^b	.981
	3	1.111	.538
	4	.270 ^b	.698
	5	.778	.597
Present statements	1	.629	1.247
	2	1.145 ^c	.657
	3	.650	.840
	4	.705	.894
	5	1.077 ^c	.644
Past statements	1	1.110 ^d	1.291
	2	1.396 ^d	1.721
	3	1.084 ^d	2.004
	4	.633 ^d	.656
	5	.822	.529

^aExperimental acceleration > control acceleration, as predicted by hypothesis 2a.

^bExperimental acceleration < control acceleration, as predicted by hypothesis 2b.

^cExperimental acceleration > control acceleration, as predicted by hypothesis 2c.

^dExperimental acceleration < control acceleration, as predicted by hypothesis 2d.

the rate of change in behavior during a week. The acceleration is found by the formula

$$\frac{\text{behavior frequency of day } (X + 7)}{\text{behavior frequency of day } X} = \text{acceleration.}$$

Table 3 also presents data correlated with the assumption of a Rogerian counseling model which states that counseling produces an increase in put ups and present statements, and a decrease in put downs and past statements. Only one pair of clients (pair 3) experienced an acceleration of put ups during counseling; the other pairs showed a deceleration in put ups (indicated by an acceleration < 1), although two experimental clients (4 and 5) decelerated less than their control partners. The relative behavior change of experimental clients 4 and 5 conforms to the direction of change predicted in hypothesis 2a. All but one client experienced a deceleration in put downs in accord with the Rogerian model of change in counseling. Experimental clients 2 and 4, who show a greater deceleration in put downs than their control partners, fulfill the expected direction of behavior change in hypothesis 2b. Statements in the present tense accelerated for two experimental clients (4 and 5), as predicted by hypothesis 2c, when they were compared to their counterparts under the control treatment. Past statements decelerated, as assumed by the Rogerian model of counseling,

for treatment pairs 4 and 5. However, the acceleration for experimental clients 1, 2, and 3 showed a relative decrease compared to the rates of change for their control treatment partners. This result agrees with the prediction of hypothesis 2c.

Each counselor was assigned a control and an experimental client as a check for the effects of individual counselors on client behavior. Table 3 illustrates the consistency of counselor influence upon the behavior of both members of the treatment pair. For every counselor, the acceleration rate of put ups for both clients of the treatment pair was in the same direction; that is, both clients of pairs 1, 2, 4, and 5 decelerated in put ups, while both members of pair 3 accelerated. Similarly, both members of pairs 1, 2, and 3 accelerated in past statements while each member of pairs 4 and 5 decelerated. Four treatment sets of clients decelerated in put downs, and two sets decelerated in present statements. The variability among counselors, in sum, seemed to have a greater effect upon client change than the treatment condition. A major effect of this counselor variability by treatment pairs of clients was the deceleration of all recorded client behaviors in 28 of 40 (70 percent) of the opportunities for behavior change, regardless of the predicted direction of change based upon the Rogerian model of counseling.

A corollary which may be inferred from hypothesis 2 states that for a given client, the effect of counseling may be judged by the magnitude of the difference between two incompatible behaviors called a "comfort pair." Table 4 presents the relationship between a client's put ups and put downs, as well as his present and past tense statements. The "multiplier" represents that number by which the acceleration of one component of the comfort pair must be multiplied to obtain the acceleration of other component. In mathematical terms,

$$\text{multiplier} = \frac{\text{acceleration of component 1}}{\text{acceleration of component 2}}.$$

In Table 4, the acceleration of put ups is divided by the acceleration of put downs; similarly, the present tense statements' acceleration is divided by that of the past tense statements. The greater the magnitude of the multiplier, the greater the difference in acceleration rates for the behavioral components of the comfort pair. A multiplier greater than 1 indicates that put ups or present statements increased at a relatively higher acceleration than their respective comfort pair member, put downs or past statements. A multiplier which approaches 1 shows a fixed relationship between comfort pair members, while a multiplier less than 1 indicates that put downs or past

TABLE 4

THE RELATIONSHIP BETWEEN COMFORT
PAIR COMPONENTS BY CLIENTS

Client	Component Accelerations		Multiplier	Component Accelerations		Multiplier
	Put Ups	Put Downs		Present Statements	Past Statements	
1e ^a	.484	.404	1.20	.629	1.110	.57
1c ^b	.954	.391	2.44	1.247	1.291	.97
2e	.889	.834	1.07	1.145	1.396	.82
2c	.960	.981	.98	.657	1.721	.37
3e	1.172	1.111	1.06	.650	1.084	.60
3c	2.766	.538	5.14	.840	2.004	.41
4e	.768	.270	2.85	.705	.633	1.11
4c	.706	.698	1.01	.894	.659	1.36
5e	.900	.778	1.16	1.077	.822	1.31
5c	.344	.597	.56	.644	.529	1.22

^adenotes an experimental client

^bdenotes a control client

statements increased more rapidly than put ups or present statements. All five experimental clients have a multiplier which indicates a higher relative acceleration of put ups than put downs. However, only two experimental clients show a multiplier of greater than 1 for the acceleration of present statements compared to past statements. Likewise, the multipliers for two control clients fit the Rogerian model which predicts that present statements will increase at a greater rate than past statements. Three of five control clients have multipliers which indicate that their put ups increased at a higher rate than their put downs. Only two control clients show a similar relationship of present to past statements. By counselors, who appear to have influenced clients more than the treatment condition, three pairs of clients show growth (the multiplier > 1) in the relationship of put ups to put downs. Two pairs show growth in the ratio of present to past statement accelerations. The reported behavior changes occurred over a three-week period. A longer period of observation seems necessary to confirm the tentative differences in direction of recorded behaviors from the directions predicted by the Rogerian model.

The raw frequency and derived acceleration lines are plotted on modified Standard Behavior Charts. Clients are

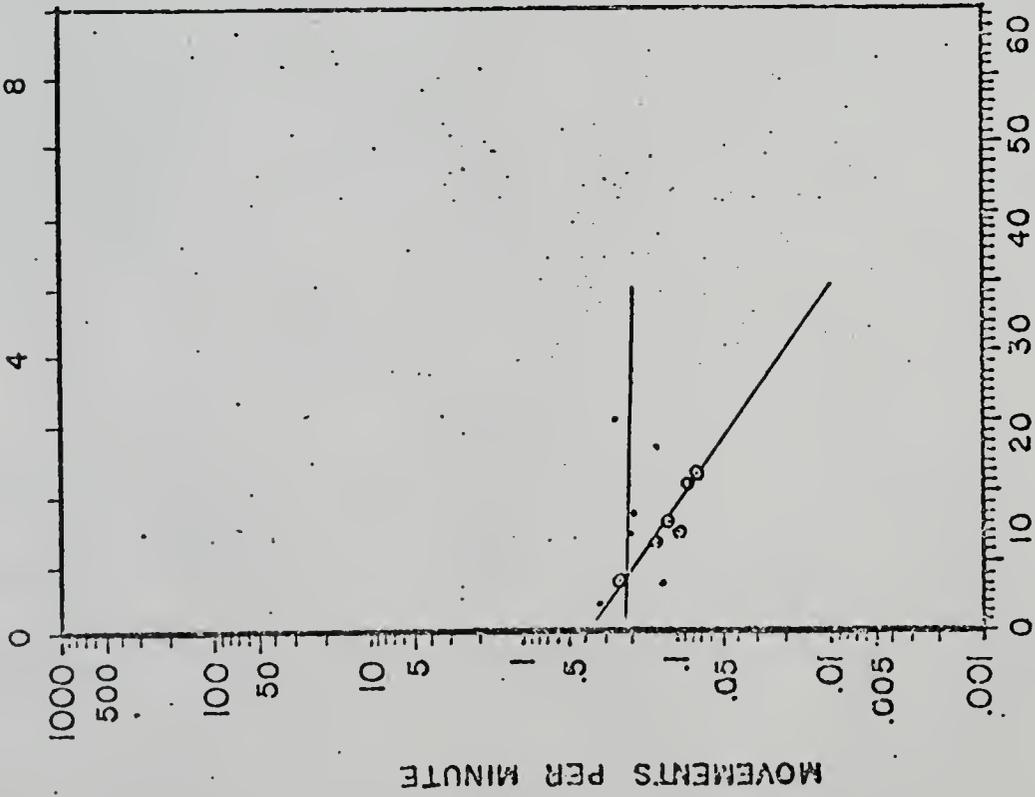
blocked by treatment pairs for each counselor. Each figure comprises two panels, abbreviated versions of the SBC with space for recording 60 rather than the customary 140 days. The range of frequencies has not been changed. In each panel the frequencies are plotted in chronological order of the days on which counseling sessions were held. The acceleration lines plotted for each client in a panel were calculated by the method of least squares upon the logarithms of the frequencies to provide a line of best fit for the logarithmic cycles of the SBC. The first panel of Figure 1 compares the experimental and control client for counselor 1 on put ups, a component of the comfort pair: put ups/put downs. The second panel compares the clients for counselor 1 on put downs, while Figure 2 portrays the distribution of experimental and control frequencies for the second comfort pair: present tense statements/past tense statements. The five treatment pairs of clients are represented on all rated behaviors in Figures 1-10.

Reliability

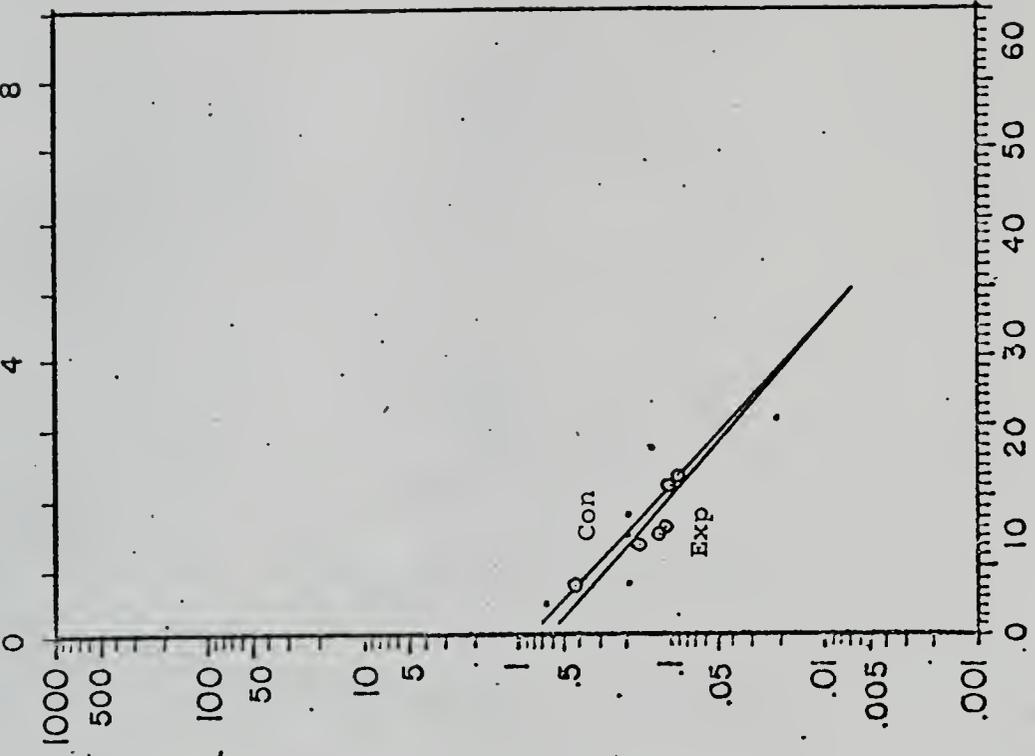
The rationale for this study states that any changes in client behavior during counseling should be observable to external raters who can record objectively these behavior changes. The interpretation of frequency data involves two

FIGURE 1

COMPARISON OF PUT UPS AND PUT DOWNS FOR TREATMENT PAIR 1



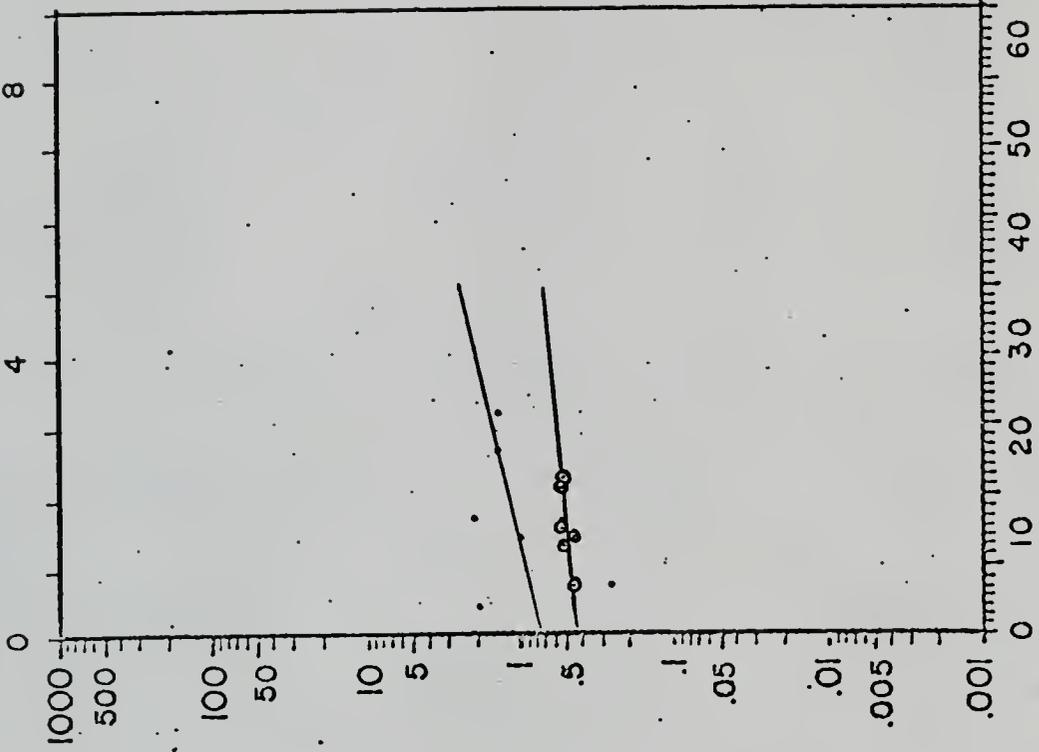
1 Exp 0 Con . Put ups
 COUNSELOR CLIENT MOVEMENT



1 Exp 0 Con . Put downs
 COUNSELOR CLIENT MOVEMENT

FIGURE 2

COMPARISON OF PRESENT AND PAST TENSE STATEMENTS FOR TREATMENT PAIR 1

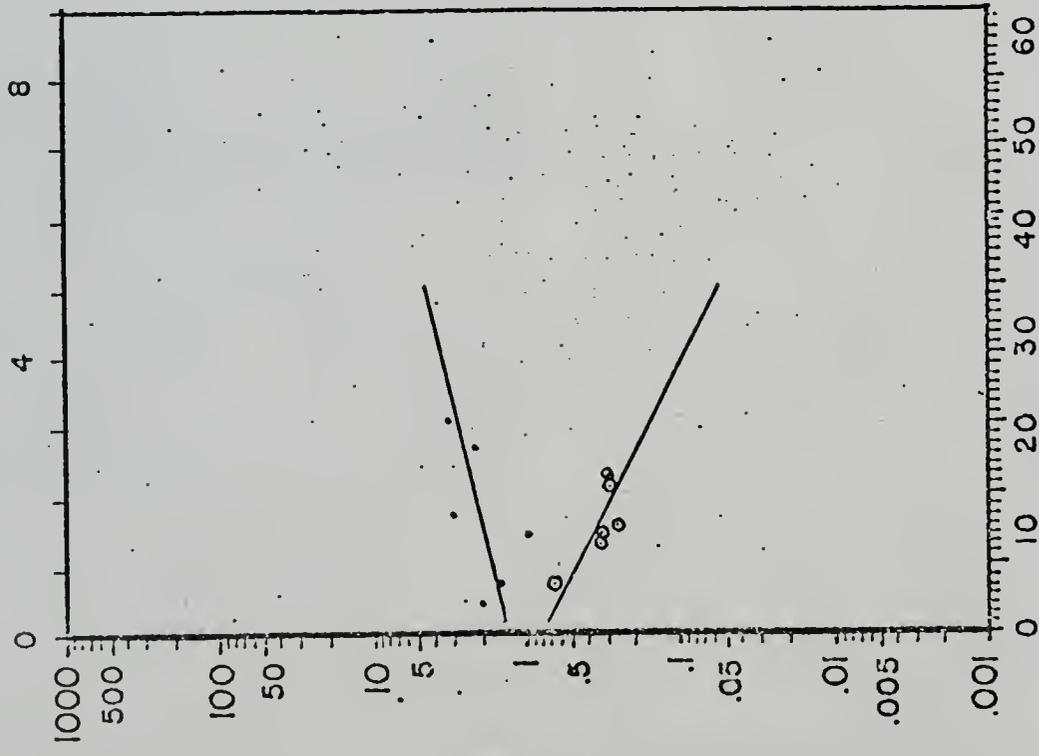


Past Statements
MOVEMENT

Exp 0 Con .
CLIENT CLIENT

1
COUNSELOR CLIENT

CALENDAR DAYS



Present Statements
MOVEMENT

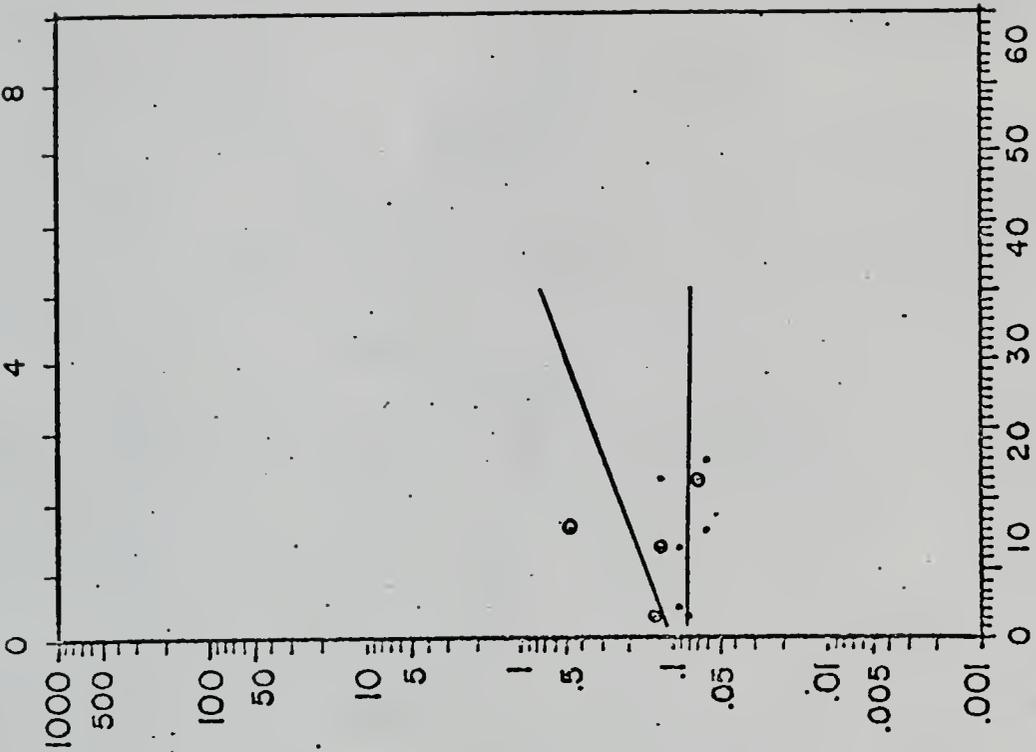
Exp 0 Con .
CLIENT CLIENT

1
COUNSELOR CLIENT

MOVEMENTS PER MINUTE

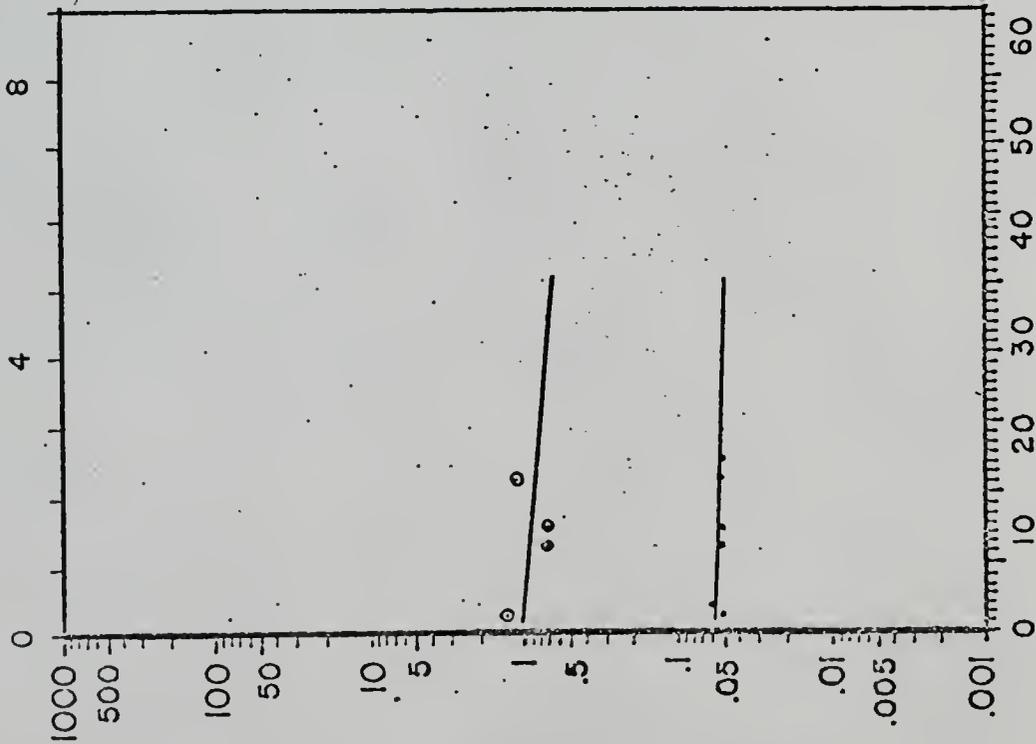
FIGURE 3

COMPARISON OF PUT UPS AND PUT DOWNS FOR TREATMENT PAIR 2



SUCCESSIVE CALENDAR DAYS

2 COUNSELOR CLIENT Exp 0 Con 0 Put Downs MOVEMENT



SUCCESSIVE CALENDAR DAYS

2 COUNSELOR CLIENT Exp 0 Con 0 Put Ups MOVEMENT

MOVEMENTS PER MINUTE

FIGURE 4

COMPARISON OF PRESENT AND PAST TENSE STATEMENTS FOR TREATMENT PAIR 2

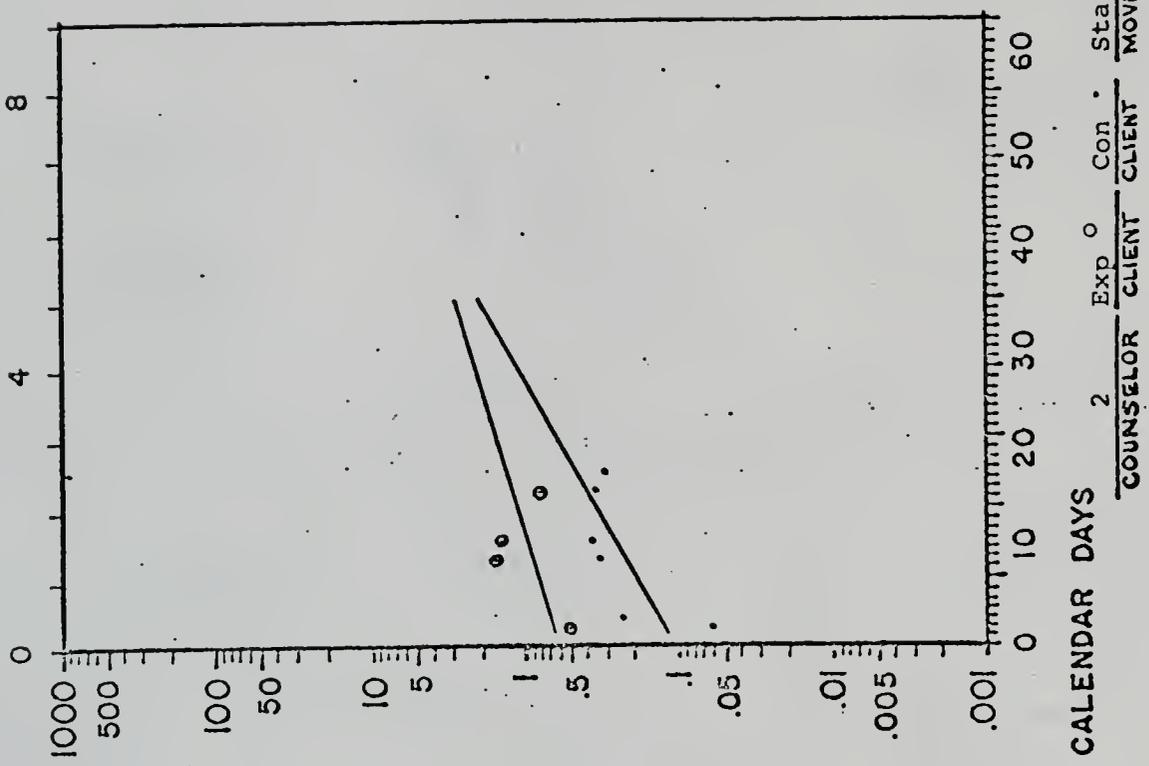
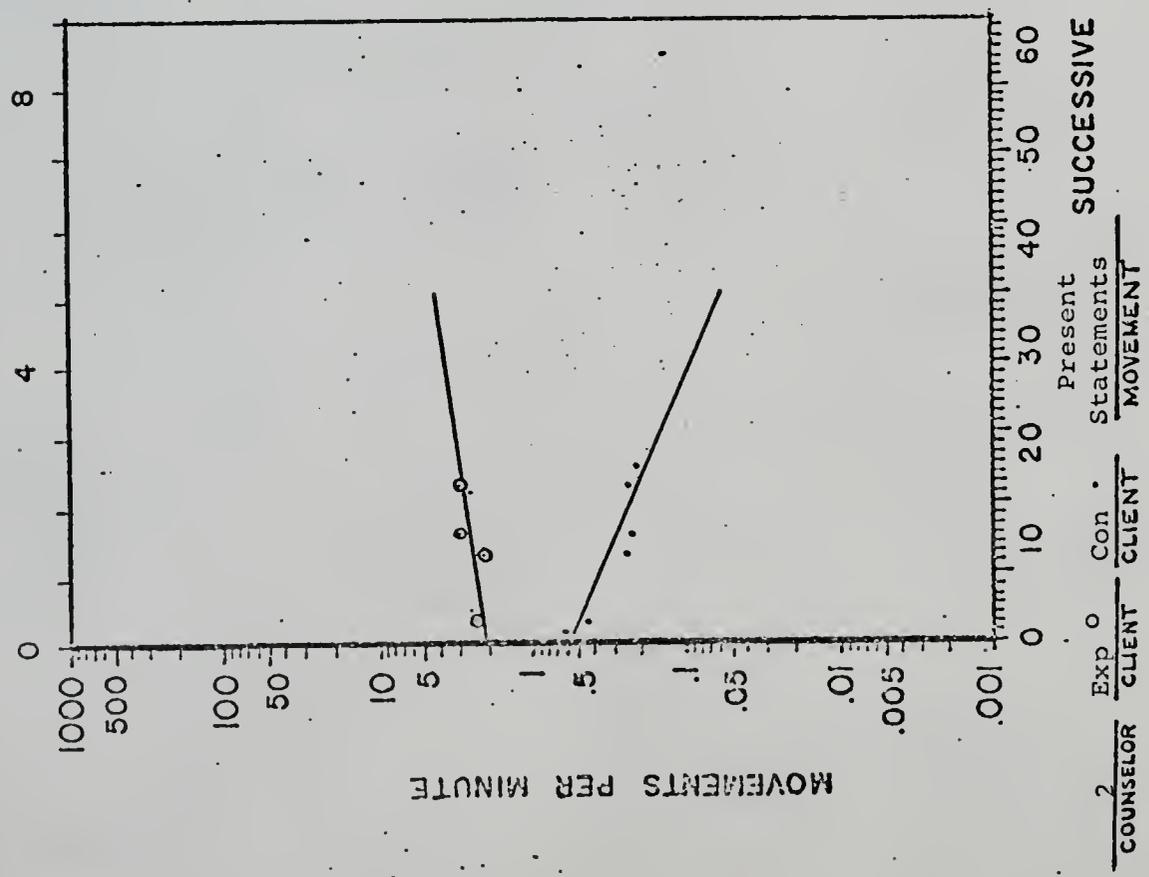
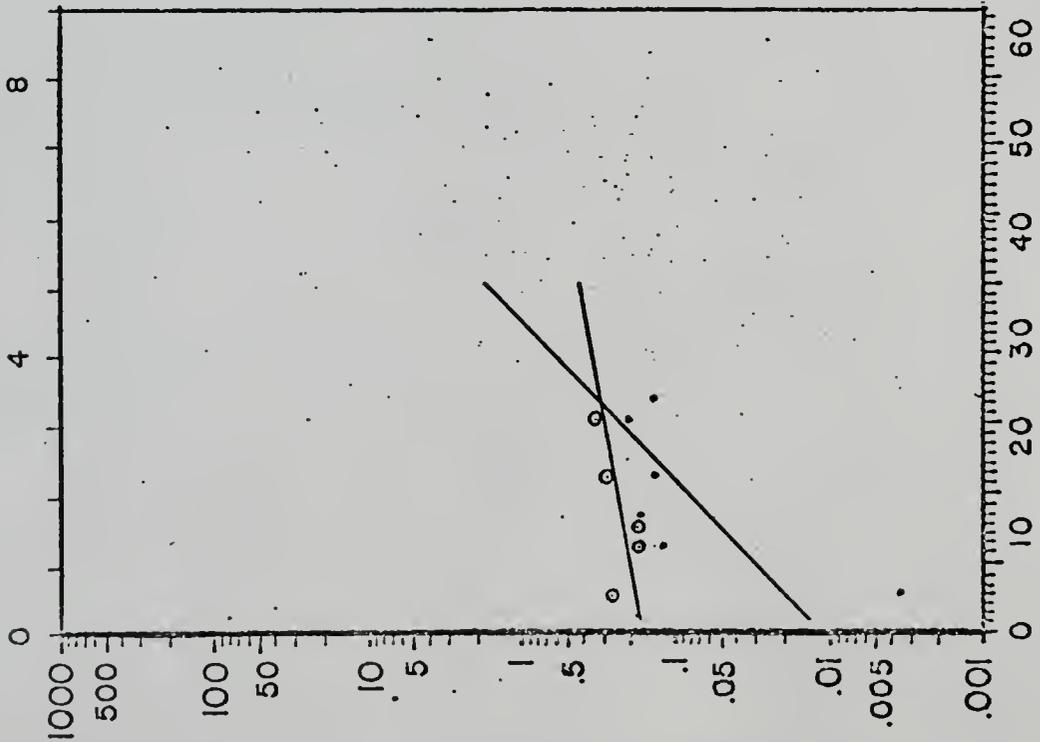


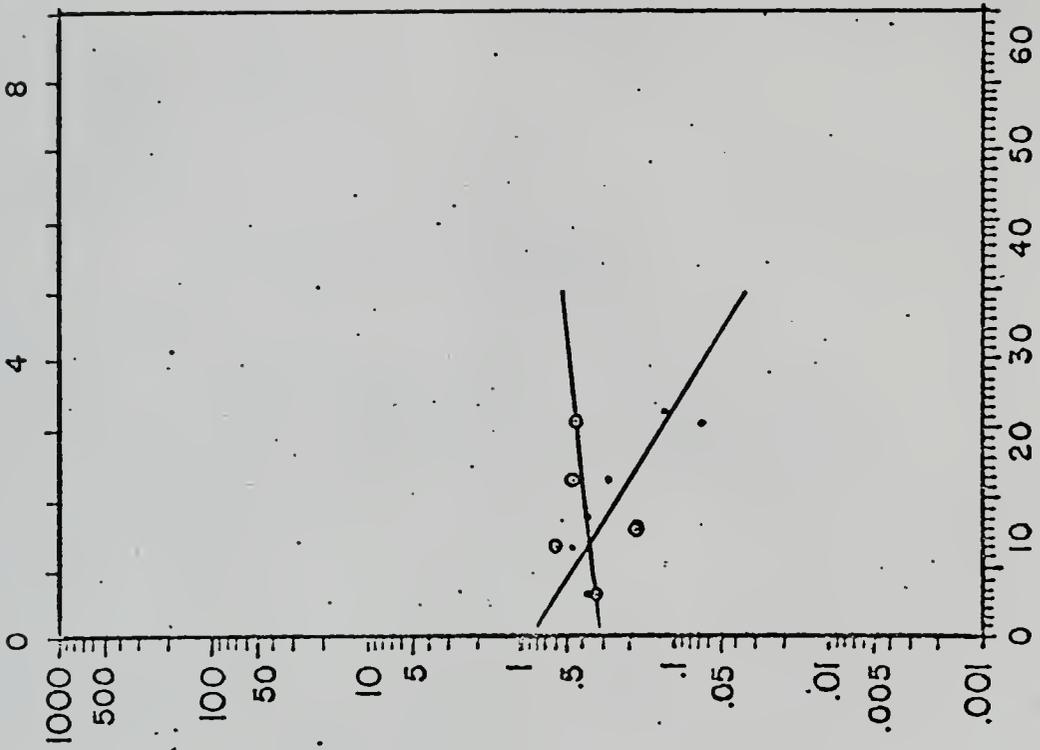
FIGURE 5

COMPARISON OF PUT UPS AND PUT DOWNS FOR TREATMENT PAIR 3

MOVEMENTS PER MINUTE



3 Exp 0 Con . Put ups
 COUNSELOR CLIENT MOVEMENT

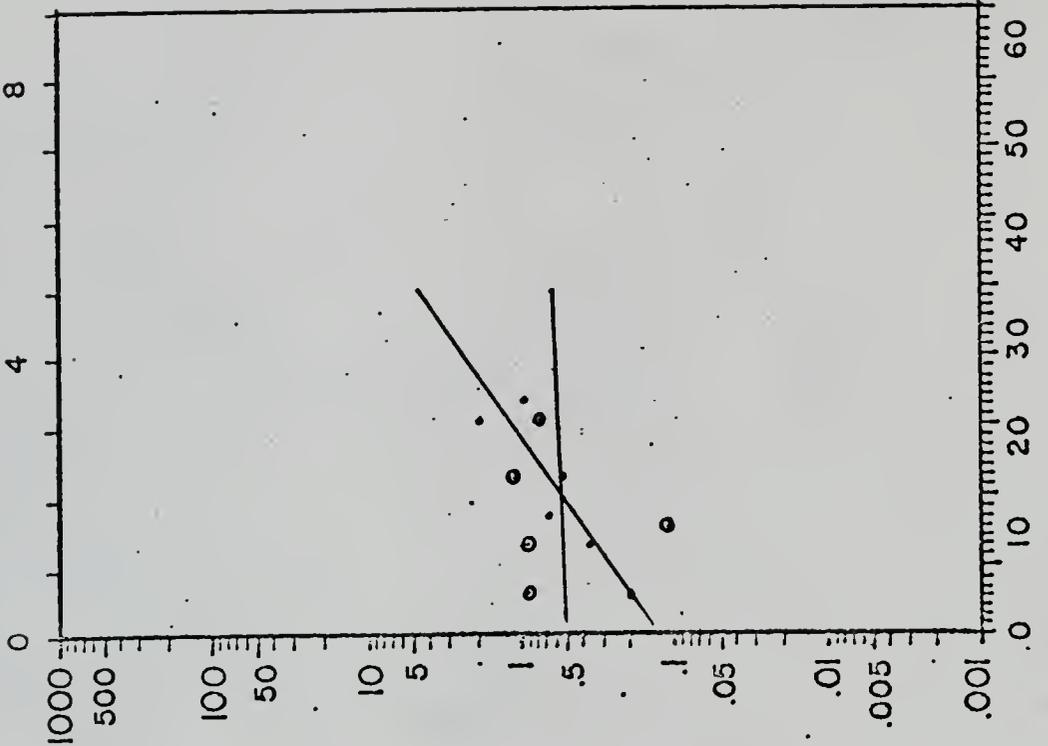


3 Exp 0 Con . Put downs
 COUNSELOR CLIENT MOVEMENT

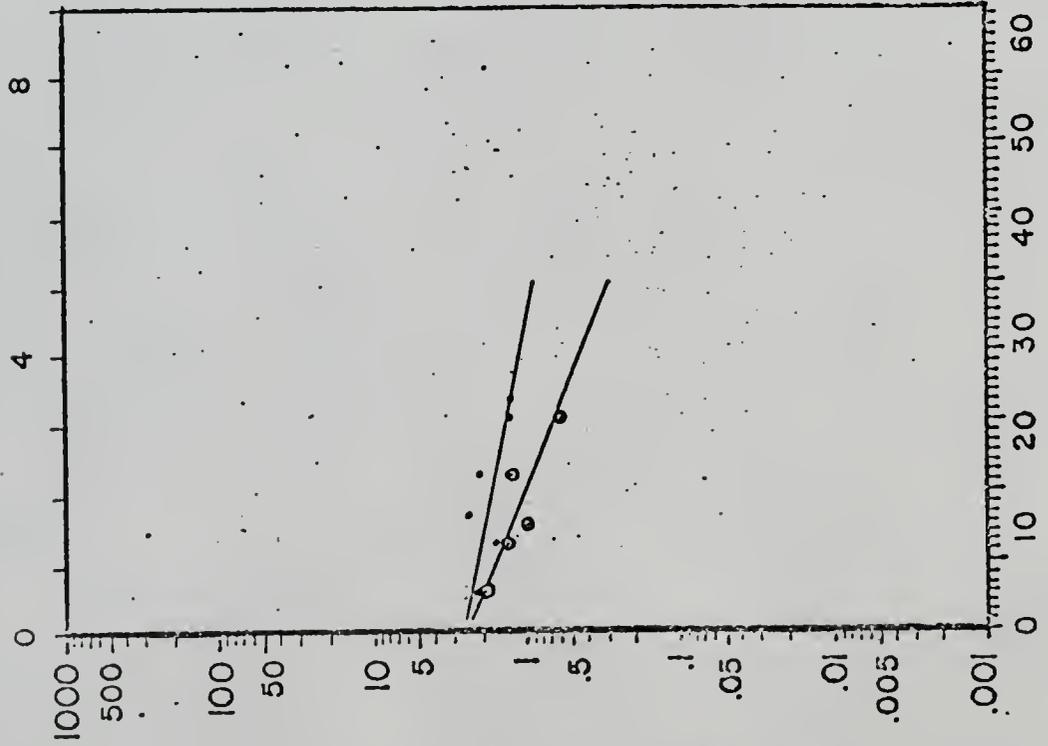
FIGURE 6

COMPARISON OF PRESENT AND PAST TENSE STATEMENTS FOR TREATMENT PAIR 3

MOVEMENTS PER MINUTE



Past Statements MOVEMENT



Present Statements MOVEMENT

3 Exp 0 Con 0 COUNSELOR CLIENT

SUCCESSIVE CALENDAR DAYS

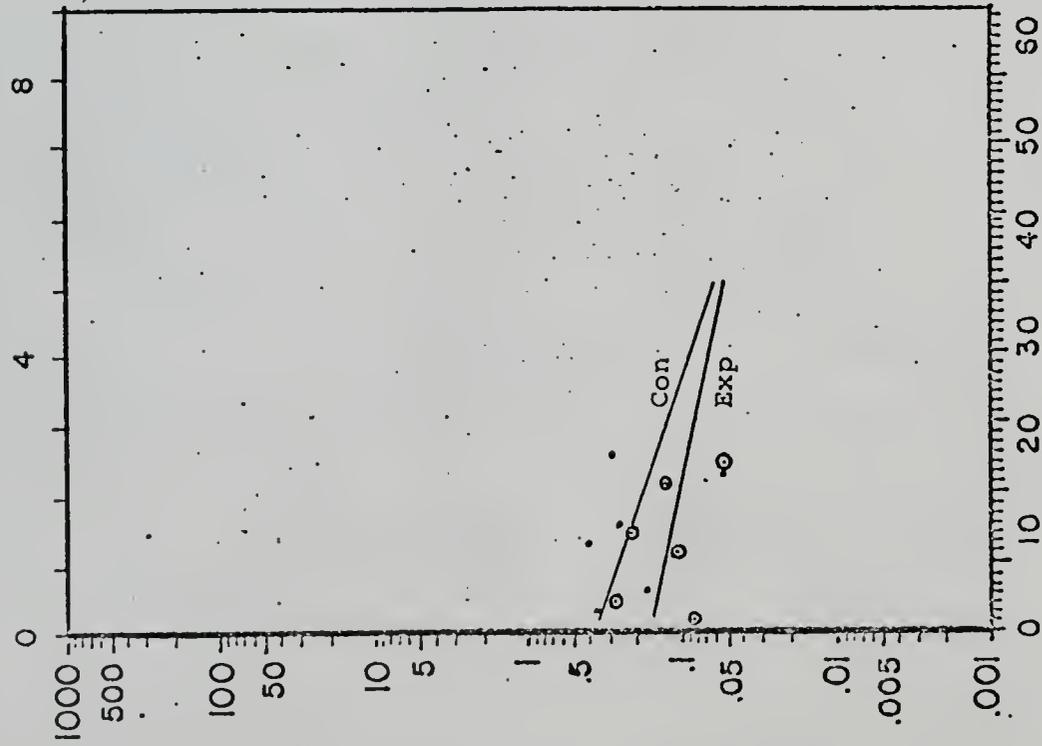
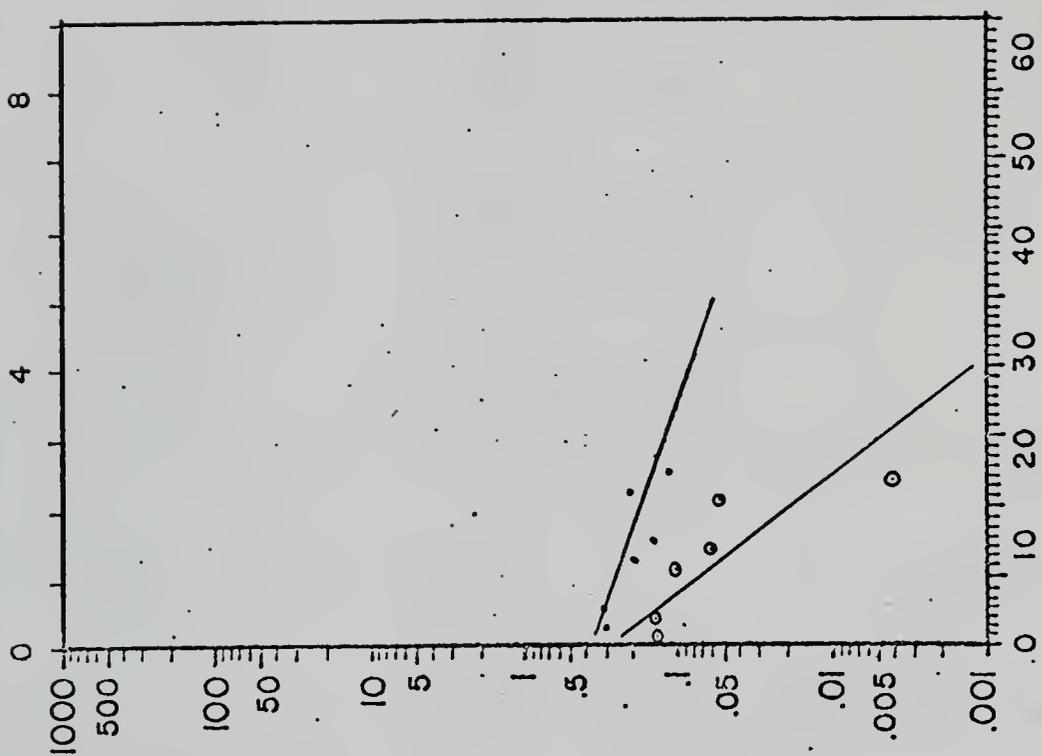
3 Exp 0 Con 0 COUNSELOR CLIENT

Present Statements MOVEMENT

3 Exp 0 Con 0 COUNSELOR CLIENT

FIGURE 7

COMPARISON OF PUT UPS AND PUT DOWNS FOR TREATMENT PAIR 4



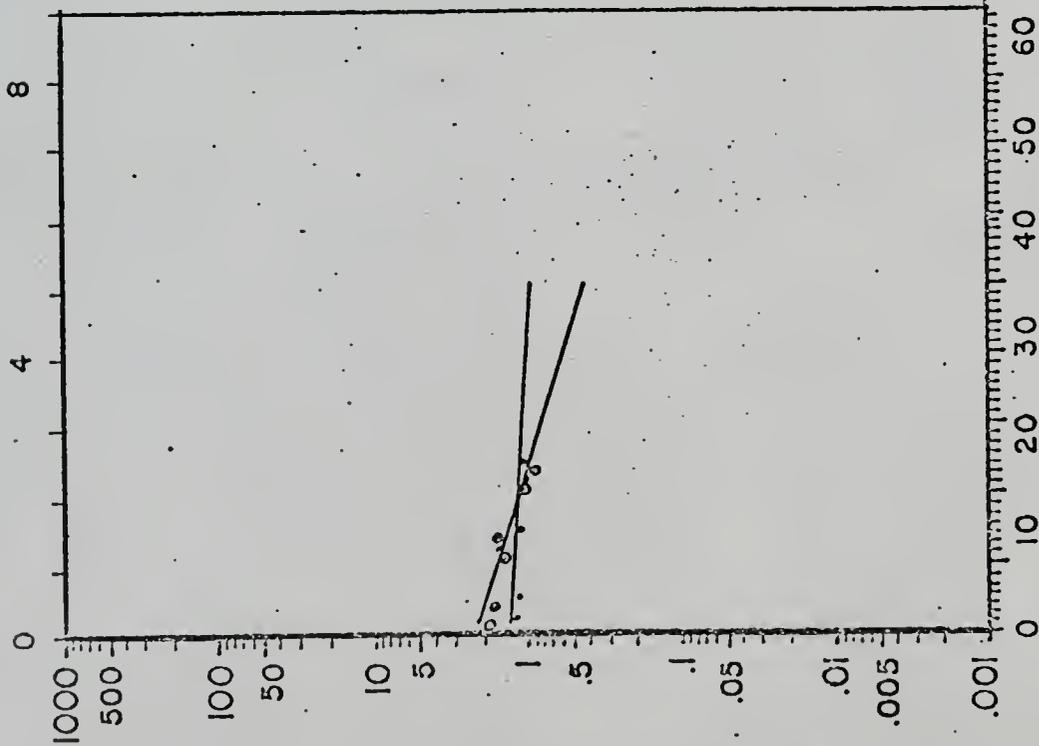
MOVEMENTS PER MINUTE

4 COUNSELOR CLIENT $\frac{Exp}{Con}$ MOVEMENT SUCCESSIVE CALENDAR DAYS 4 COUNSELOR CLIENT $\frac{Exp}{Con}$ MOVEMENT

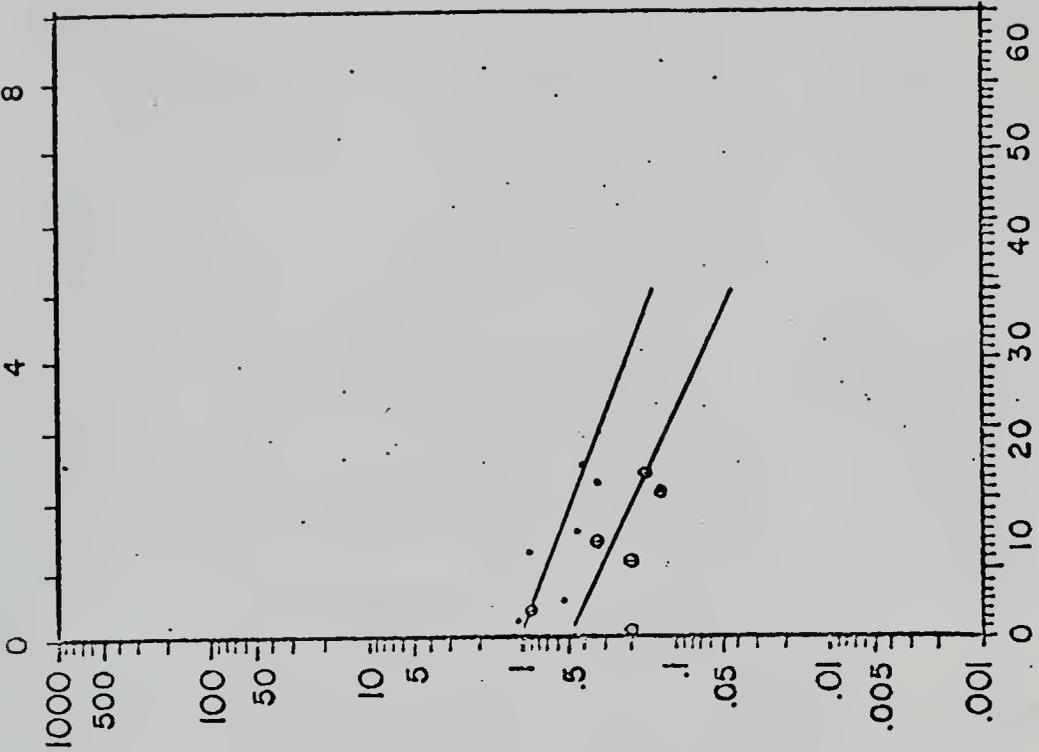
FIGURE 8

COMPARISON OF PRESENT AND PAST TENSE STATEMENTS FOR TREATMENT PAIR 4

MOVEMENTS PER MINUTE



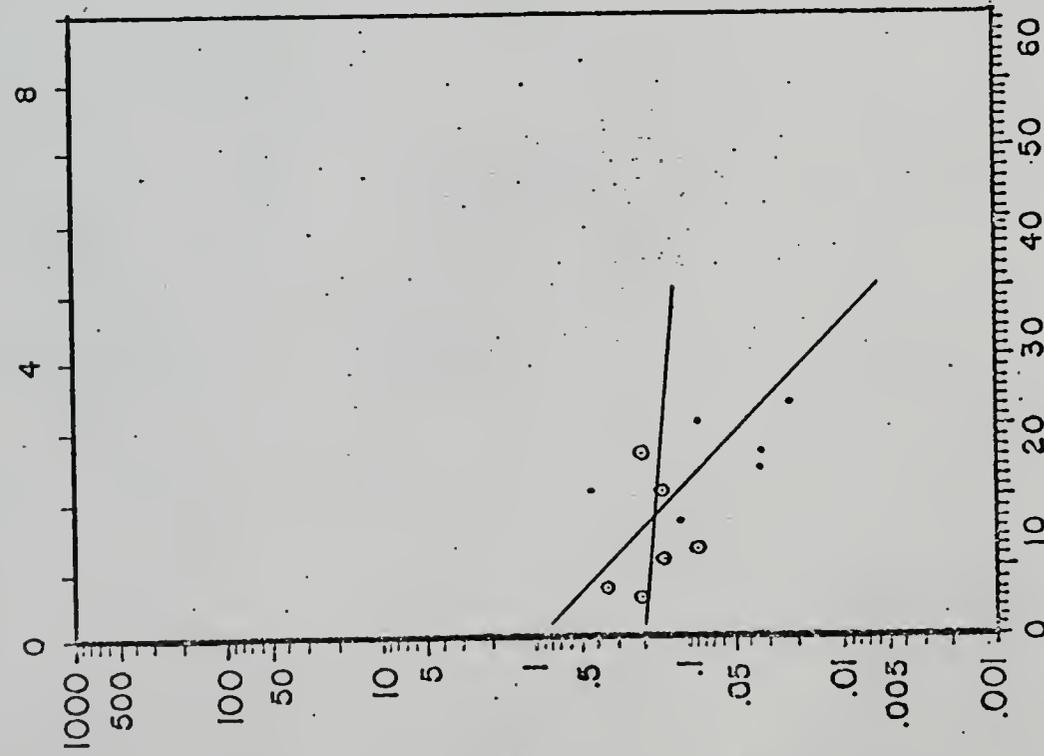
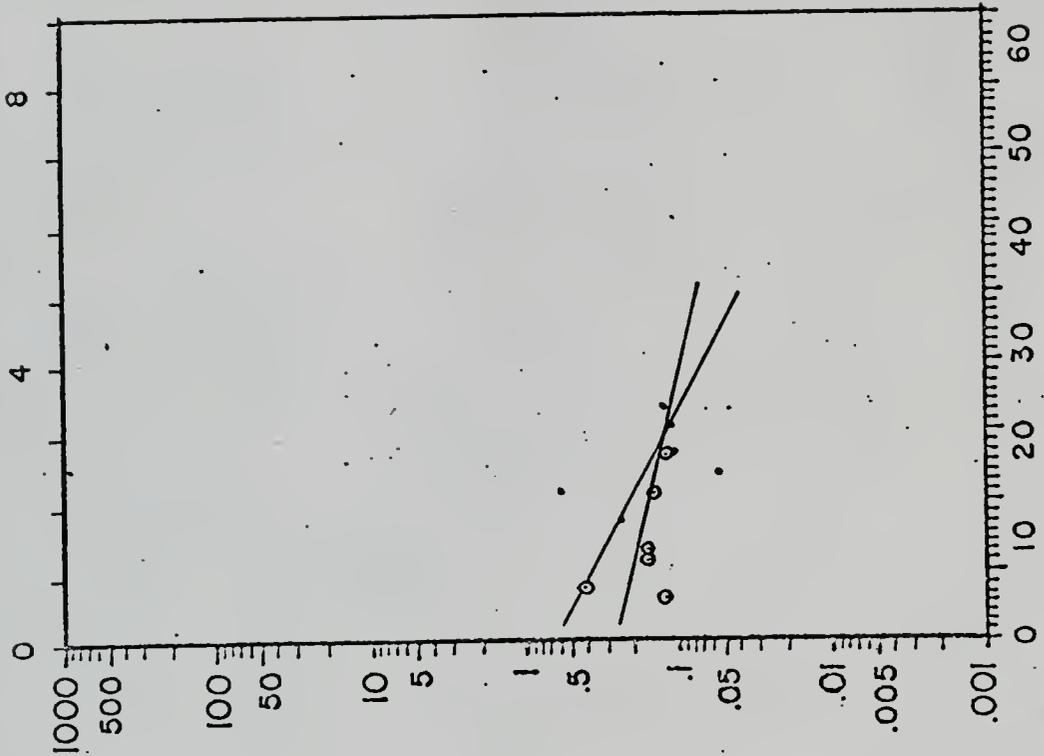
4 Exp 0 Con 0
COUNSELOR CLIENT CLIENT
SUCCESSIVE STATEMENTS
MOVEMENT MOVEMENT



4 Exp 0 Con 0
COUNSELOR CLIENT CLIENT
PAST STATEMENTS
MOVEMENT MOVEMENT

FIGURE 9

COMPARISON OF PUT UPS AND PUT DOWNS FOR TREATMENT PAIR 5



MOVEMENTS PER MINUTE

5 COUNSELOR CLIENT Exp 0 Con Put ups MOVEMENT

5 COUNSELOR CLIENT Exp 0 Con Put downs MOVEMENT

FIGURE 10

COMPARISON OF PRESENT AND PAST TENSE STATEMENTS FOR TREATMENT PAIR 5

aspects of objectivity: the agreement of independent raters, and the consistency of a single rater over time. Interrater and intrarater reliability provide measures of these facets of objectivity. Table 5 presents Pearson product-moment coefficients showing the correlation between two independent ratings of a series of counseling sessions for the same client. Each rater was assigned the tapes of a control client of one counselor, and tapes of an experimental client of another counselor, to prevent rater bias by the style of counselor interaction. Each correlation, unless otherwise noted in Table 5, is based upon a comparison of 24 behavior frequencies (4 behaviors X 6 sessions) evaluated by each rater. A mean positive correlation of .656, with a range from .975 to .282, is reported in Table 5. The variability of independent ratings was resolved by plotting the geometric mean of each pair of behavior frequencies as a single frequency point. Underlying this practice was the assumption that the true behavior frequency lay somewhere between the two observed frequencies for the same behavior. The geometric mean is the proper measure of central tendency for ratio data.

Intrarater reliability, or the consistency of evaluation over time, is given in Table 6. Each rater evaluated a seven-minute calibration tape at the following times:

TABLE 5

PEARSON PRODUCT-MOMENT COEFFICIENTS OF RELIABILITY
BETWEEN TWO INDEPENDENT RATERS

Client Rated	Coefficient of Correlation (r)
1e	.282
1c	.773 ^a
2e	.975 ^b
2c	.303
3e	.643 ^c
3c	.496
4e	.727
4c	.837
5e	.670
5c	.854
	$\bar{r} = .656$

^a Observed frequencies include the rerating by a single rater of one tape inaudible to the other independent rater.

^b Based on four taped sessions. Session 2 was lost because of a recorder malfunction; session 5 was accidentally erased by the researcher.

^c Based on taped sessions 1-3. One rater became unavailable to evaluate the remaining sessions.

TABLE 6

PEARSON PRODUCT-MOMENT COEFFICIENTS
OF INTRARATER RELIABILITY

Rater	r_{12}^a	Correlation r_{13}^b	Coefficient r_{23}^c
1	.936	.849	.882
2	.938	.986	.945
3	.645	.848	.943
4	.910	.961	.975
5	.261	.897	.000
6	----	.901 ^d	----
7	.701	.761	.982
8	.886	.985	.934
9	.878	.785	.980
10	.609	.170	.132
11	.807	.737	.991
12	.892 ^e	----	----

^a r_{12} = correlation between calibration pre-sessions rating
and mid-sessions rating

^b r_{13} = correlation between calibration pre-sessions rating
and post-sessions rating

^c r_{12} = correlation between calibration mid-sessions rating
and post-sessions rating

^dRater omitted calibration mid-sessions rating

^eRater became unavailable at end of study

before evaluating any tapes from this study, after evaluating half the tapes, and after completing the evaluation of all twelve tapes (6 sessions X 2 clients). The correlations were calculated for the relationships of the calibration tape pre-counseling rating to the calibration tape mid- and post-counseling ratings. The high correlation of the mid- and post-counseling calibrations illustrate the stability of intraraters evaluations after experience had been gained by evaluating the first six tapes. The test-retest reliability of eight of 12 raters approximates or exceeds .90, while the remaining raters show a mean slight correlation of rating consistency. Rater 5, whose post-counseling rating is highly consistent with his original rating of the calibration tape, seemed to recover the initial criteria for evaluating client behaviors after a drift from the evaluation standards reflected by a correlation of .000 between calibration ratings 2 and 3.

The data available from counselors on their counts of the experimental client's in-session put ups and put downs have been correlated with the geometric mean of the corresponding independent raters' evaluations (Table 7). The high variability of the correlations, ranging from $-.59$ to $.97$, supports the spontaneous comment of every counselor that counting while counseling was a difficult task.

TABLE 7

CORRELATION BETWEEN COUNSELOR AND RATER EVALUATIONS
OF THE EXPERIMENTAL CLIENT'S IN-SESSION
PUT UPS AND PUT DOWNS

Experimental Client Rated ^a	Behavior	Correlation Coefficient (r)
1e	put ups	-.21
	put downs	.57
2e	put ups	.65
	put downs	.97
3e	put ups	.08
	put downs	-.59

^aCounselor evaluations of experimental clients 4e and 5e not available

Counselors related that their attempts to count were sporadic; that is, when the interaction with the client became intense, the counselor either forgot to count client put ups and put downs or chose not to "distract" the client. The counselor likely felt the intrusion more than the client on such occasions.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

This study investigated the effect of behavior charting, as an adjunct to counseling, upon changes in client behavior during counseling. Behavior charting refers to the procedure of counting one or more specified behaviors over a period of time and plotting their frequencies on Lindsley's Standard Behavior Chart. The control condition required that each counselor engage in his customary therapeutic procedures with a randomly assigned client.

Under the experimental condition, the counselor used behavior charting as an adjunct to his usual counseling approach. The client charted three behaviors outside the session: put ups, put downs, and a third behavior agreed upon by counselor and client as relevant to the client's concern. The counselor charted the client's in-session put ups and put downs. All charted behaviors were shared and discussed with the experimental client during each session. Four behaviors observable to external, independent raters

were chosen for comparison of experimental and control clients: positive and negative client statements about self and others, and client statements in the present and past tenses.

The following hypotheses were tested:

1. Clients whose counseling includes behavior charting will show greater change in self-referent statements than clients receiving counseling without behavior charting, as measured by the AS.

2. Clients whose counseling includes behavior charting will show greater behavior change during counseling than clients receiving counseling without behavior charting in the following specific behaviors:

- a. a higher frequency of positive statements about self and others
- b. a lower frequency of negative statements about self and others
- c. a higher frequency of verbal expressions in the present tense
- d. a lower frequency of verbal expressions in the past tense.

The hypotheses, as well as the chosen client behaviors, were based upon a Rogerian model of psychotherapy which assumes that the client's concept of self and others becomes more positive during counseling while his negative concept of self and others decreases; the client also exists increasingly in the present rather than the past.

Fourteen clients were selected from the undergraduate and graduate population of the College of Education, University of Florida. Each client agreed to remain in counseling for six sessions over a period of approximately three weeks. The seven counselors were advanced doctoral students in programs of counselor education or clinical psychology. The fourteen independent raters were students from the departments of psychology and counselor education. Data for statistical and graphic analyses were available from five treatment pairs, each comprising a control and an experimental client.

Statistical procedures revealed no significant differences between the experimental and control groups in the frequencies of any recorded behavior, including self-referent statements measured by the Dymond Q-Adjustment Score in pre- and post-counseling administrations. However, a study of plotted data showed individual differences in the rate of change in behavior between the experimental and control clients of each treatment pair. As predicted by hypothesis 2, the relative acceleration of put ups for three of five experimental clients exceeded the accelerations of the control counterparts. Nine of ten clients, in agreement with the Rogerian model of counseling, experienced a deceleration in put downs during counseling; two experimental

clients showed a greater decrease than their control partners in put downs. Statements in the present tense showed an acceleration for two experimental clients greater than the change for the paired control clients. Three experimental clients experienced a predicted relative decrease in past tense statements greater than the deceleration for their control counterparts. An unpredicted conclusion of the data analysis was the evidence that a deceleration of all observed client behaviors occurred on 70 percent of the occasions for behavior change.

The relationship of the change in two incompatible behaviors; e.g., put ups versus put downs, and present tense versus past tense statements, was also studied. Each experimental client showed a greater relative acceleration of put ups compared to his rate of change for put downs. Three of five control clients showed similar growth. Two experimental and two control clients showed growth in the relationship of present to past statements. The raw data from which were derived behavior frequencies and acceleration rates were plotted on the Standard Behavior Chart. Frequencies were calculated from independent evaluations of the taped counseling sessions by raters whose reliability was assessed. Interrater reliability averaged .65. Intrarater reliability reflected a high degree of stability in a mean

correlation of .95 for eight of ten raters. The reliability of counselor-rater evaluations of an experimental client's put ups and put downs varied greatly, ranging from .97 to -.59. Counselors experienced difficulty in counting client in-session behaviors whenever the relationship became intense during the session.

Conclusions

The following conclusions may be drawn tentatively concerning the effect and utility of behavior charting as an adjunct to counseling.

1. Behavior charting has been demonstrated to be effective as a counseling tool which can increase the awareness of both client and counselor about behaviors relevant to the client's concern. When the experimental clients were shown charts of their put ups and put downs, the put ups for every client accelerated in relation to put downs, as predicted by hypothesis 2. In contrast, only two experimental clients showed a relative acceleration of present tense to past tense statements, neither of which behaviors were counted by client or counselor. The corresponding acceleration of present tense statements to past tense statements for two control clients indicates that the experimental and control condition were equivalent in producing predicted behavior changes when those behaviors were not counted.

2. Counselors perceive behavior charting as a means to heighten the client's awareness of his behavior. Each counselor, when interviewed on his reaction to the use of behavior charting, replied that the client's counting of behaviors, especially those involving social interaction, provided a valuable source of feedback and a basis for further discussion. Counselors were uncomfortable counting client in-session behaviors; all felt that such counting intruded in the counseling relationship, preventing the counselor from giving his full attention to the client. However, the counselors viewed charting by the client as a means of continuity between sessions and an extension of the impact of counseling. While four of the five counselors whose data were used had no previous experience with behavior charting, all indicated a willingness to have future clients count behaviors. Three counselors reported that the value of behavior charting for them lay in the counting. While learning the mechanics of the Standard Behavior Chart was cited as somewhat difficult for four counselors, all counselors emphasized that some form of systematic recording and analysis of the client's behavior counts was necessary for complete feedback.

3. The most effective use of behavior charting in counseling lies in its application to the longitudinal

study of individual clients. The counselors, by examining the plotted frequencies of client behavior, were able to note readily the changes in positive and negative statements by the client within and outside the session. Counselor and client were able to decide upon a goal desired by the client in terms of evaluative statements, and to determine from the chart whether the goal was reached. The "statistical significance" of the client's behavior change was not relevant to either member of the counseling relationship. Variation in charted frequencies, however, provided a practical means to assess behavior change in the ongoing counseling situation.

Implications

The future viability of counseling seems to lie in a union of a humanistic approach, which values the individual's fulfillment of his unique human potential, and a behavioral orientation which provides a means to realize such potential.

Powerful technologies for changing human behavior exist and . . . can be utilized without doing violence to cherished values of human dignity, worth, and responsibility. Clients can be brought into active partnership with counselors in processes aimed at changing behavior directly and fundamentally. (Blocher, 1967).

The client-centered counselor maintains an important role in providing antecedent conditions for behavior change;

e.g., empathy, genuineness, and acceptance. "Most human beings are more likely to repeat behaviors that are regularly succeeded by sensitive expressions of warmth and understanding by another positively regarded person than those which are not" (Allen, 1967). The counselor must broaden his role beyond the interview to include explicit attempts to "utilize elements in the client's environment which can facilitate growth instead of or in addition to his own direct involvement" (Blocher, 1967). Both counselor and client may be involved in charting behavior and environmental conditions, and in altering those conditions to bring about behavior change.

Counseling research, in turn, can support the discovery and evaluation of behavioral methods to reach humanistic goals. A rationale for counseling research offered by Krumboltz (1967) provides a frame of reference for this study.

Proposition I. Counseling research should be designed to discover improved ways of helping clients prevent or learn to solve their problems.

This study has compared two modes of counseling to test behavior charting as an "improved way of helping clients." The results support behavior charting, particularly the aspect of systematic client counting of behavior, as a useful adjunct to counseling.

Proposition II. Counseling research should be designed so that different possible outcomes lead to different counseling practices.

A result of this study is the feeling shared by each experimental client and his counselor that counting behaviors increased client awareness. Counting and charting provided feedback to aid the client in modifying his behavior. Although four of five counselors had no previous experience with behavior charting, all counselors indicated a willingness to employ a systematic form of behavior counting, recording, and analysis with other clients. The inclination of counselors to modify their practices with future clients indicates that this study supports Proposition II.

A counseling relationship demonstrating mutual respect of counselor and client connotes an agreement on desirable client behavior changes, and a joint commitment to work toward them. The changes are those which the client desires and which the counselor feels that he can ethically promote. "Growth," "self-actualization," or "an improved self-concept" become concrete and meaningful when both partners in the counseling relationship agree on, and attempt to implement, specific behaviors relating to these global concepts. Criterion measures which represent sequential steps toward desired behavioral outcomes, as

well as independent measures of behavior outside the counseling interview, will provide firm data for modifying the process of environmental manipulation toward chosen behavioral objectives.

Traditional forms of counseling and research, based chiefly on a generous faith in broadly beneficial results, are turning toward a more potent humanistic concern buttressed by a behavioral orientation which can actualize chosen, specified client change. Counseling now has the resources to achieve the ultimate mark of a profession: its ability to better significantly the lives of those it serves.

APPENDICES

APPENDIX A
MATERIAL FOR RATERS

RATER TALLY SHEET

Rater's Name _____

Directions: Count the four behaviors listed below on tapes _____. Your ratings must be INDEPENDENT and CONFIDENTIAL. Do not discuss the content or behavior count on the tapes with anyone else. Listen in private to the taped sessions assigned to you.

<u>Tape</u> <u>Number</u>	<u>Client Behavior</u>	<u>Tally</u>	<u>Total</u> <u>Count</u>	<u>Time</u>
	Put ups			
	Put downs			
	Present statements			
	Past statements			

Return this sheet with the completed tapes.

CLIENT BEHAVIORS

The following definitions apply to the specified client behaviors:

PUT UP--a positive statement about self or others spoken directly by the client.

--usually a fact plus a positive evaluation or reaction to that fact.

--a sentence fragment at a minimum, a complete sentence at a maximum.

A sentence may include both put ups and put downs.

Exs: "I enjoy being with many types of people."
(single put up)

"She tries to make me do everything her way
(put down), but I can stand on my own two
feet." (put up)

PUT DOWN--a negative statement about self or others spoken directly by the client.

--usually a fact plus a negative evaluation or reaction to that fact.

--a sentence fragment at a minimum, a complete sentence at a maximum.

PRESENT STATEMENT--a verbalization about a single idea spoken directly by the client in the present tense. May be as brief as a single sentence, or as long as all the client says between two counselor responses.

--tells what is happening now.

PAST STATEMENT--a verbalization about a single idea spoken directly by the client in the past tense. May be as brief as a single sentence, or as long as all the client says between two counselor responses.

--tells what happened then.

APPENDIX B

FREQUENCIES OF RATED BEHAVIORS BY TREATMENT PAIRS

PUT UPS

<u>Client 1e</u>	<u>Day^a</u>	<u>Client 1c</u>	<u>Day</u>	<u>Client 2e</u>	<u>Day</u>	<u>Client 2c</u>	<u>Day</u>
.24 ^b	5	.33	3	.14	2	.05	2
.14	9	.13	5	.07	9	.06	9
.09	10	.20	10	.07	11	.05	9
.12	11	.20	12	.12	16	.05	11
.08	15	.13	19			.05	16
.07	16	.26	22			.05	18
<u>Client 3e</u>	<u>Day</u>	<u>Client 3c</u>	<u>Day</u>	<u>Client 4e</u>	<u>Day</u>	<u>Client 4c</u>	<u>Day</u>
.26	4	.003	4	.08	1	.37	2
.17	9	.13	9	.28	3	.18	4
.17	11	.17	12	.10	8	.41	9
.28	16	.14	16	.21	10	.27	11
.32	22	.20	22	.13	15	.05	16
		.14	24	.05	17	.29	18
		<u>Client 5e</u>	<u>Day</u>	<u>Client 5c</u>	<u>Day</u>		
		.20	4	.11	12		
		.34	5	.43	15		
		.15	8	.03	17		
		.08	9	.03	19		
		.15	15	.08	22		
		.20	19	.02	24		

Denotes day of counseling session when Sunday of first week of treatment period = Day 0

Frequency = geometric mean of two independent behavior counts

PUT DOWNS

<u>Client 1e</u>	<u>Day</u>	<u>Client 1c</u>	<u>Day</u>	<u>Client 2e</u>	<u>Day</u>	<u>Client 2c</u>	<u>Day</u>
.45	5	.68	3	.14	2	.08	2
.18	9	.22	5	.13	9	.09	3
.13	10	.20	10	.48	11	.09	9
.11	11	.19	12	.07	16	.06	11
.11	15	.13	19			.13	16
.09	16	.02	22			.06	18

<u>Client 3e</u>	<u>Day</u>	<u>Client 3c</u>	<u>Day</u>	<u>Client 4e</u>	<u>Day</u>	<u>Client 4c</u>	<u>Day</u>
.32	4	.35	4	.15	1	.31	2
.58	9	.45	9	.16	3	.32	4
.18	11	.37	12	.10	8	.19	9
.45	16	.27	16	.06	10	.15	11
.43	22	.06	22	.04	15	.21	16
		.11	24	.004	17	.12	18

<u>Client 5e</u>	<u>Day</u>	<u>Client 5c</u>	<u>Day</u>
.13	4	.25	12
.40	5	.59	15
.17	8	.05	17
.18	9	.11	19
.16	15	.11	22
.12	19	.13	24

PRESENT TENSE STATEMENTS

<u>Client 1e</u>	<u>Day</u>	<u>Client 1c</u>	<u>Day</u>	<u>Client 2e</u>	<u>Day</u>	<u>Client 2c</u>	<u>Day</u>
.71	5	2.27	3	2.58	2	.64	2
.34	9	1.77	5	2.27	9	.45	3
.36	10	1.07	10	3.17	11	.26	9
.28	11	3.38	12	3.29	16	.24	11
.30	15	2.50	19			.25	16
.31	16	3.74	22			.21	18

<u>Client 3e</u>	<u>Day</u>	<u>Client 3c</u>	<u>Day</u>	<u>Client 4e</u>	<u>Day</u>	<u>Client 4c</u>	<u>Day</u>
2.04	4	2.33	4	1.91	1	1.29	2
1.55	9	1.74	9	1.82	3	1.21	4
1.00	11	2.72	12	1.49	8	1.62	9
1.41	16	2.15	16	1.68	10	1.07	11
.57	22	1.41	22	.98	15	1.02	16
		1.42	29	.85	17	1.03	18

<u>Client 5e</u>	<u>Day</u>	<u>Client 5c</u>	<u>Day</u>
.70	4	1.59	12
1.21	5	1.97	15
.74	8	.76	17
.64	9	.92	19
.92	15	1.02	22
1.00	19	.77	24

PAST TENSE STATEMENTS

<u>Client 1e</u>	<u>Day</u>	<u>Client 1c</u>	<u>Day</u>	<u>Client 2e</u>	<u>Day</u>	<u>Client 2c</u>	<u>Day</u>
.45	5	2.00	3	.47	2	.06	2
.51	9	.26	5	1.67	9	.26	3
.45	10	1.02	10	1.59	11	.34	9
.55	11	2.09	12	.82	16	.38	11
.53	15	1.51	19			.46	16
.53	16	1.51	22			.31	18

<u>Client 3e</u>	<u>Day</u>	<u>Client 3c</u>	<u>Day</u>	<u>Client 4e</u>	<u>Day</u>	<u>Client 4c</u>	<u>Day</u>
.88	4	.17	4	.22	1	1.15	2
.92	9	.36	9	.92	3	.54	4
.11	11	.65	12	.18	8	.93	9
1.19	16	.52	16	.33	10	.43	11
.74	22	2.03	22	.13	15	.33	16
		.97	24	.17	17	.40	18

<u>Client 5e</u>	<u>Day</u>	<u>Client 5c</u>	<u>Day</u>
.35	4	1.26	12
.38	5	1.73	15
.24	8	.49	17
.14	9	.24	19
.26	15	.55	22
.21	19	.58	24

BIBLIOGRAPHY

- Allen, T. W. Discussion following Blocher. In J. M. Whitely (Ed.), Research in Counseling. Columbus, Ohio: Charles E. Merrill Publishing Company, 1967, pp. 21-29.
- Alper, T. G., and White, O. R. Precision teaching: A tool for the school psychologist and teacher. Journal of School Psychology, 1971, 9, 445-454.
- Atthowe, J. M., and Krasner, L. Preliminary report on the application of contingent reinforcement procedures (token economy) on a "chronic" psychiatric ward. Journal of Abnormal Psychology, 1968, 73, 37-43.
- Azrin, N. H., Rubin, H. B., O'Brien, F. J., Ayllon, T., and Roll, D. R. Behavioral engineering: Postural control by a portable operant apparatus. Journal of Applied Behavior Analysis, 1968, 1, 99-108.
- Bailey, M., Warshaw, L., and Eichler, R. A study of factors related to stay in psychotherapy. Journal of Clinical Psychology, 1959, 15, 442-444.
- Baller, W., and Lower, E. Informative feedback: An educational controversy. School and Society, 1971, 99, 417-419.
- Barrows, R. S. Using audiotape playback in secondary school counseling. The School Counselor, 1971, 19, 115-119.
- Bates, S., and Bates, D. F. ". . . and a child shall lead them": Stephanie's chart story. Teaching Exceptional Children, 1971, 3, 111-113.
- Bijou, S. W. Implications of behavioral science for counseling and guidance. In J. Krumboltz (Ed.), Revolution in Counseling. Boston: Houghton Mifflin Company, 1966, pp. 27-48.

- Bixler, R. H. The changing world of the counselor II: Training for the unknown. Counselor Education and Supervision, 1963, 2, 168-175.
- Blocher, D. What can counseling offer clients? Implications for selection. In J. M. Whitely (Ed.), Research in Counseling. Columbus, Ohio: Charles E. Merrill, 1967, pp. 5-20.
- Bradfield, R. N. Precision teaching: A useful technique for special education teachers. Educational Technology, 1970, 10, 22-26.
- Butler, J. M., and Haigh, G. V. Changes in the relation between self-concepts and ideal concepts consequent upon client-centered counseling. In C. R. Rogers and R. Dymond (Eds.), Psychotherapy and Personality Change, Chicago: The University of Chicago Press, 1954, pp. 55-75.
- Butler, J. M., Rice, L. N., and Wagstaff, A. K. Quantitative Naturalistic Research. Englewood Cliffs, New Jersey: Prentice-Hall, 1963.
- Carkhuff, R. R., and Alexik, M. Effect of client depth of self exploration upon high- and low-functioning counselors. Journal of Counseling Psychology, 1967, 14, 350-355.
- Cartwright, R. D., and Vogel, J. L. A comparison of changes in psychoneurotic patients during matched periods of therapy and no therapy. Journal of Consulting Psychology, 1960, 24, 121-127.
- Chapanis, A. Knowledge of performance as an incentive in repetitive and monotonous tasks. Journal of Applied Psychology, 1965, 48, 263-267.
- Cohen, H. L., Filipczak, J., and Bis, J. A study of contingencies applicable to special education: CASE I. In R. Ulrich, T. Stachnik, and J. Mabry (Eds.), Control of Human Behavior. Glenview, Illinois: Scott, Foresman and Company, 1970, Vol. II, pp. 51-69.
- Duncan, A. D. Precision teaching in perspective: An interview with Ogden R. Lindsley. Teaching Exceptional Children, 1971a, 3, 114-119.

- _____. The view from the inner eye: Personal management of inner and outer behaviors. Teaching Exceptional Children, 1971b, 3, 152-156.
- Dymond, R. Adjustment changes over therapy from self-sorts. In C. R. Rogers and R. Dymond (Eds.), Psychotherapy and Personality Change. Chicago: The University of Chicago Press, 1954, pp. 76-84.
- Eysenck, H. J. The effects of psychotherapy: An evaluation. Journal of Consulting Psychology, 1952, 16, 319-324.
- Goldiamond, I. Self-control procedures in personal behavior problems. Psychological Reports, 1965, 17, 851-868.
- Greenspoon, J., and Forman, S. Effect of delays of knowledge of results on learning a motor task. Journal of Experimental Psychology, 1956, 51, 226-228.
- Hebb, D. O. The Organization of Behavior. New York: John Wiley & Sons, 1949.
- Hiler, E. W. An analysis of patient-therapist compatibility. Journal of Consulting Psychology, 1958, 22, 341-347.
- Holder, T., Carkhuff, R. R., and Berenson, B. G. Differential effects of the manipulation of therapeutic conditions upon high- and low-functioning clients. Journal of Counseling Psychology, 1967, 14, 63-66.
- Hollingshead, A. B., and Redlich, F. C. Social Class and Mental Illness. New York: John Wiley & Sons, 1958.
- Homme, L. E. Perspectives in psychology: XXIV. Control of Coverants, the operants of the mind. Psychological Record, 1965, 15, 501-511.
- Homme, L., de Baca, P., Cottingham, L., and Homme, A. What behavioral engineering is. Psychological Record, 1968, 18, 425-434.
- Johnston, J. M. and Pennypacker, H. S. A behavioral approach to college teaching. American Psychologist, 1971, 26, 219-244.

- Koenig, C. The behavior bank: A system for sharing precise information. Teaching Exceptional Children, 1971, 3, 157.
- Krumboltz, J. D. Future directions for counseling research. In J. M. Whitely (Ed.), Research in Counseling. Columbus, Ohio: Charles E. Merrill Publishing Company, 1967, pp. 184-203.
- Lang, P. F. The transfer of treatment. Journal of Consulting Psychology, 1966, 30, 375-378.
- Lindsley, O. R. Direct measurement and prosthesis of retarded behavior. Journal of Education, 1964, 147, 62-81.
- Litwack, L. (Ed.). Research in Counseling. Itasca, Illinois: F. E. Peacock, 1968.
- Lorr, M., Katz, M., and Rubenstein, E. The prediction of length of stay in psychotherapy, Journal of Consulting Psychology, 1958, 22, 341-347.
- McDaniel, H. B. Counseling perspectives: Old and new. In J. Krumboltz (Ed.), Revolution in Counseling. Boston: Houghton Mifflin Company, 1966, pp. 79-94.
- Ohlsen, M. M. Evaluation of education for the professions. Counselor Education and Supervision, 1969, 9, 30-40.
- Pennypacker, H. S. Precision teaching: Strategies for effective intervention on behalf of the disabled learner. In P. Satz and J. Ross (Eds.), The Disabled Learner. Rotterdam: The Rotterdam Press, 1972.
- Pepinsky, H., and Karst, F. Convergence: A phenomenon in counseling and psychotherapy. American Psychologist, 1964, 19, 333-338.
- Phillips, E. L. Achievement place: Token reinforcement procedures in a home-style rehabilitation setting for "pre-delinquent" boys. Journal of Applied Behavior Analysis, 1968, 1, 213-223.

- Rice, L. N. Therapist's style of participation and case outcome. Journal of Consulting Psychology, 1965, 29, 155-160.
- Roberts, N. Patience and expectation. Saturday Review, 1971, 54, 70-71, 75.
- Rogers, C. R. On Becoming a Person. Boston: Houghton Mifflin Company, 1961.
- Schaefer, H. H., and Martin, P. L. Behavioral therapy for "apathy" of hospitalized schizophrenics. Psychological Reports, 1966, 19, 1147-1158.
- Skinner, B. F. Beyond Freedom and Dignity. New York: Knopf, 1971.
- _____. Science and Human Behavior. New York: Macmillan Company, 1953.
- _____. What is the experimental analysis of behavior? Journal of the Experimental Analysis of Behavior, 1966, 9, 213-218.
- Stieper, D., and Wiener, D. Dimensions of Psychotherapy. Chicago: Aldine Publishing Company, 1965.
- Stripling, R. O. The role of professional associations in counselor education. Counselor Education and Supervision, 1967, 6, 255-262.
- Stuart, R. B. Behavioral control of overeating. Behaviour Research and Therapy, 1967, 5, 357-365.
- Truax, C. B. Reinforcement and nonreinforcement in Rogerian psychotherapy. Journal of Abnormal Psychology, 1966, 71, 1-9.
- Truax, C. B., and Carkhuff, R. R. Experimental manipulation of therapeutic conditions. Journal of Consulting Psychology, 1965, 29, 119-124.
- Webster, R. L. Stuttering: A way to eliminate it and a way to explain it. In R. Ulrick, T. Stachnik, and J. Mabry (Eds.), Control of Human Behavior. Glenview, Illinois: Scott, Foresman and Company, 1970, Vol. II, pp. 157-160.

BIOGRAPHICAL SKETCH

Jannar William Davis was born October 7, 1944, in Newnan, Georgia. He graduated from Newnan High School in 1962. His undergraduate work was done at Vanderbilt University, where he received the Bachelor of Arts degree with high honors in psychology in June, 1966. He entered the graduate program in personnel services at the University of Florida, and completed the Master of Education degree in December, 1968. After twenty months of active duty in the U.S. Navy, he was employed during 1969-70 as a junior high school guidance counselor in Portsmouth, Virginia. In September, 1970, he returned to the University of Florida to begin work toward the Doctor of Philosophy in counselor education.

A doctoral internship which involved teaching and counseling was fulfilled in the Department of Counselor Education at Arizona State University in Tempe, Arizona. A second internship was served in the Department of Counselor Education at the University of Florida.

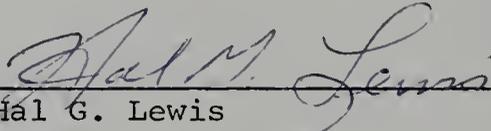
Jannar William Davis is married to the former Sue Sanderson. He is a member of Phi Beta Kappa and Phi Kappa Phi honorary societies.

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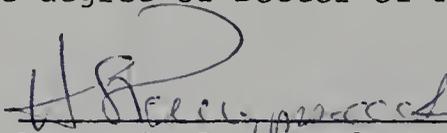
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Hal G. Lewis
Professor, Foundations of Education

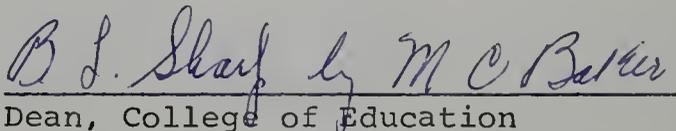
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This dissertation was submitted to the Dean of the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August, 1972



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