THE USE OF OPERANT BEHAVIOR PRINCIPLES BY HUSBANDS FOR THE MODIFICATION OF WIVES' BEHAVIOR

by

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The study investigated husbands' use of praise and ignore to modify pinpointed wives' behaviors. The tested hypothesis was: Husbands can apply behavior principles successfully within the marriage setting for the modification of the wives' behaviors in the desired direction as specified a priori to the experiment.

Four husbands, ranging in age from 23 to 31 and in educational achievement from one year of college to college degree, contacted the experimenter for marriage counseling. Two subjects pinpointed bitching behavior for modification, one pinpointed keeping an untidy kitchen, and the fourth pinpointed excessive telephoning.

Husbands were trained in observation and data keeping with an edited film depicting positive and negative marital interactions, and by role playing with a female assistant. They also were trained in the application of contingent praise and ignore. Data were collected from the husbands each weekday by telephone.

The hypothesis was tested with three single subject designs. For the first subject (pinpointed bitching behavior) a 2-week baseline was followed by one week of noncontingent praise after which came two weeks of contingent praise and ignore. For the second subject (also bitching behavior) a 2-week baseline was followed by three weeks of contingent praise and ignore.

The design for the other two subjects (untidy kitchen and excessive telephoning) was as follows: two weeks of baseline, one week of noncontingent praise, two weeks of contingent praise and ignore, one week of reversal to baseline, and two final weeks of contingent praise

and ignore. Reliability observations were made on these two subjects. Three observations were made at random in the home of one subject whose wife's pinpointed problem was an untidy kitchen. Reliability data were also collected in the case of the wife who excessively telephoned her husband at work. In this case the company telephone switchboard operator made the observations.

Inspection of the graphed data showed that upon application of contingent praise and ignore there was a consistent decline in the pinpointed behavior rates from baseline level. No corresponding decreases in baseline rates were observed upon application of noncontingent praise.

The Wilcoxon Matched-Pairs Signed-Ranks Test was employed in each case. In the first case (bitching), testing for significant difference between baseline and contingent praise and ignore rates gave a Wilcoxon $\underline{T}$ of 14.5 which was significant at the .01 level. In the second case (also bitching), a Wilcoxon test for significant difference between baseline and treatment rates yielded a $\underline{T}$ of 0 which was significant at the .005 level.

Where the pinpointed behavior was keeping an untidy kitchen, a test for significant difference between baseline and final treatment rates showed a Wilcoxon $\underline{T}$ of 0 which was significant at the .01 level. A test for significant difference between telephoning rates during baseline and final treatment phase yielded a Wilcoxon $\underline{T}$ of 0 which was significant at the .005 level.

No significant differences were found between baseline and noncontingent praise periods.

One of the subjects (untidy kitchen) achieved a 96% reliability level as measured against three random observations and another subject

(excessive telephoning) counted telephone calls with 100% accuracy on 36 of 39 days when measured against the observer's data.

It was concluded that contingent praise and ignore can be used successfully by husbands to reduce the rates of the pinpointed behaviors examined in this study. The hypothesis was supported. It also was concluded that noncontingent praise applied to pinpointed behaviors for 7 days exerted no control on the pinpointed behaviors.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Background

Behavior therapy is derived, at least in part, from the rejection of psychodynamic personality theories (Grossberg, 1964; Eysenck, 1952, 1965; Yates, 1970) and consists primarily of the systematic application of modern learning theories to the treatment of behavior disorders. This approach to therapy has been applied to human problems generally defined as neurotic and psychotic. Recently, however, therapists dedicated to the use of behavior principles have turned their attention to negative human interpersonal actions.

Patterson (1971) questioned the assumption that deviant behavior is the outcome of some underlying neurotic conflict in one or more members of the family. Fontanna (1966), through a review of the research literature on children, supported the suspicion that "neuroses" or underlying conflicts are not necessarily the source of family interpersonal disruptions. Rather, any number of conditions might provide the reinforcing contingencies necessary for the acquisition and maintenance of disruptive relationships. A change in the reinforcing contingencies, therefore, should have a powerful effect upon the relationship.

Most studies investigating the application of behavior principles to disruptive and negative patterns of behaviors have focused on children (Wahler, Winkel, Peterson, & Morrison, 1965; Allen & Harris, 1966;

Ray, 1965; Bernal, 1968; Hawkins, Peterson, Schweid, & Bijou, 1966; Paterson, McNeal, Hawkins, & Phelps, 1967; Lindsley, 1966). These investigations were conducted to teach mothers within the clinical setting (Wahler, et al., 1965; Ray, 1965) and within the home setting (Hawkins, Peterson, Schweid, & Bijou, 1966; Patterson, McNeal, Hawkins, & Phelps, 1967; Zeilberger, Sampen, & Sloan, 1968) to modify their own behavior in order to bring the behavior of their children under their control through the use of specified contingencies. Occasionally the fathers (Hall, Axelrod, Tyler, Grief, Jones, & Robertson, 1972) were involved in these programs with children, but generally the male parents did not participate in the experiments.

The relative ease with which the environment of children can be structured and controlled probably accounts primarily for the disproportionate number of studies dealing with children as compared with the number of studies dealing with adults in the home. More and more, however, researchers are now beginning to investigate the application of behavior principles to interspousal behavior patterns which produce negative interactions. While Knox (1971) recently enumerated several possible behavioral approaches for ameliorating problem marriages, Stuart (1969) was one of the first who dealt with marriage complaints through the use of behavior principles. Almost all of the published research has dealt with couples who consented to the experiment. Weiss, Patterson, and Wills (1973) taught consenting couples to keep data on pleasing and displeasing events and on instrumental events to test their influence on marriage satisfaction. Hops, Patterson, and Weiss (1972, 1973) hired couples to carry out two experiments to

investigate the values of a teaching package and a Marital Interaction Code System (MICS). Birchler, Weiss, and Wampler (1972) investigated the differences between distressed and nondistressed marriages by teaching couples to record "pleases" and "displeases."

It is understandable that most published research has dealt with consenting couples--teaching them techniques, testing teaching packages or codes--since it appears to be easier to gain positive results when both partners are committed to the marriage to the degree that they mutually will seek outside intervention (Birchler, Weiss, & Wampler, 1972).

Research on couples should prove helpful to marriage counselors who wish to employ a behavioral approach to counseling distressed couples. However, little research has been conducted on procedures useful to the spouse who comes alone to the behaviorally oriented marriage counselor. If one spouse experiences a need for assistance but is unable to convince the partner that they should seek help together, what does the behaviorally oriented counselor do? One alternative is to refuse to see only one partner. This is the stated, unalterable policy of Knox (1971). If the counselor disagrees with Knox's policy and consents to treat one-half of the partnership, he has available only the work of Goldstein (1971) who trained wives to modify the behavior of husbands. There is little or nothing to help him in a program to train husbands who come alone for help with their marriages.

In a search of the literature this writer was struck with the fact that, with notable exceptions, almost all of the lay persons trained to modify the behavior of other persons were females. Since several

studies are available which show how behavior can be modified through behavior principles (Wahler, et al., 1965; Ray, 1965; Goldstein, 1971), it might be assumed that it is possible to teach husbands to modify wives' behaviors using the same principles. This may be true, but there is no empirical evidence to support such an assumption. Stuart (1969) was aware that the token economy system was effective with children, schizophrenics, and hospitalized psychotics in a wide range of settings (e.g., mental hosptials, classrooms, and institutions for delinquents), but until he investigated the use of a token system with married couples in the home there was no empirical evidence that it would be effective.

Since husbands alone often seek help with their interspousal relationships, the systematic investigation of whether husbands in a single subject design can apply behavior principles for the modification of wives' behaviors is clearly indicated.

This research attempted to answer the following question: Will the husband's application of operant behavior principles within the marriage setting result in the wife's behavior being modified in the desired direction as specified by the husband a priori to the experiment?

Hypothesis

For the purposes of this study, the null hypothesis was not used. Consequently, the hypothesis is stated as follows: Husbands can apply behavior principles successfully within the marriage setting for the modification of the wives' behaviors in the desired direction as specified a priori to the experiment.

Significance of the Problem

United States Government census figures indicate that over 90% of the eligible population of this country marry at least once in their lifetime. While marriage is a common experience among younger and older adults alike, satisfaction with marriage appears to elude most couples. Birchler, Weiss, and Wampler (1972) have pointed out that of those people who marry

> 30% get divorced, another 20% are publicly dissatisfied (i.e., they are separated or are seeking marital counseling), and surveys indicate that another 30% are privately dissatisfied with their relationships. That leaves 20% (who) at least report that they are happily married (p. 2).

Behaviorally oriented counselors contend that interspousal negative actions occur as a result of what spouses do to, or with, each other. When problems occur, each attempts to change the behavior of the other. Basically there appear to be two major ways of changing behavior. Behavior is changed either through positively or negatively reinforcing desirable behaviors occurring at a low rate on the one hand or through punishing undesirable behavior on the other. Unfortunately, most attempts at changing behavior manifest themselves through aversive stimuli or through negative reinforcement. It may be that this approach is acquired through imitation and is maintained through an intermittent schedule of success, or it may be that most spouses have a comparative lack of skills in changing behavior through positive means.

Clearly a body of knowledge needs to be accumulated in order that spouses might be taught to use positive approaches to achieve and maintain marriage relationships which are relatively free from destructive negative interactions. Within this body of knowledge should be

the empirical investigation of whether one member of the marriage, in this case, the male, can use behavior principles since it is abundantly clear to marriage counselors that it is not always possible to counsel with both partners of a marriage.

Definition of Terms

Although Chapter II serves the double purpose of reviewing the literature associated with this study and defining behavior terms, definitions of the following terms are presented here:

Subject. For the purposes of this study, unless otherwise indicated, the term subject refers to the husband.

Praise. Praise is one of the independent variables used by the husbands for the modification of pinpointed behaviors. Praise is any verbal event which commends, extols, applauds, glorifies, adores, or flatters. Praise is assumed to strengthen those behaviors which it immediately follows.

Ignore. Ignore is the second independent variable used by the husbands for the modification of pinpointed behaviors. Ignore is the process of no longer attending (giving attention) to the pinpointed behavior.

Bitching. Bitching is defined as any nagging, complaining, grumbling, whining, screaming, groaning, or moaning.

Treatment. Treatment is the application of contingent praise and ignore to the pinpointed behavior.

Placebo. Placebo is the use of noncontingent praise.

CHAPTER II

REVIEW OF RELATED RESEARCH

In this chapter, a brief summary of some of the major contributors to the development of operant principles will be given followed by an overview of the basic operant principles formulated by B. F. Skinner which are regularly used in behavior modification. Then a review will be made of some studies in which reinforcement was used to modify behavior within an experimental setting after which attention will be directed to pertinent studies where reinforcement was applied in the home setting. A review will be made of some studies employing both members of the couple, and finally, consideration will be given to some of those studies dealing with experimenters who serve as their own observers.

Major Contributors

Probably the men who most influenced the development of behavioral approaches to therapy through experimental psychology during the first thirty years of this century were two Russians, Pavlov and Bekhterev. Pavlov's primary work was in classical conditioning while Bekhterev concentrated on instrumental conditioning. Classical conditioning is that procedure where a neutral stimulus is paired with an unconditioned stimulus until the neutral stimulus acquires characteristics similar to those of the unconditioned stimulus. It then has the ability to elicit a conditioned response characteristic of the unconditioned response.

Instrumental conditioning is that procedure wherein a performance by the organism is followed by an event which has the capacity to change the frequency of the performance. The experimental procedures of Pavlov and Bekhterev were applied where possible almost immediately to the area of abnormal behavior. Pavlov, for example, followed up the publication of his results with laboratory animals (Pavlov, 1927, 1928) by applying these findings to abnormal human behavior through theories and techniques (Pavlov, 1932, 1941). Pavlov's basic contribution has been summarized by Ullman and Krasner (1969):

> Pavlov suggested in detail how a general theory of behavior could be constructed in terms of objective physiological phenomena. He carefully explored empirical relationships, determined basic parameters, and laid the basis and terminology for literally thousands of experiments by his colleagues and their students (p. 174).

Following the example of Pavlov, Bekhterev first published the results of his experimental studies (Bekhterev, 1932) and then systematically applied his findings to psychiatry (Yates, 1970).

Others, following the lead of these two pioneers, began to raise practical questions concerning the concept of mental illness. Watson (1916), along with Burnham (1917), for example, discussed the possibility of explaining abnormalities of behavior in Pavlovian terminology.

One of the major developments in the 1930s was the construction of

> Theoretical models to embrace a much wider range of phenomena than the conditioning situations studied by Pavlov and Bekhterev. Hull's work (largely based on the findings of the American "instrumentalists" such as Thorndike) is of great importance because its use of tightly defined theoretical constructs enabled psychologists to begin to make use of theory as well as empirical facts in the field of abnormal behavior. Thus, the use of the term "learning theory" came to be more and more widely used with reference to abnormal behavior (Yates, 1970, p. 15).

Dollard and Miller (1950) attempted to translate psychodynamic concepts into the terminology of learning theory. Their problem, however, was that their approach to therapy differed in no way from that of the psychodynamic therapists, even though they wrote of their work in behavioral language.

No discussion of behavior therapy or behavior modification would be complete without at least passing attention to B. F. Skinner. Although Skinner was not concerned directly with human behavior in his early monumental experiments, his work nevertheless has made a valuable contribution to the field. Among other things, Skinner demonstrated rather conclusively that the largest body of behavior exhibited by any organism is not that which has been elicited by some antecedent (either conditioned or unconditioned) but, rather, that behavior which is apparently freely emitted by the organism. This type of behavior was labeled instrumental behavior by Bekhterev; Skinner called it operant behavior. In either case, each meant that behavior which is apparently spontaneous. Instead of specifying the antecedents which elicit the particular response under observation, the emphasis is shifted to the events which follow the freely emitted behavior. Skinner (1938) carefully noted that events which immediately follow an operant behavior have the characteristic of either strengthening or weakening the behavior depending upon the dimensions of the subsequent event. He did not miss the implications of such a discovery. If operant behaviors are under the control of their consequences, it follows that a manipulation of the consequences increases the probabilities of controlling the behaviors. It also follows that the principal measure of a dependent

variable is its rate of occurrence. A behavior, therefore, is strengthened when its rate is increased and it is weakened when its rate is decreased.

Behavior can be influenced in two ways. The environment may be rearranged in such a way that stimuli are not presented, thereby reducing the probabilities of the behavior occurring, or, when the antecedents cannot be controlled, the consequences of the behavior may be altered in such a way that the strength of the behavior (in terms of rate) may be changed.

Overview of Basic Operant Principles

A general overview of the basic operant principles formulated by Skinner (1953) follows. This section also serves to define the basic language of operant learning principles.

Behavior is any observable or measurable movement of an organism, including both external and internal movements and their effects, and glandular secretions and their effects. Operant behavior is any movement or event that is strengthened or weakened by the events that follow the response. (It should be noted that this is entirely different from respondent behavior which is controlled by the events which precede it, i.e., its antecedents.) Consequences include an object, an event, or the action of a person which closely follows the emission of a behavior.

A contingency is the connection between behavior and its consequences. When systematic links between behaviors and consequences are arranged or detected, it is called either contingency management or contingencies of reinforcement.

Consequences are classified according to the way a behavior is affected. Consequences which strengthen behavior are called reinforcers. As noted above, a reinforcer strengthens a behavior by increasing the probability that it will occur again or by increasing its rate. It should be noted, however, that reinforcers can be either positive reinforcers or negative reinforcers. While the positive reinforcer strengthens the behavior which produced it, a negative reinforcer is any event which weakens the behavior which produces it and conversely strengthens the behavior which removes it.

Positive reinforcers are stimuli or events which are "pleasant" for organisms, including persons. Whether a given event is a positive reinforcer, therefore, depends in large measure upon the individual and his "preference" at the time of event. For example, a given amount of money may or may not be a positive reinforcer. Money which cannot be spent has little reinforcing quality. When a person has an abundance of money, a small additional amount may not serve as a reinforcer. Consequently, the principles of satiation and deprivation help to determine the value of a reinforcer. One with all the money he wants or needs can be said to be satiated, if the probabilities of additional money have no effect upon his behavior. On the other hand, if the person has no money at all, or has very little and values it very much, he would be considered deprived. To change the example, after a person has eaten a full meal, the offer of additional food at that time only brings protests and groans. He can be described as satiated. If, on the other hand, food has been withheld from him for the past 72 hours, food would probably serve as a positive reinforcer because he is in a

state of deprivation. Thus it can be seen that the important point about the operational definition of a reinforcer is that the reinforcing properties do not lie in the stimulus, per se, but in its effect upon behavior (Reece, 1966).

Negative reinforcers include stimuli which are aversive to the organism, and since the principle of negative reinforcement is easily misunderstood, it warrants adequate explanation. Instead of presenting a pleasing consequence, negative reinforcement is the process of escaping or avoiding an aversive event. For example, a wife asks her husband to carry out the garbage; he does not comply with the request. The wife begins to cry, accuses him of being an uncooperative husband, shouts at him, slams doors, and rattles pots and pans in the kitchen. At last, the husband throws his newspaper onto the floor, strides quickly to the kitchen, gathers the garbage, and removes it from the house. Immediately the wife stops her noisy behavior. The husband has been negatively reinforced by the termination of the wife's aversive behavior. The wife, on the other hand, has been reinforced positively for her "bitchy" behavior, and the probabilities have been increased that the next time she wants the garbage carried out, she will engage in the same aversive verbal and motor behavior (Patterson & Reid, 1970).

Individuals learn to associate certain cues with reinforcers. It is seldom that the individual is presented with only one stimulus, therefore, it is mandatory that he learn to discriminate from many stimuli that one stimulus which marks the availability of reinforcement. Skinner (1953) defined discriminative stimulus (SD) as a cue which sets the occasion for a behavior that will be reinforced. At

times there may be a slight variation of the SD, and this variation may also set the occasion for similar reinforcement. When this occurs, it is called generalization. Its importance was noted by Reece (1966):

> the occurrence of a response in the presence of other stimuli situations following its conditioning in the presence of one stimulus situation--is called generalization. If it were not for generalization, each response would have to be relearned in each new stimulus situation (p. 9-10).

According to Skinner's basic operant principles, all types of behavior may be maintained by the individual in order to cope with his environmental and/or self-imposed demands. Which is to say, persistent behavior is considered to be maintained by some strengthening consequence. It further follows that all behavior, especially social behavior, whether adaptive or maladaptive, is learned.

Anyone wishing to change the behavior of another and proceeding under the general framework of operant behavior principles can be guided by the following questions proposed by Rappaport and Harrell (1971):

1. What are the behavioral manifestations of the problem?--specific observable events which are called target behaviors.
2. What environmental factors have combined to produce this behavior?--conditioning history.
3. What environmental consequence maintains this behavior?--contingencies of reinforcement.
4. What are the environmental consequences which can be manipulated to alter the target behaviors?--reinforcers.
5. What natural environmental variables are available to maintain the desired behaviors?--natural reinforcers.
6. What is the most effective rate of presenting reinforcers to alter, shape, or maintain behaviors?--schedule of reinforcement (p. 5).

Techniques which Increase and Decrease the Strength of Behavior

Procedures currently available for controlling behavior will be reviewed below. "Behavioral" methods such as surgical techniques (lobotomies, for example), electrical stimulation to selected areas of the brain, or the use of drugs will not be considered. Procedures which increase the strength of behavior will be considered first; this will be followed with a consideration of those procedures which decrease the strength of behavior.

While the focus of this study is on operant behavior, mention must be made of respondent behavior because emotional behavior seems to include both operant and respondent dimensions (Reece, 1966). A landmark study should provide adequate instruction on respondent conditioning. Watson and Rayner (1920), working with an 11-month-old boy, paired a conditioned stimulus (white rat) with an unconditioned stimulus (loud noise) until the rat alone elicited fear (emotional reaction). At first presentation of the rat the child displayed no fear. Upon initial presentation of a hammer striking a steel bar (loud noise), "The child started violently, his breathing was checked, and the arms were raised in a characteristic manner (p. 2)." On second presentation of the noise, the child started again with his lips puckering and his chin quivering. On the third presentation of the noise, he "broke into a sudden crying fit." (It will be noted that as in all cases of respondent behavior the stimulus precedes the response.) Then the rat was presented to the child, and when he reached for the animal, the steel bar was struck with the hammer. After only seven such pairings, the

baby began to cry when he saw the rat and attempted to crawl rapidly away. Thus, by respondent conditioning (sometimes called classical or Pavlovian conditioning), the rat acquired aversive properties (the child attempted to escape) and became a conditioned stimulus with similar characteristics of the unconditioned stimulus, eliciting startle and crying behavior.

In operant behavior, positive reinforcement is the most common technique used to increase the strength of a response. As pointed out above, conditioning through positive reinforcement requires that the reinforcement be presented after the operant response. Siqueland and Lipsitt (1966), in one of three experiments employing 36 full-term newborns, conditioned head turning by following tactile stimulus (SD) of the infant's cheek with a 2-second presentation of a 5% dextrose solution through a nipple contingent upon an ipsilateral response within a 6-second interval. A control group received the dextrose solution within 8-10 seconds of the tactile stimulus regardless of the direction of the ipsilateral movement of the child.

The results, say the authors,

> indicate that the procedure of pairing reinforcement with the response of turning to tactile stimulation results in more responding by experimental Ss than control Ss during training and extinction. The fact that the control group, who received the same number of dextrose presentations during training, failed to show similar response increments indicates that this increased probability of response for the experimental group was not attributable to simple arousal effects of dextrose presentation. In contrast to the relatively stable base rate of response for the control Ss, experimental Ss demonstrated a reliable acquisition effect over the ten blocks of training trials shifting in probability of response occurrence from .30 to .83 (p. 359).

This careful experiment, along with numerous other studies, clearly indicated that positive reinforcement strengthens the behavior under consideration.

When a conditioned response is no longer reinforced, the process is called extinction. In extinction, the reinforcement is withdrawn noncontingently; that is, the introduction of extinction is under the independent decision and control of the experimenter. Extinction decreases the probabilities of the behavior occurring; the strength of the behavior is decreased. The principle of extinction is introduced at this point instead of under the discussion of techniques which decrease the strength of behavior, because, as will be shown later, in many instances some behaviors are put under extinction while some incompatible behavior simultaneously is reinforced.

When a desired behavior is not within the individual's repertoire, or when it occurs extremely infrequently, shaping can be employed. Shaping is that procedure where selective reinforcement of successive approximations is administered until only the target behavior is reinforced.

As might be supposed, the quickest way to establish a behavior is to reinforce each emittance of that behavior. The reinforcer is presented immediately after each response until the desired frequency is reached. Fortunately this is not the most effective or the most economical method of maintaining the behavior. Once behavior has been conditioned, it is usually reinforced on an intermittent schedule of reinforcement. A schedule of reinforcement

> is a statement of the contingencies on which reinforcement depends. These contingencies are specified in terms of the number of responses emitted....(fixed or variable ratio) and/or in terms of the passage of time (fixed or variable interval) (Reece, 1966, p. 15).

Often human beings have their behavior maintained on a complex schedule of reinforcement which contains elements of both ratio and interval schedules of reinforcement, both fixed and variable.

Several studies have illustrated the efficacy of positive reinforcement as a technique to strengthen and maintain desired behaviors. Preschool children have been used in many studies, and it has been shown that teacher's attention, praise, and physical proximity are effective in shaping and maintaining both adaptive social behaviors and productive academic behaviors.

Premack's principle (1959) states that for any pair of responses, the more probable one will reinforce the less probable one. This is also referred to as the "Grandma Principle," which states: "You can go fishing after you split the wood and slop the hogs." Application of Premack's principle is dependent upon the identification of two behaviors occurring at unequal rates. The one occurring at the higher rate is made contingent upon the one occurring at the lower rate.

Before any of the procedures listed above can be effective in strengthening a target behavior, "it may be necessary to modify the subject's environment or to modify other behavior that may compete with or prevent the desired behavior (Reece, 1966)." For example, some modification of the environment will have to be made if the behavior to be strengthened is currently punished, if the behavior currently is being suppressed through the presence of a conditioned aversive

stimulus, if the behavior does not occur through either the absence or suppression of discriminative stimuli, or if some incompatible behavior is occurring at a greater strength.

Attention now will be given to the techniques for weakening behavior.

Pavlov discovered that if a conditioned stimulus is presented repeatedly in the absence of the unconditioned stimulus from which the conditioned stimulus acquired its dimensions, respondent extinction will occur. The conditioned stimulus no longer will elicit the behavior. In a manner of speaking familiarity not only breeds contempt, it breeds indifference.

Skinner noted that when an operant behavior no longer was reinforced, the frequency of the behavior declined. This process is called operant extinction. The reinforcement history of the behavior determines the rate of decrease in strength; that is, if a behavior has been reinforced intermittently it will be more resistive to the effects of extinction than if the behavior has been reinforced continuously. Deceleration and extinction occur more rapidly when the behavior has been reinforced each time it has occurred.

While behavior may be weakened by extinction, the strength of a behavior also may be weakened by satiation. Satiation is a process whereby a behavior is weakened by the continuous presentation of reinforcement. Eating behavior at a table on a given occasion, for example, is weakened by the continuous presentation of reinforcement (food) until satiation occurs. Eating behavior then ceases until another state of deprivation occurs. Only then will food serve again as a reinforcer for eating behavior.

Punishment is considered by Skinner as either the presentation of an aversive stimulus or the withdrawal of a positive reinforcement contingent upon some specified behavior. While punishment is widely used for the weakening of behaviors, strong arguments can be made for using some other procedure. There is little doubt that punishment will indeed weaken the strength of a behavior, but often the results are only temporary, and unpleasant emotional respondents may be elicited. Punishment at times can accelerate aggressive behavior. For instance, the subject may attack the experimenter.

Behavior can be weakened by conditioning incompatible or alternative behaviors. This process is very effective when it is combined with aversive stimuli. Holz, Azrin, and Ayllon (1963) found that when an alternative response for obtaining reinforcement is available, a very mild punisher can suppress responding. Mental patients were conditioned to respond for cigarettes on a variable interval schedule of reinforcement. Punishment in the form of time-out was introduced after each tenth response. The punishment was not effective with two of the subjects while the other two continued to respond for awhile at the same rate as before. Their rate of response then decreased gradually. The time-out punishment was completely effective on all four subjects, however, when another response was made available which produced the cigarettes on the same schedule.

Lovaas, Freitog, Gold, Vivian, and Kassonla (1965), working with a 9-year-old autistic girl, found that when non-self-destructive behavior produced attention (social reinforcement), self-destructive behavior seldom occurred. In this particular study, social reinforcement was

made contingent upon her clapping her hands in time to music, rocking back and forth as the music played, and singing. It should be evident such behaviors are incompatible with self-destruction.

Reinforcement Studies in Clinical Settings

As stated previously, this research focused on the use of operant behavior principles to modify wives' behaviors. Consequently, a brief review will be presented of some of the studies in which operant behavior principles have been employed, with attention given first to studies using reinforcement to modify behavior in experimental situations, and then examinations of studies using reinforcement to modify behavior in the natural environment.

Wahler et al. (1965) attempted to modify the deviant behavior of three children by teaching mothers to modify their interaction with their children. They proceeded from the premise that stimuli composing the adult's or child's natural environments are responsible for the development and maintenance of the deviant behaviors which cause the complaints. Deviant behaviors in children are produced and maintained through contingencies set between different stimuli or between the stimuli and the behaviors; therefore, if one of the persons in the dyad can be taught to act in a different manner, the behavior of the other half of the dyad should be modified (Patterson & Reid, 1970). Three boys, varying in age from four to six years, and their respective mothers served as subjects for the experiment. Prior to the therapy sessions, the mothers were interviewed to establish the nature of the problem behavior under investigation and to establish a mother-reported

description of their typical responses to the behaviors of the children. The mothers then were observed in interaction with their children (each mother-child pair was observed separately). From separate observation rooms, two observers obtained independent written records of the child's and the mother's behavior. Two separate analyses of these records were made. First, an analysis was made of the similarities between the recorded behavior and the behavior the parents identified as causing trouble at home. At the same time, the child's behavior was carefully analyzed for behaviors incompatible with the deviant or problem behavior. A second analysis was made to describe the mother's typical reaction to the child's deviant behavior.

Case 1 involved a 6-year-old boy who commanded his parents in such a way that he virtually had control over them. Case 2 dealt with a 4-year-old boy who emitted what his parents termed "very dependent behavior." Case 3 involved a 4-year-old boy who was "extremely stubborn."

Baseline of deviant behaviors did not begin until the two observers had reached 90% agreement for each behavior class for each session. After collection of baseline data, in which the mothers responded to the deviant behaviors in their usual ways, the mothers then were instructed to respond to the behaviors in a manner which, hopefully, would modify the behavior of the child. In subsequent sessions, each was instructed to return to her old way of responding to the target behavior, and finally, she was instructed to respond once again in the experimental manner.

In two of the cases, the data indicated that a mother's social behavior may function as a powerful class of positive reinforcers for her child's deviant behavior as well as his normal behavior. In one of the cases, the data failed to show that the child's deviant behavior was under the control of his mother's social behavior, but a subsequent experiment, in which the child was put into social isolation for a brief period of time contingent upon the display of deviant behavior, eliminated his oppositional behavior during the experiment. The major finding related to the present research is that it proved possible to train one party of a dyad (in this case, the mother) to modify the behavior of another through the use of behavior modification techniques based on principles of operant learning theory.

Although it is a case report with the usual weakness of little or no controls, Allen and Harris (1966), working within an experimental setting, trained a mother to deal with her 5-year-old girl who had open sores and scabs covering almost every part of her body brought on from excessive repetitive scratching for about 12 consecutive months. The mother and the child came to the clinic where the mother was trained to withhold all attention, concern, or eye contact while the girl engaged in scratching, but to give her reinforcement in terms of praise, attention, gold stars with back-up reinforcers, and clothes for her doll, for desirable behaviors emitted in the absence of scratching behaviors. The mother received several training sessions, one per week. Within that training period, the girl's scratching behavior was eliminated. An examination revealed an absence of sores and scabs from her body. No further recurrence of the excessive scratching was evident during a follow-up session four months later.

Ray (1965), working within the experimental setting, observed four mothers of atypical children (some were autistic) over a series of 12 20-minute baseline sessions. After baseline had been established, the mothers participated in five group training sessions where programmed materials outlining reinforcement theory and child management principles were employed. The observation data rendered several significant changes in the behavior of the mothers, especially in terms of responsiveness to nonaversive behaviors emitted by the child. There also was a significant decrease in aversive behaviors emitted by the child. According to the data, however, the greatest change was in the behaviors of those mothers of nonautistic children. The study gives support to the general assumption that when the behavior of one member of a dyad is changed, modification of the second member's behavior can be expected.

Reinforcement Studies in Home Settings

In an interesting and well designed experiment, Bernal (1968) bridged the gap between modifying the behavior of children within the experimental situation and the home situation by conducting the experiment in both places. The study involved bringing brat behavior under control of the mother by teaching her to do four things: 1) Reduce her verbal output ("Don't....stop....I'll whip you....I'll scream" etc.), while selectively ignoring all of his abusive behaviors. 2) Pair words such as "don't" and "stop" with an aversive stimulus (spanking). 3) Use threats only when necessary and then carry them out without fail when the brat behavior did not come under the control of the threats. 4) Identify acceptable behaviors and reinforce them with warmth and

praise while specifying to the child which behaviors were acceptable. The treatments were videotaped in the t.v. studio of the clinic and consisted of five treatment sessions: 1) Pre-treatment--no instruction to the mother. Observations of the interactions were recorded and placed on a data sheet. 2) Intervention A--ignore abuse. 3) Intervention B--spank if he hurt the mother. 4) Differentiate between positive and negative responses. 5) Post treatment--no instructions.

The data indicated that the 8½-year-old boy's behavior was successfully brought under the control of the mother both at the t.v. studio and at the home. Salient features of Bernal's study included the use of video at the t.v. studio with immediate feedback and instructions for the mother and the collection of data in the home through the use of a video recorder. A second phase of the study included successfully teaching the mother to use behavior principles to modify her son's play/abuse behavior with one of his friends.

Hawkins et al. (1966) also went into the home to teach a mother how to alter her behavior in order to establish control over the unwanted behaviors of her 4-year-old son. The child had been judged to be of borderline intelligence, hyperactive, and possibly brain damaged. The experimenters went to the home two or three times per week for an hour at a time. The mother was instructed to ignore the observers as she and her son and daughter interacted as usual. Nine behaviors were pinpointed as objectionable. Two, and sometimes three, observers recorded the nine behaviors as they occurred during baseline with agreement between observers ranging between .70 and 1.00 with the mean at .88. Treatment was divided into five stages: <u>First baseline</u>

period: Family interaction was observed for 16 sessions. First experimental period: Experimenters gave cues for when the mother was to respond in a predetermined way to each of the nine pinpointed behaviors. She was either to: 1) tell him to stop; 2) if he did not obey, place him in other room and lock the door for five minutes; 3) when he acted in an approved manner she was to give him warm attention. Second baseline period: The mother interacted with her son as before consultation and during first baseline period. Second experimental period: The experimental procedures were reintroduced except that special attention for desirable play was omitted. Follow-up: There was no contact between the mother and the experimenters. She was free to interact with the child as she thought appropriate. At the end of 24 days the experimenters again observed the family for three sessions to determine whether treatment improvements effects were still evident.

Based on the data, a convincing argument can be made for concluding that the mother learned to employ behavior modification procedures in such a way that the son's behavior was altered in the desired direction. The data also indicatedthat such a treatment can be administered entirely within the natural (home) environment. Since it is widely held that many of a child's problems originate within the home environment, it appears logical that a treatment program administered within the environment of the home may arrest the difficulty at its source.

Patterson et al. (1967) also went into the home to conduct an experiment dealing not only with the possibility of bringing a 5-year-old boy under the control of the social reinforcement of his mother

but at the same time increasing the social reinforcement dimension of each for the other. Observations were spoken into a tape recorder while the child and mother interacted within the kitchen. Operant instances of reinforcement were noted and then later coded by independent judges of the material with the median percentage of agreement across judges and transcription of 71%. Only occasionally was the father present.

Training at the initial sessions was by means of a 120-framed programmed textbook on social learning theory. During the treatment program, subsequent programmed chapters were written and presented.

Conditioning of the boy for attention and smiles was begun in each case by an experimenter who then turned the procedure over to the mother. In time the parents were put on their own and were reinforced with a fee reduction for running the program independent of the experimenters. For each note describing an adaptive behavior and the reinforcer they used to strengthen it, they received a one dollar reduction in clinic fee.

Data presented indicated that before treatment neither child nor parent provided social reinforcement for each other. The data further indicated that the boy's nonresponsiveness, negativism, and extreme withdrawal behaviors changed in the desired direction. The study focused on the social interaction of the mother and the son while neglecting to offer any data concerning the interaction between the father and the son. In fact, most of the program was conducted in the absence of the father.

Almost all of the studies reviewed dealt with the interaction between child and mother. There appeared to be a scarcity of studies on adult males and their ability to serve as dispensers of social reinforcers in order to become behavior modifiers within the home environment. Lindsley (1966) reported one of the few studies dealing with the training of adult males (fathers) as observers and establishers of contingencies for altering specific deviant behaviors in children. Beginning with an original group of 23 volunteers, nine were successful in pinpointing problem behaviors and maintaining contingencies for altering the behaviors. Lindsley claimed that 85% of the fathers who tried were successful in their first attempt at altering the child's behavior under experimentation.

Hall et al. (1972) also conducted an experiment in the home in which at least one husband participated in the use of behavior principles in bringing the behavior of his child under the control of the specified contingencies. The study focused, however, on the parent serving as an observer of his own experimentation. As was pointed out in the first chapter of this report, while most experimenters and writers of articles are male, few of the studies examined dealt with teaching males to be modifiers of behavior of the other half of a dyad. Research dealing with males as the modifiers appeared to be needed.

Before closing the review of studies focusing on modifying a child's problem behaviors within the home, one more report will be considered. Zeilberger, Sampen, and Sloane (1968) sent experimenters into a home for 10 days. The mother was instructed intensely in the use of behavior principles and procedures necessary to control the

behavior of her child. As the mother satisfactorily followed the program with her child, she was verbally praised, and when she made mistakes, she was corrected. The authors concluded that the child's behavior did in fact come under the control of the parental behavior. During baseline the child's aggressive behavior was noted to occur an average of 9% of the scored 20-second intervals. When, during the experimental period, the aggressive behavior was ignored or the child was placed in time-out, the frequency of the aggressive behavior went to zero after the third day. During a second baseline, when the mother returned to her previous manner of responding to the child, his aggressive behavior returned almost to its previous frequency (8% of the scored 20-second intervals). When the experimental conditions were reinstated, the aggression again was quickly eliminated.

One beneficial by-product of such a program is noted by Zeilberger.

> As the child's behavior improved, the mother's verbalizations concerning him improved also. The change in the child's behavior may reinforce and maintain this change in the mother. Further possible advantages of modifying behavior in the environment in which it occurs (in this case the home) are that treatment may be carried out (even if not rigorously) 24 hours a day, that it may continue after the experimenter leaves and that the therapeutic process is not isolated either in the life of the mother or the child (p. 53).

The same might be said of similar programs where the members of the dyad are both adults and married to each other.

It will be noted that the above literature reported studies where adults became modifiers of children's behaviors, both within experimental and home settings. There was no report of one adult being trained to modify the behavior of another adult within the home setting. An extensive search of the literature discovered only one study in

which one adult was trained to modify the behavior of another adult, in this case within the framework of a marriage. As was pointed out above, generally only women have been trained to be behavior modifiers of members of the family. The study carried out by Goldstein (1971) did not vary from this trend. Goldstein attempted to test the hypothesis that husbands' behavior rate can be modified significantly in a desired direction by teaching wives to be systematic modifiers. Ten wives were selected and divided into two groups of five subjects each. Group I was comprised of five wives of graduate students ranging in age from 20 to 38. Each was white and had graduated from or was attending college. All described their marriages as satisfactory, and each had at one time or another attempted to change some aspect of her husband's behavior.

Group II was comprised of five women referred from a mental health clinic. None had attended college, and two had not completed high school. Each stated a dissatisfaction with her marriage and was considering or had considered divorce.

Group I wives were asked to pinpoint undesirable behavior within the husband's repertoire which had been occurring for at least a year and had been unaffected by prior attempts at alteration. Mechanical handheld counters were used to secretly record the frequency of the pinpointed behavior. The frequency count was recorded at the end of each day. After a detailed explanation of how and why positive reinforcement is more effective than punishment in altering behavior, each wife was requested to suggest positive reinforcers she could use with her husband.

Identical procedures were used with Group II except that a 2-week baseline was taken instead of a 1-week baseline. The members of Group II were instructed individually instead of within a group as was the case with Group I. Furthermore, the behaviors pinpointed

> for modification in the husbands of this group (were) anchored more in serious historical marital difficulties than was the case with Group I subjects who denied serious problems (p. 76).

In eight out of the ten cases the wives successfully modified the behavior of the husbands in the desired direction.

Studies in which Both Members of the Couples Are Consenting Members of the Experiment

Literature explaining experiments in which the couples are consenting participants in the studies will be reviewed below. Stuart (1969) described an operant-interpersonal treatment for marital discord. His approach was based on three assumptions. First, "It is assumed that the exact pattern of interaction which takes place between spouses at any point in time is the most rewarding of all the available alternatives (p. 675)." The second assumption was that adults, married to each other, expect reinforcers to be dispensed on a reciprocal basis. "Reciprocity develops as a consequence of a history of positive reinforcement (p. 675)." Stuart concluded that, since attraction is a function of reinforcement history, discordant marriages have partners who are not reinforcing each other and, consequently, are not attractive to each other. His third assumption was that, before unsuccessful marriage interaction can be modified, each partner must become a dispenser of reinforcers for the other.

Stuart carried out his operant-interpersonal treatment in four orderly steps. As a first step the couple was exposed to two premises. The first premise was that impressions are formulated on the basis of what the other person does. The second was that, "in order to change interaction in a marriage, each partner must assume initiative in changing his own behavior before changes can be expected in his spouse (p. 675)." Training in these two premises

> may help to free each spouse from his inaccurate and negatively biasing prejudices. (And) when each spouse is fully aware of the logic of the treatment, he can participate more fully in effective therapeutic planning and execution (p. 677).

The second step consisted of having each spouse list three behaviors which he would most like to accelerate in the other. He discovered several obstacles to this step: the tendency to list behaviors for deceleration; the tendency to list vague requests; the expectation that the spouse should be clairvoyant and not need to be told; and the complaint that the other spouse emitted negative behaviors in response to positive ones.

Step three consisted of posting the desired behavior list in a conspicuous spot in the home where a frequency record was marked when the other performed the desired act.

The fourth step involved trading off positive reinforcers. When reciprocity appeared to be virtually absent, a token economy was instituted.

In the actual experiment, Stuart treated four couples who sought treatment as a last resort to avoid divorce. They ranged in age from 24 to 52 and in education from high school diploma to doctorate. Neither of the couples had over two children, and they had been married

from 3 to 23 years. Each wife listed as first the desire to have her husband talk with her more. A token economy was instituted with the tokens redeemable at the husband's request from a reinforcement menu stressing physical affection. At the beginning of treatment, at the end, and at the follow-up, "each spouse completed a brief inventory measuring the extent of his own satisfaction and his perception of his spouse's satisfaction in and commitment to the marriage (p. 680)." The graphs showed an increase in the scores of satisfaction at the end of treatment for all couples and an increase in the scores in three of the four couples at the follow-up. The graphs also showed that hours of conversation and weekly rate of sexual intercourse covaried positively for all four couples, before, during, and after operant marital therapy.

Weiss, Patterson, and Wills (1973) conducted an experiment in which seven normal couples (as measured by the Locke-Wallace Marital Adjustment Scale) responded to a newspaper ad. The couples ranged in ages from 22-25 to 49-57 years. For all but one couple it was a first marriage, and all were parents. The couples were trained to make sample ratings of daily events and to count programmed pleases and displeases from a videotape depicting couple interactions while employing mechanical counters which were used later under test conditions.

The authors indicated that there were two categories of marital satisfaction: first, role expectations and their congruence; and, second, modes of pleasurable events categorized as affectional activities (those enactments conveying affection, approval, and acceptance which serve to maintain the emotional tone of the marriage) and the instrumental behaviors (those behaviors which support the relationship

as a socio-economic unit and are manifested through housekeeping, child rearing, or gainful employment).

During the 14-day experiment the couples recorded the instrumental behaviors and the pleasing-displeasing events. The experimenters called the couples twice daily for a report on their records. From the data, the authors stated that: 1) affectional events are more strongly related to ratings of satisfaction than are instrumental events; and 2) displeasurable more than pleasurable events are related to daily ratings of satisfaction.

The implications were that a program in which affectional events are increased and displeasurable events are decreased should aid the overall satisfaction and cohesiveness of a marriage.

Hops, Patterson, and Weiss (1972), in an attempt to evaluate a treatment package designed for use with couples, employed five couples, only one of which had taken steps toward divorce prior to entering treatment. They were seen on a weekly basis for periods of 10 to 60 days total. Eight therapists were involved, and the clients were called by phone every other day for a brief report of the Please/Displease data they were keeping. The data were based on a 29-item Marital Interaction Coding System (MICS). A baseline was kept before introduction of the treatment (teaching the couples to use negotiation, compromise, and contracts). Significant decreases in aversive behaviors were recorded. It also appeared that compromise statements for both spouses significantly increased and that behaviors counterproductive to negotiations decreased. The authors were convinced that "These data, combining both laboratory and self-observation sources indicate that

the intervention package was effective in producing the kinds of post intervention changes one would deem important (p. 32)."

In a second study Weiss, Patterson, and Hops (1973) tested the teaching package and the MICS code, this time working with five couples on a weekly basis over a period of 56 to 91 days. All couples had children as young as two years old and had been married from 4 to 13 years. The following results were reported:

> Comparisons were made for each of six MICS combined code levels between baseline mean and intervention mean normalized scores. In each instance, based on analysis of variance for repeated measures between baseline and post intervention means, there was a highly significant change in the predicted direction (p. 32).

They found that problem solving and positive verbal and nonverbal behaviors increased while problem description and negative verbal and nonverbal behaviors decreased.

Birchler, Weiss, and Wampler (1972) paid 24 volunteers, solicited through a newspaper ad, to keep records of pleases ("P"s) and displeases ("D"s) on a tabulation sheet and also to keep a daily diary of the conflicts or arguments that occurred. Twelve of the volunteers were listed as distressed and 12 of them were considered as nondistressed. These data were collected and phoned in every day for a 5-day period.

Following the collection of the Ps and Ds, the couples were brought to a clinic where each person was videotaped interacting with: a) spouse; b) opposite sexed stranger from a nondistressed marriage; and c) with an opposite sexed stranger from a distressed marriage. After four minutes of free conversation, 10 minutes were spent in problem solving designed to elicit a maximum amount of conflict.

From the data, the authors concluded: 1) that there is an actual behavior difference (in terms of what each spouse is doing) between the distressed and nondistressed marriages. Distressed spouses actually engaged in behaviors more accurately labeled as unsupportive, aversive, or punishing; 2) the fact that relationships may be distressed and have a deficit of positive social interaction does not necessarily mean that the participating individual is devoid of such skills. He may simply not be applying them in this relationship. The data showed that the distressed spouse related in a positive supportive way when not interacting with one's spouse; and 3) they further concluded that over time, social amenities drop out of interpersonal experiences. "Happily married as well as unhappily married individuals emitted fewer positive social reinforcers to spouses than to strangers (p. 9)."

The authors concluded that partners to a distressed marriage are suffering from too few positive reinforcers from one's spouse and too many aversive behaviors emitted by one's spouse.

Experimenters Serving as Their Own Observers

Skinner (1953) and Ferster and Perrott (1968) discussed the necessity of the experimenter observing and collecting accurate data when experimenting with animals. This necessity also applies to experiments where human behavior is under investigation (Thorne, Tharp, & Wetzel, 1967). The present research involved male adults who served as experimenters and their own observers. Following is a brief review of articles which investigated the reliability of those who served as their own observers.

Azrin and Powell (1969) reported a study in which volunteers took "pills" and kept a record of the number of times they swallowed them while a chosen "participant-observer" served as an observer. The subject/observer reports were in 98% agreement, but the subject knew that he was observed.

Hall, Fox, Willard, Goldsmith, Emerson, Owen, David, and Porcia (1971) conducted six different experiments in which teachers served as their own experimenters and primary observers of the behavior modified. Each was observed by an independent observer and was aware of the observation. Agreement in their data was as follows:

Experiment	Agreement
I	84% to 100%
II	100%
III	unreported
IV	60% to 91% (agreement dropped below 80% only once)
V	100%
VI	100%

In each case the teacher knew that she was being observed. The authors concluded, "These studies suggest that teachers can develop effective observation and reinforcement procedures, can carry out experimental manipulations and, therefore, can use behavioral analysis as a tool in their classrooms (p. 148)." In each case, the behaviors being observed were distinct (talking out in the class) and thereby were easier to note when the behavior occurred. Wahler (1969), commenting on observer reliability as pertaining to his study, wrote:

> Observer reliability was evaluated for half the sessions within each baseline and experimental period; agreement percentages were always better than 90%, undoubtedly due to the simple nature of the classes (p. 162).

The accuracy of the observation data appeared to be a function of the simplicity of the dimension of the behaviors.

Simplicity of target behavior may have accounted largely for the percentage of agreement between observers and women who served as experimenters and their own observers in a study by Hall, Axelrod, Tyler, Brief, Jones, and Robertson (1972). In the first experiment where a son was reinforced for wearing his orthodontics, the husband served as an observer, and his observation data corresponded with his wife's data 100%. In a second case where a neighbor served as an observer of a mother who observed and recorded data on her daughter, the daughter was reinforced for performing household chores. There was 100% agreement between the observer and the mother. In the third case, a husband and wife took turns acting as reliability observers for each other as each applied behavior principles to a son who whined and shouted. The agreement between them varied from 75% to 100% with a mean of 85.5%. In the fourth experiment, a 5-year-old daughter took too long to dress after awakening in the morning. Observations were made on the exact time she arose and the time she announced that she was fully dressed. An older child and an aunt were used as additional observers, and the agreements were 100%.

The data of the above four studies indicated that parent observers can be accurate in their recording of events, at least when they are aware that they are being observed. Hall, Christler, Cranston, and Tucker (1970) have pointed to the circumstances under which there may

be little improvement when the primary observer is aware that a check is being made. They found that teachers are accurate observers and recorders of data. Theysuggested that when the teacher had an investment in the project, she attempted to be as accurate as possible; that is, the contingency for accuracy may be success (reinforcement) in the experiment under study. Support for such a position is borne out in a study by Fixen, Philips, and Wolf (1972).

Fixen et al. (1972) investigated the reliability of boys reporting their own behavior and the behavior of peers. Adult observers obtained an 89% agreement for orderliness of rooms on a 21-point scale. The boys were instructed to fill out a check sheet for the orderliness of their own rooms. Each boy also filled out a check sheet for a "buddy." No scheduled consequences were set up either for cleanliness or accuracy in self reporting. The results indicated that both self-reports and peer-reports were unreliable under noncontingent conditions when compared with the adult observer's report of room tidiness.

Concluding that the boys were not "natural" accurate self-reporters, two experiments similar to the first one were introduced in which reinforcers were made contingent upon accurate self report and accurate peer report. According to the data presented, the authors concluded that when reinforcement was made contingent upon accuracy of reporting, whether self or peer, accuracy was significantly and greatly improved.

In light of the above findings it may be possible that when an adult male seeks help in modifying the behavior of his spouse, success of the program could serve as an adequate reinforcer for accurate self report of observation.

Summary

In this chapter it was shown that the behavioral approach for ameliorating negative marital interaction had its genesis in the pioneer work of Pavlov, Bekhterev, and Skinner. It was Skinner who formulated the basic operant principles and an overview of those principles was presented. A review then was given of studies which dealt with modification of behavior through reinforcement both within the experimental setting and within the home setting. After reviewing studies employing both halves of the marriage couple, attention was given to studies which dealt with those experimenters who served as their own observers.

CHAPTER III

METHODS AND PROCEDURES

Subjects

Five husbands, living with their wives when the experiment began, who sought help for their interspousal negative actions, served as subjects. Two subjects came directly to the experimenter for help; two subjects were referred by their pastors; and one was referred by a former client. Each subject was a volunteer who initiated the contact, which is to say that the subjects were from a typical clinical population as opposed to subjects solicited for a study. The study, therefore, was different from many areas of research in that each subject was a volunteer. However, generalization to a population of individuals presenting themselves for counseling is more probable.

Observations

The subjects served as their own experimenters as well as recorders of their own data during the experiment. A baseline of the behaviors under observation was kept by each husband before the treatment was introduced. The subjects continued to observe and record the observed behaviors after treatment was introduced. Index cards were provided for the subjects on which data were recorded. Each weekday the subjects were telephoned by the experimenter. During these conversations the subjects reported the data they had collected since the last telephone contact. Data collected from the subjects were recorded by the

experimenter on separate files for each subject. Included in these data were a) the husband's typical response to the pinpointed behavior; b) his noncontingent praise record; c) his contingent use of praise, ignore, or negative response to the pinpointed behavior; d) the frequency of the pinpointed behavior which was the dependent variable.

Training Film

The training film used in the sessions with the husbands (see p. 44) was 13.5 minutes long. The film was made by securing the services of a husband and wife with acting experience. After carefully explaining to them the nature of the scene and the purpose of the film, they were instructed to interact both positively and negatively in both verbal and nonverbal ways. The positive verbal interactions consisted of praises, compliments, and the use of affectionate names. The positive nonverbal interactions consisted of touches, hugs, smiles, kisses, and looking at the spouse. The negative verbal interactions consisted of criticisms, disdainful names, and cursing. The negative nonverbal interactions consisted of threatening gestures, frowns, and looking away from the spouse. The film was edited in such a way that it contained 20 positive verbal events, 20 negative verbal events, 12 positive nonverbal events, and 12 negative nonverbal events.

Ethics

Throughout the experiment every effort was made to guard against any negative effects upon the rights, dignity, and welfare of both the husbands and the wives. While maintaining a strict code of confidentiality, before the experiment was carried out, the ethics committee,

consisting of two pastors and one lawyer, was given a systematic review of Ethical Principles in the Conduct of Research with Human Participants (American Psychological Association, Inc., 1973). The following data were reviewed with the committee: a) personal data supplied by the husband; b) the pinpointed behavior for modification by the husband; c) current antecedents and consequences of the pinpointed behavior; and d) the planned intervention.

In the opinion of the committee, nothing was done to violate or unduly compromise the rights, dignity, or welfare of either the husbands or wives. Since the husbands became the assistants of the experimenter, they were alerted to the ethical issues involved in research and were carefully supervised. The APA position is that the experimenter is obligated to make certain that the

> assistants conduct the research as the investigator would. This requires instructing assistants....to be sensitive to ethical issues in addition to provide them appropriate monitoring and supervision (American Psychological Association, Inc., 1973, p. 14).

Teaching Behavior Principles

During the second week of baseline each subject except W. B. was instructed in the principles of praise and ignore. The experimenter used the following outline:

A. Define reinforcer. "A reinforcer is anything that is likely to make something happen again."

B. Give common examples of reinforcers. Food, water, sex, praise, and attention.

C. Give examples of when praise generally is effective. When wife cooks a favorite meal. When wife keeps a neat and

ordered house. When wife approaches husband for affection and sex.

D. Emphasize again that praise should be administered whenever the wife does what the husband appreciates. Point out that reinforcement can be applied to any approximation of what the husband appreciates.

E. Ask husband to define a reinforcer.

F. Ask husband to list the praises he can use to reinforce his wife.

G. Define ignore: "Ignoring a behavior is refusing to say anything about it when it occurs. It is giving absolutely no attention to it at all."

H. Demonstrate effectiveness of ignoring. While subject talks, turn in swivel chair until back is presented to subject. Wait silently and motionless until subject has stopped talking and has remained silent for 15 seconds. Then turn and say, "See how you stopped talking when I ignored you and stopped reinforcing you with my attention? That's how ignoring works."

I. Ask husband to define ignore.

J. Ask husband how he will ignore his wife's pinpointed behavior.

K. Ask husband if he has any questions about how he might institute procedures of praise and ignore.

Sessions with Husbands

Each husband met with the experimenter over a period of several weeks. During the initial interview, each subject was informed of the

experimental nature of the treatment and that the rights, dignity, and welfare of the husband and the wife would have to be protected at all times. He was told that if the treatment of the wife's behavior was considered by the writer (in consultation with his ethics committee) to be of such a nature that the wife's rights, dignity, and welfare would be threatened, the subject would be excused from the experiment.

Each subject also was told that it was possible that a variety of approaches might be used, and if one technique was unsuccessful, another might be initiated. The following information was gathered in the initial interview:

1. Personal data regarding the subject and his wife. These data included age, length of marriage, number of children, educational achievement, number of times married, and duration of the pinpointed behavior.
2. A description in the husband's own words of the pinpointed behavior.
3. A description of the current antecedents and consequences of the pinpointed behavior.

After the above information was secured, instructions then were given on the importance of keeping a baseline and of accurately recording data. He was taught to record data through the use of a movie film. The husband was instructed to count the filmed positive and negative behaviors of both the actor and actress. After counting the behaviors portrayed on the film, he was instructed to record the number of each on an index card. This phase of the instruction continued until the husband had recorded the positive and negative events with an

accuracy of at least 90%. Verbal and nonverbal behaviors identified as events were counted. The purpose of this phase of training was to familiarize the subjects with the process of observation and data collection. R. P. and W. B. achieved 90% recording accuracy upon the second showing of the film. The other three subjects achieved 90% recording accuracy upon the third showing of the film.

After each subject had demonstrated accuracy in recording observed data he then was given instructions on how to observe and record data on the pinpointed behavior he had identified.

J. S. and R. P. identified bitching (excessive complaining and nagging) as the pinpointed behavior. Each husband provided a list of things about which his wife complained. He then was given two stopwatches. On one he was instructed to record the time a female role player nagged and complained to him, using the list he had provided. On the second stopwatch he was instructed to record the time he engaged in the argument. He also was instructed to keep a record of the number of positive statements he made to the assistant as she role played. Two observers (graduate students with observer experience) also recorded by stopwatches the time the role player nagged at him, his time spent arguing, and his number of positive statements. The averaged records of the observers served as the criterion levels. Both J. S. and R. P. achieved a level of 90% accuracy upon the fourth session. The sessions averaged 6 minutes each.

The third husband, R. H., listed a messy kitchen as the pinpointed behavior. R. H. was asked to estimate the number of articles out of their proper place he usually found in the sink and on the cabinet upon

returning home from work. This approximate number (30) of kitchen articles was placed in a kitchen sink and on an adjacent cabinet top. The number placed became the criterion level against which his counting accuracy was judged. In the presence of the female role playing assistant, while saying the things to her he usually said to his wife, he counted the number of articles as unobtrusively as possible. He was asked to record on a card the number of articles he counted and the number of positive and negative statements he uttered. Two assistants observed his number of positive and negative statements and recorded them. Their averages served as the criterion level against which his accuracy was compared. He achieved 90% accuracy in counting and recording his positive and negative statements on the second attempt. He achieved 90% accuracy in counting the kitchen articles on both attempts.

The fourth husband, B. J., named excessive telephoning by his wife as the pinpointed behavior. While the husband was seated at the telephone, a female assistant called him and talked about the things he had reported his wife called him about. He was instructed to respond to the female role playing assistant in the manner he usually responded to his wife when she called him at work, which was in a negative and abusive manner. He was instructed to make a notation on an index card each time the role player called him. Also on this card, he kept a record of the number of times he responded positively to the assistant and the number of times he spoke negatively to her. This training continued until the third time when he reached a 90% criterion level of recording for each of the behaviors. As in the other instances, two assistant observers provided the criterion level.

The fifth husband, W. B., reported that he had not engaged in sexual intercourse with his wife for nine months. He was instructed to engage in an argument with the female role player and to keep an account of the number of negative statements made by both himself and the assistant. This proceudre continued for 3 minutes, and then he was instructed to engage in a pleasant conversation with the role player, again keeping an account of the number of positive statements made by both himself and the assistant. Both negative and positive conversations were similar to the ones he reported that he and his wife engaged in. Two assistants supplied the criterion level against which W. B.'s accuracy was measured. On the fourth rehearsal he reached 90% accuracy.

Each of the husbands was instructed to record baseline for two weeks. A placebo, consisting of noncontingent praise at least 12 times per day, was instituted in each instance except where two different wives were exhibiting the same pinpointed behavior of bitching. In this instance, a baseline on each was taken for two weeks. Then J. S. instituted the noncontingent praise for one week after which contingent praise and ignore was instituted. R. P. instituted the contingent praise and ignore procedure following the baseline period without the use of the placebo.

In the cases of R. H. and B. J., the procedure was as follows: A 2-week baseline was taken followed by one week of noncontingent praise. Then two weeks of contingent praise and ignore was instituted after which there was a return to baseline conditions for one week. The experiments ended with two weeks of contingent praise and ignore.

Reversal Technique

In the cases of R. H. and B. J. a reversal technique was employed. The reversal technique was planned for W. B., but he dropped out of the experiment and left his wife after the thirteenth day of the first baseline period. Reversal is a procedure in which a pinpointed behavior is observed over time (baseline period) until the behavior has stabilized. When its stability is clear, the experimental variable is applied while continuing to measure the behavior to determine if the variable produces any change. If a change occurs, the experimental variable is discontinued or altered to determine if the behavior change brought about was dependent upon the application of the experimental variable.

Reliability Check

Reliability checks were made only on R. H. (messy kitchen) and B. J. (excessive telephoning). A reliability check was made on R. H. by visiting in the home on three different afternoons and unobtrusively making a spot count of the articles on the kitchen cabinet and in the sink. Only those articles which obviously did not belong on the cabinet or in the sink were counted as being out of place. A reliability check on B. J. was made by hiring the telephone operator where B. J. worked to keep a count of the daily telephone calls he received from his wife.

Cases

Subject: J. S.

J. S. reported that he was 31 years old and that his wife was 32. It was the second marriage for him; the first one for her. He had a

child by his first wife and made child support alimony payments to her. J. S. reported that he and his second wife had two children in the home, a boy, 8-years-old, and a girl, 6. Both J. S. and his wife were college graduates. J. S. traveled for a national firm in a territory that rarely forced him to spend the night out of town. He reported that the duration of the pinpointed behavior was 60 months (5 years).

J. S. stated that when he entered the door of his home at night, his wife began bitching about the time he spent watching television, the small amount of time he talked with her, the few times he ever took her out to dinner, and the amount of money he paid his first wife for child support and alimony. He stated that she continued to complain until he finally went to bed. In response to her bitching, he typically shouted, cursed, and argued with her for as long as she bitched. At the end of the first baseline period he was told that wives generally bitch because they do not receive enough positive statements. He was instructed to increase the frequency of his positive, complimentary statements to no less than 12 per evening. After one week of noncontingent praise he was instructed to make his positive statements contingent on his wife's nonbitching behavior while ignoring (not responding to) the bitching behavior.

To facilitate the recording of accumulated time, J. S. was given two stopwatches. On one he recorded the accumulated time his wife complained and bitched each evening. On the other stopwatch he recorded how long he spent arguing with her. The time period observed during the week was from arrival home from work until bedtime. On the weekends the time period was from dinner until bedtime.

Subject: R. P.

R. P. reported that both he and his wife were 23 years old and graduates of the same college. It was a first marriage for both of them, and he reported that they had no children. They had been married 14 months, and the duration of the pinpointed behavior was 12 months. R. P. was a computer specialist for a national industry.

R. P. reported that his wife complained of his reading the paper at the dinner table, never talking to her, watching television too much, reading books, never going to church with her, and sleeping until noon on Saturdays and Sundays. She began complaining during the evening meal and continued until he turned off the television each night and went to bed. He estimated that his wife complained 30 minutes every night. R. P. reported that he argued with his wife as long as she complained. On two or three occasions they had become so heated in their verbal exchange that they had hit one another. After the baseline period R. H. was instructed to ignore her bitching and to praise her contingent upon her not bitching.

R. P. was given two stopwatches. On one he recorded the accumulated bitching behavior of his wife and on the other he recorded his arguing time. He also kept a numerical count of his positive statements to his wife. The time period observed during the week was from arrival home from work until bedtime. On the weekends the time period was from dinner until he went to bed.

Subject: R. H.

R. H. was 24 years old, and his wife was 23. They had been married for 3 years, and it was a first marriage for both. He had completed 2

years of college, and she had completed one year of nurse's training. A one-year-old boy was his only child. The duration of the pinpointed behavior was 10 months. R. H. was employed by a national industry with extensive governmental contracts.

The subject reported that his wife kept a messy kitchen. Instead of putting away dishes, pots, pans, knives, spoons, forks, cups, saucers, and other kitchen articles, she left them in the sink or on the kitchen cabinet. Generally the articles were clean, but they were never stored properly. When friends came to visit he was embarrassed since they received their friends in their kitchen-den. R. H. argued with and threatened his wife each afternoon until every kitchen article was in its proper place. He reported that on one occasion he slapped her face.

R. H. was instructed to record the number of kitchen articles out of place. He also was instructed to record the number of negative statements he made about the messy kitchen and to keep a record of the number of positive statements he made to his wife from the time he arrived home until he retired for the night.

After the initial baseline period, R. H. was instructed to increase his positive statements to his wife to at least 12 per day since it was likely that it would influence housekeeping in a positive direction. After the one week of noncontingent praise R. H. was instructed to discontinue his negative statements to his wife about the messy kitchen and to praise her for the improvement in the neatness of the kitchen, provided the number of articles exposed was 25 or less. After two weeks of praise and ignore, R. H. was instructed to return to his previous manner of responding to the messy kitchen. He was told that under no

circumstances was he to strike his wife. After the one week return to baseline, R. H. was told to ignore the messy kitchen and make his praise of neatness contingent upon any reduction of out of place articles below 25.

Subject: B. J.

B. J. was 29 years old, and his wife was 24. It was a first marriage for both of them. After 2 years of marriage, they had no children. B. J. was a college graduate, and his wife had completed a 2-year business course. The duration of the pinpointed behavior was 9 months. B. J. was employed by an electrical contractor who specialized in industrial accounts.

B. J. stated that his wife angered and embarrassed him by telephoning him at his job at least 15 times per day. The calls came through the company switchboard operator. The operator and the other three men in his office knew of his wife's excessive calling. Occasionally she called him in the mornings by the time he walked into his office.

Each time his wife called him at work he argued with her as vehemently as he could while attempting not to embarrass himself before the other men who overheard his part of the conversation. He responded more abusively when he was alone in his office. Previously he argued with her about it at home but had not mentioned it to her at home for the past four months. He reported that his arguing did not decrease her telephoning, and it always left him upset.

B. J. was instructed to keep a baseline for two weeks and to record on an index card the following: a) the number of times his wife

called; b) the number of times he responded negatively; c) the number of times he responded positively; and d) the number of times he telephoned his wife at home.

After the baseline period B. J. was instructed to respond positively to his wife when she telephoned and to call her at random, at least 6 times per day. He was instructed to praise his wife when he called. The rationale given to B. J. for calling his wife and praising her while also responding positively to her calls was that the frequency of her telephoning should decrease. After one week of noncontingent praise B. J. was instructed to respond to his wife's calls in the following way: a) determine that no emergency existed at home; b) utter no negative response; c) firmly tell her that he could not talk at that time but would call her later; and d) hang up. Contingent upon her not calling him for the next 30 minutes he was instructed to call her and praise her for not bothering him. He was instructed to call contingently no less than 3 times in the morning and no less than 3 times in the afternoon during the first week. The second week of contingent praise and ignore, he was instructed to call no less than 4 times per day for the first 3 days, and no less than 3 times the last 2 days of that week.

After the two weeks of contingent praise and ignore, he was instructed to return to baseline conditions for one week. For the final two weeks of the experiment he was instructed to reinstitute the contingent praise and ignore conditions, calling 4 times the first two days and 3 times the third day. For the remainder of the experiment he was instructed to call his wife once in the morning and once in the

afternoon. When he telephoned her, he praised her for not bothering him at work.

Subject: W. B.

W. B. was 52 years old, and his wife was 49. It was their first marriage which had lasted for 29 years. His only son, 20 years old, lived in the home. W. B. had completed one year of college, and his wife had a high school education. The duration of the pinpointed behavior was 9 months. He was employed by a textile firm as a "trouble shooter."

W. B. stated that he had not had sexual intercourse with his wife during the past 9 months. He said that he had tried everything short of getting down on his knees and begging. Although he had occasionally threatened to rape her he said that he had never carried out the threat. Each time he approached his wife for sexual intercourse they shouted at each other. He became more abusive as she became more resistive. Except when he approached his wife for intercourse he seldom made either positive or negative statements to his wife.

The subject was instructed to keep the following record: a) the number of positive and the number of negative statements he made to his wife; b) the number of positive statements and the number of negative statements his wife made to him; and c) the number of times he engaged in coitus with his wife.

After 13 days of baseline, W. B. left his wife and terminated the experiment.

Analytic Techniques

Two techniques of analysis were used. The first method consisted of a visual inspection of the graphed data. Comparisons were made between the data during baseline, noncontingent praise, initial praise and ignore, reversal to baseline, and reinstituted contingent praise and ignore. Comparisons were made for the purpose of determining how the dependent variable was affected during each phase of the experiment.

The second method consisted of using the Wilcoxon Matched-Pairs Signed-Ranks Test as a statistical technique of analysis. The Wilcoxon Matched-Pairs Signed-Ranks Test is a nonparametric procedure which allows for testing the differences within paired sets of scores. It not only tests for relative magnitude between pairs of scores but also tests for the direction of the differences by giving more weight to a pair of scores which slow a large difference than it does to a pair of scores which show a small difference.

The Wilcoxon test is utilized by ranking all the differences between pairs of scores without regard to whether the differences are plus or minus. The smallest rank is given the rank of 1, the next smallest rank is given the rank of 2, the next smallest rank is given the rank of 3, and so forth, until all the pairs have been ranked. After the pairs have been ranked, the minus ranks are summed, and the plus ranks are summed. The Wilcoxon renders a T which is equal to the smaller sum of like signed ranks. A special table is used for both one-tailed tests and two-tailed tests for testing of significance. For a fuller explanation of the Wilcoxon Matched-Pairs Signed-Ranks Test, see Siegel (1956) or Conover (1971).

The scores were paired by corresponding days within the phases being tested. Where 2 one-week periods were being tested, for example, the first days of the phases were paired, then the second days were paired, then the third days, and so on until the two sets of seven days were paired. In all testings of significance the one tail test was used with the alpha level set at .01.

CHAPTER IV

FINDINGS

Figures 1-13 were examined visually and comparisons were made between certain phases of each case. After a visual comparison was made between certain phases of each case, the phases then were tested for significant differences using the Wilcoxon Matched-Pairs Signed-Ranks Test. In each instance a one tailed test was used with the alpha level set at .01. The findings are reported separately for each subject. The tested data are presented in Tables 2-13.

Subject: J. S.

Inspection of Figure 1 showed the rate of bitching during baseline. The baseline rate of bitching per day averaged 28.5 minutes. During the noncontingent praise period the rate of bitching averaged 29.8 minutes per day even though J. S. more than quadrupled his baseline rate of praises from 3.65 to 14.7 per day (see Figure 2). The last 7 days of baseline scores tested against the 7 days of noncontingent praise scores yielded a Wilcoxon T of 5 which was not significant. This indicated that noncontingent praise produced no significant change in the rate of bitching over the baseline rate.

Figure 1 indicated that upon initiation of contingent praise and ignore there was a rapid decrease in the rate of bitching to an average of 13.7 minutes per day during the final week of the experiment. This indicated that the treatment exerted a control over the bitching behavior. Testing for significant difference between baseline and treatment

scores gave a Wilcoxon T of 14.5 which was significant at the .01 level. This indicated that the treatment significantly reduced the rate of bitching from the baseline rate.

Subject: R. P.

Examination of Figure 3 indicated that upon initiation of contingent praise and ignore, the bitching behavior of the wife rapidly decreased from a baseline rate of 29.1 minutes per day to .43 during the final week of treatment. This indicated that the bitching behavior was brought under the control of contingent praise and ignore. A Wilcoxon test for difference between the last 12 days of the two phases yielded a T of 0 which was significant at the .005 level. This further supported the contention that praise and ignore significantly reduced the rate of bitching from the baseline rate.

Subject: R. H.

Figure 5 revealed that R. H. appreciably increased his rate of noncontingent praise during the placebo period. Although the increase was from a daily rate of 3.8 to 13.8, it apparently had little or no effect upon the wife's orderliness since the number of kitchen articles left out of their proper places during the placebo period averaged 29.3 per day as compared with the baseline average of 25.9 per day. A Wilcoxon test for difference between baseline and noncontingent praise periods yielded a T of 9.5 and was not significant. This indicated that a rapid increase of praise on a noncontingent basis did not reduce the rate of kitchen articles left out of their proper places.

Upon initiation of contingent praise and ignore there was a steady decline (see Figure 6) in the number of kitchen articles left exposed

in the kitchen to an average of 24.2 per day during the treatment period. The test for significance between baseline and treatment conditions rendered a Wilcoxon T of 24.5 which was not significant. This indicated that when the 14-day baseline data were compared with the 14-day treatment data, contingent praise and ignore made no statistical difference. However, comparisons between the last 7 days of baseline data with the last 7 days of contingent praise and ignore yielded different statistical results. The rate declined from an average daily rate of 27.8 to 18.8. When compared in this way a Wilcoxon T of 0 was obtained which was significant at the .01 level. This indicated that the effects of contingent praise and ignore possibly were cumulative, needing time to be effective.

Upon reversal to baseline conditions Figure 5 revealed that the average daily rate of kitchen articles left exposed increased from 18.8 to 22.4. This suggested that the wife's orderliness may have been affected by contingent praise and ignore. Removal of contingent praise and ignore had the effect of increasing the number of exposed articles. However, the differences between treatment conditions and reversal conditions were not significant as measured by the Wilcoxon T of 7. This indicated that while the removal of contingent praise and ignore had an apparent effect upon her orderliness (by a visual inspection of graphic presentation), the effect could not be demonstrated through the use of the Wilcoxon test.

Figure 5 suggested that when contingent praise and ignore were reintroduced, the number of kitchen articles left out of place declined from a daily rate of 22.4 to 8.7 which indicated that the treatment was

effective. A test for significant difference between reversal conditions and the final 7 days of contingent praise and ignore yielded a Wilcoxon T of 0 which was significant at the .01 level. These results indicated that contingent praise and ignore were effective in reducing the rate of kitchen articles left out of their proper places.

A test for significant difference between the final 7 days of contingent praise and ignore and the final 7 days of the initial baseline period yielded a Wilcoxon T of 0 which was significant at the .01 level. This indicated that contingent praise and ignore exerted control over the kitchen-keeping behavior of the wife.

Inspection of Figure 7 showed that R. H. achieved a 96% reliability level as measured against three random observations by the experimenter. R. H. reliably recorded data on at least three occasions.

Subject: B. J.

Figures 10 and 11 demonstrated that even though B. J. increased his daily rate of noncontingent praise from zero during baseline to 20.2 during the placebo period, there was no decrease in the rate of his wife's telephoning. Rather, her telephoning increased from a rate of 11.8 to 14.2 per day. This indicated that the noncontingent praise failed to affect her telephoning behavior in the desired direction. A statistical comparison could not be made between the two periods since the Wilcoxon does not test fewer than 6 pairs of data.

Upon initiation of contingent praise and ignore the rate of telephoning rapidly decreased to 0.6 per day during the last 7 days of this initial treatment period. This indicated that contingent praise and ignore were successful in reducing the rate of her telephoning.

Baseline data were compared with the initial treatment data. Since the ns were different, the second score of the treatment data was omitted. A Wilcoxon T of 0 was obtained which was significant at the .005 level. This indicated that contingent praise and ignore effectively brought the wife's excessive telephoning under control.

When reversal conditions were instituted, Figure 11 showed that there was a rapid increase in the wife's telephoning to a rate of 6.6 per day. This indicated that contingent praise and ignore possibly were responsible for the decrease in the telephone calling during the initial treatment period. Since there were only 5 data points in the reversal period, the Wilcoxon test was not employed to compare the two periods statistically.

Figure 11 disclosed that when contingent praise and ignore were reintroduced, the daily rate of telephoning rapidly decreased from 6.6 to less than one call per day. This indicated that contingent praise and ignore were instrumental in bringing the wife's excessive telephoning under control. A test was not made between the final treatment period and the reversal period because the Wilcoxon test was not applicable. However, a comparison was made between the final treatment phase and the original baseline. A Wilcoxon T of 0 was obtained which was significant at the .005 level. This indicated that contingent praise and ignore effectively brought the wife's excessive telephoning under control.

Examination of Figure 11 showed that B. J. counted telephone calls with 100% accuracy on 36 of 39 days as measured against the observer's data. This indicated that B. J. reliably recorded the telephone calls he received from his wife.

Subject: W. B.

Inspection of Figures 12 and 13 indicated that W. B. did not engage in coitus with his wife over a 13-day baseline period. During that time W. B. averaged making 6.8 positive statements and 19.3 negative statements to his wife per day while his wife averaged making 2.3 positive statements and 21.1 negative statements to him per day. No further findings were available since W. B. terminated his participation in the experiment after the thirteenth day.

CHAPTER V

DISCUSSION

The purpose of this study was to investigate the possibility of husbands using behavior principles for the purpose of modifying pinpointed wife behaviors. The pinpointed behaviors selected for modification were those which irritated the husbands, and, apparently set the stage for negative interactions between the spouses. Specifically, the pinpointed behaviors for modification were bitching, keeping an untidy kitchen, and excessive telephoning. A fourth behavior was pinpointed but was not submitted to empirical investigation since the husband dropped out of the experiment. All of the pinpointed behaviors were of at least 9 months duration. Contingent praise and ignore were used for intervention in each case.

It was hypothesized that husbands can apply behavior principles successfully within the marriage setting for the modification of the wives' behaviors in the desired direction as specified a priori to the experiment. Visual examinations of the graphed data were made and the Wilcoxon Matched-Pairs Signed-Ranks Test was used for a statistical analysis of the data.

Based on the findings (see Chapter IV) it was concluded that the hypothesis was supported. In each case there was a significant decline in the rate of the pinpointed behavior from baseline conditions to final treatment conditions. As the husbands applied contingent praise and ignore, the rates of bitching, untidy kitchen-keeping, and excessive

telephoning all declined. When reversal procedures were instituted (treatment was withheld) the rates of the pinpointed behaviors consistently increased. Reapplication of treatment conditions once again reduced the rates of the pinpointed behaviors. These findings indicated that praise and ignore exerted control over the pinpointed behaviors.

Certain consistencies were observed throughout the experiments. When contingent praise and ignore were applied, the rate of the behavior under investigation decreased. There were no exceptions to this occurrence. In those instances where reversal procedures were used, upon withdrawal of contingent praise and ignore, the rate of the pinpointed behavior rapidly increased. This occurred in each instance. Upon reapplication of contingent praise and ignore, the rate of the pinpointed behavior again decreased in each case. These consistencies suggested that the application of contingent praise and ignore can be effective when applied to the specific pinpointed behaviors investigated in this research.

Other marriage counselors have proposed that the frequency of negative interactions between spouses can be reduced significantly merely by increasing the number of positive statements by either spouse. The effects of noncontingent praise were tested in three of the four cases described in this study. J. S., R. H., and B. J. each instituted noncontingent praise after a 2-week baseline period. Statistical analysis and/or visual inspection of the data failed to indicate any significant change in the rate of either of the pinpointed behaviors when noncontingent praise was initiated. This suggested that the use of noncontingent

praise for a week was ineffective in influencing the pinpointed behaviors of the wives. A legitimate question could be raised concerning the duration of the noncontingent praise periods. Noncontingent praise may be cumulative and may need more time to be effective. Research was indicated which would vary the duration of the noncontingent praise period. For example, an investigation could be made which would involve four subjects. The noncontingent praise period for the first subject could be one week, for the second subject, two weeks, for the third subject, three weeks, and for the fourth subject, four weeks.

It was concluded that the effectiveness of combining contingent praise and ignore seemed to have been demonstrated in this research. However, no conclusions could be drawn about the relative influence each separately had upon the pinpointed behavior(s). It only could be stated that in combination form they appeared to have exerted control over the behaviors under investigation. This suggested that a systematic investigation should be made of the relative strength of each principle. Included in such research could be a comparison of contingent praise and ignore versus contingent praise; contingent praise and ignore versus ignore; and contingent praise versus ignore.

It has been held that when subjects record their own data and are unaware that a reliability check is being conducted, they consistently report unreliable data. Reid (1970) and Fixen et al. (1972), for example, indicated that subjects are unreliable when they act as their own experimenters and observers.

One of the interesting findings of this research was B. J.'s reliability in reporting his wife's telephone calls. It was not possible

for her to telephone him at work without going through the company telephone operator. Since the pinpointed behavior was of at least 9 months duration, the telephone operator was able to identify the voice of B. J.'s wife each time she telephoned. The telephone operator served as an observer and established a criterion level against which B. J.'s reliability was measured. The data indicated that B. J. was highly reliable. Two possible explanations for his reliability were suggested. One explanation may be that counting telephone calls is a task of unambiguous dimensions. It called for no complicated behavior code, nor did it call for sophisticated periods of training. It was possible, therefore, that since the data gathering was relatively uncomplicated, his reliability was high. This possibility appeared open to empirical investigation. For instance, research could be conducted which would investigate what effects the varying degrees of code complexity have upon subject reliability. The codes used by the subjects could vary from very simple one dimension tasks to highly complicated multi-dimension tasks. A second explanation for B. J.'s high degree of reliability may be that he was "fed up with being humiliated 10 to 15 times every day I am at work." Most counselors are aware that many clients seek help as an act of last resort. Most clients appear to be willing to attempt whatever seems necessary provided they have the hope that their problems will be ameliorated. B. J.'s high degree of reliability suggested that research might be conducted to investigate the degree of influence "motivation" and "hope-for-help" have upon the subject's reliability.

J. B.'s reliability was the only one adequately tested. Except for three trips to R. H.'s home to make a count of kitchen articles left out of place, no other controls in this research were established for reliability. The fact that all of the subjects were volunteers contributed to the problem of providing reliability checks. The volunteers were not paid, they could not be coerced, and ethical standards had to be met. It was especially difficult to test reliability when only one of the marriage partners was seeking help. In retrospect, it appeared that in the cases of J. S. and R. P., tape recordings on a random basis could have been conducted without unduly violating the rights of the wives. A different ethics committee possibly would have approved the use of tapes. The investigator was unacquainted with the two subjects' neighbors and friends. Means other than tapes and human observers did not suggest themselves. Future research similar to this one should provide for human or mechanical observers. One of the weaknesses of this study was its failure to control for the reliability of all the subjects. Three random observations on R. H. hardly presented unassailable reliability data, even though the data indicated that he was a highly reliable observer. Since there was no reliability data at all on J. S. and R. H., the study would have been strengthened appreciably if reliability observations had been made on all four subjects.

Another limitation of the study was the fact that each of the subjects was white, Protestant, and relatively church oriented. Without inclusion of subjects who were nonwhite, non-Protestant, or unchurched, it was difficult to conclude confidently that this approach to

modification of wives' behaviors by husbands could be achieved by the general population of husbands.

The small number (three) of pinpointed behaviors investigated restricted any attempt to generalize the findings beyond the specific pinpointed behaviors investigated. Although the cost and time involved would have been extensive, examination of a larger sample of subjects with a larger sample of pinpointed behaviors would have strengthened the study. Investigation of the use of contingent praise and ignore over a broader population with a larger number of pinpointed behaviors appeared to be indicated.

Another possible weakness of the study was the failure to provide for follow-up. While it was not the purpose of the study to test the duration of the effectiveness of the treatment, it would have strengthened the experiment to have tested whether the husbands' use of contingent praise and ignore would have persisted without almost daily contact (at least by telephone) with the experimenter. A future study might provide not only for follow-up but for a test of how frequent contacts with the experimenter affect the conduct of husbands. Included in such a study could be the investigation of what effect the type of contact would have, that is, face to face contact versus telephone contact.

One of the strengths of the study was the use of the reversal technique. In the cases of R. H. and B. J., it was found that when contingent praise and ignore were discontinued the rates of the pinpointed behaviors rapidly increased. When contingent praise and ignore were reapplied, the pinpointed behaviors rapidly decreased. These results strongly suggested that the treatment exerted control over the pinpointed behaviors in the desired directions.

Another strength of the study was the fact that the volunteers applied the treatment to "real life problems" within the home setting. The treatment had the advantage of having been tested under natural conditions.

Where two subjects pinpointed bitching behavior for modification the experiments were designed in such a way that there was a control for the possibility of outside events influencing the data. The two investigations were held concurrently. R. P. introduced treatment upon completion of the baseline period, while J. S. withheld treatment for one additional week while he instigated noncontingent praise and ignore. After the period of noncontingent praise and ignore J. S. applied contingent praise and ignore. This control for outside events appeared to be one of the favorable features of the study. Two subjects applying contingent praise and ignore to identical pinpointed behaviors gave at least a notion of replication which added to the confidence of accepting the hypothesis.

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Table 1

Biographical Data

Subject	J. S.	R. P.	R. H.	B. J.	W. B.
Age of Husband	31	23	24	29	52
Age of Wife	32	23	23	24	49
Educational Achievement of Husband	college graduate	college graduate	2 yr. college	college graduate	1 yr. college
Educational Achievement of Wife	college graduate	college graduate	1 yr. nursing school	2 yr. business school	high school
Years Married	10	1	3	2	29
Number of Children	2	0	1	0	1
Times Husband Married	2	1	1	1	1
Times Wife Married	1	1	1	1	1
Duration of Pinpointed Behavior in Months	60	12	10	9	9

Table 2

Accumulated Bitching and Arguing Time
by J. S. and Wife with Frequency of Praises during Baseline Period

Day	Minutes Bitching by Wife	Minutes Arguing by J. S.	Positive Statements by J. S.
1	22	22	2
2	33	33	3
3	18	18	2
4	36	36	5
5	22	22	2
6	32	32	4
7	27	27	6
8	38	38	3
9	21	21	4
10	24	24	6
11	30	30	4
12	23	23	3
13	36	36	5
14	38	38	2

Table 3

Accumulated Bitching and Arguing Time by J. S. and Wife with Frequency of Praises J. S. Made during Noncontingent Praise and Contingent Praise and Ignore

Day	Minutes Bitching by Wife	Minutes Arguing by J. S.	Praises by J. S.
	Noncontingent Praise		
15	31	31	12
16	34	34	17
17	26	26	16
18	23	23	15
19	32	32	18
20	34	34	12
21	29	29	13
	Contingent Praise and Ignore		
22	30	5	2
23	28	8	4
24	37	8	1
25	21	6	6
26	25	4	5
27	12	2	10
28	10	4	12
29	16	15	12
30	10	2	11
31	17	13	13
32	10	3	14
33	14	2	10
34	17	10	8
35	12	8	10

Table 4

Bitching and Arguing Time for R. P. and Wife with His Frequency of Praises during Baseline

Day	Minutes Bitching by Wife	Minutes Arguing by R. P.	Praises by R. P.
1	22	22	4
2	37	37	6
3	28	28	3
4	25	25	2
5	32	32	7
6			
7			
8	29	29	7
9	20	20	3
10	31	31	2
11	30	30	6
12	32	32	2
13	28	28	3
14	35	35	6

Table 5

Bitching and Arguing Time for R. P. and Wife during Contingent Praise and Ignore

Day	Minutes Bitching by Wife	Minutes Arguing by R. P.	Praises by R. P.
15	28	15	9
16	19	10	8
17	15	4	12
18	5	0	13
19	32	32	0
20	18	2	12
21	20	3	14
22	11	1	11
23	4	0	15
24	3	0	16
25	5	0	12
26	2	0	17
27	2	0	18
28	4	0	15
29	1	0	18
30	1	0	18
31	0	0	17
32	0	0	16
33	0	0	18
34	1	0	19
35	0	0	16

Table 6

Kitchen Articles Recorded by R. H. and Observer with Frequency of Praises and Negative Statements Made by R. H. during Baseline and Noncontingent Praise Periods

Day	R. H.'s Count	Observer's Count	Praises	Negative Statements
		Baseline		
1	26		3	5
2	29		4	6
3	12		6	0
4	27		2	5
5	22		3	6
6				
7				
8	28		3	7
9	27		5	4
10	28		7	6
11	31		5	8
12	25		3	6
13	30	27	2	8
14	26		4	7
		Noncontingent Praises		
15	29		15	2
16	32		16	3
17	32		12	8
18	27		14	2
19	30		12	4
20	24		16	1
21	31		12	5

Table 7

Kitchen Articles Recorded by R. H. and Observer with Frequency of Praises and Negative Statements Made by R. H. during First Contingent Praise and Ignore and Reversal Periods

Day	R. H.'s Count	Observer's Count	Praises	Negative Statements
		Contingent Praise and Ignore		
22	33		1	0
23	31		1	0
24	32		1	0
25	25		5	0
26	30		1	0
27	31		1	0
28	25		6	0
29	21		9	0
30	24		10	1
31	25		10	0
32	15	14	12	0
33	18		13	0
34	15		12	0
35	14		13	0
		Reversal to Baseline		
36	14		1	5
37	20		2	6
38	24		4	5
39	25		3	4
40	23		5	7
41	26		3	4
42	25		4	5

Table 8

Kitchen Articles Recorded by R. H. and Observer with Frequency of Praises and Negative Statements Made by R. H. during the Second Contingent Praise and Ignore Period

Contingent Praise and Ignore

Day	R. H.'s Count	Observer's Count	Praises	Negative Statements
43	27		4	0
44	22		5	0
45	23		4	0
46	16		8	0
47	15		10	0
48	10	11	12	0
49	18		3	0
50	8		12	0
51	11		11	0
52	5		15	0
53	10		11	0
54	8		14	0
55	12		10	0
56	7		15	0

Table 9

Telephone Calls Recorded by B. J. and Observer with Frequency of Negative and Positive Responses to the Calls during Baseline and Noncontingent Praise Periods Including Calls B. J. Made to Wife

Day	B. J.'s Count	Observer's Count	B. J.'s Calls to Wife	Positive Response	Negative Response
			Baseline		
1	11	11		0	11
2					
3	12	12		0	12
4	9	11		0	9
5	13	13		0	13
6					
7					
8	12	12		0	12
9	10	10		0	10
10	14	14		0	14
11	13	13		0	13
12	12	12		0	12
13					
14					
			Noncontingent Praise		
15	15	15	6	21	0
16	13	14	6	18	1
17	14	14	6	20	0
18	15	15	6	21	0
19	14	15	6	21	0

Table 10

Telephone Calls Recorded by B. J. and Observer with Frequency of Praises and Calls to Wife during First Contingent Praise and Ignore Period

Day	B. J.'s Count	Observer's Count	Praises	Calls to Wife
22	7	7	10	6
23	6	6	10	7
24	6	6	10	6
25	4	4	10	6
26	2	2	8	6
27				
28				
29	1	1	5	5
30	0	0	5	5
31	0	0	5	5
32	1	1	4	4
33	1	1	4	4

Table 11

Telephone Calls Recorded by B. J. and Observer with Frequency of Negative and Positive Responses during Reversal to Baseline

Day	B. J.'s Count	Observer's Count	Positive Response	Negative Response
36	0	0		
37	6	6	0	6
38	8	8	0	8
39	10	10	0	10
40	9	11	0	9

Table 12

Telephone Calls Recorded by B. J. and Observer with Frequency of Praises and Calls to Wife during Final Contingent Praise and Ignore Period

Day	B. J.'s Count	Observer's Count	Praises	Calls to Wife
43	3	3	8	4
44	1	1	8	4
45	1	1	6	3
46	0	0	4	2
47	0	0	4	2
48				
49				
50	0	0	4	2
51	0	0	4	2
52	1	1	4	2
53	1	1	4	2
54	0	0	4	2

Table 13

Frequency of Positive and Negative Statements
by W. B. and Wife with Frequency of Marital Coitus

	W. B.		Wife		
Day	Positive	Negative	Positive	Negative	Coitus
1	6	18	3	20	0
2	10	17	2	16	0
3	4	19	1	23	0
4	5	21	4	20	0
5	8	19	2	24	0
6	6	19	2	22	0
7	9	23	3	20	0
8	5	24	2	26	0
9	4	20	1	23	0
10	7	18	2	20	0
11	7	20	3	20	0
12	10	19	3	23	0
13	8	14	2	18	0

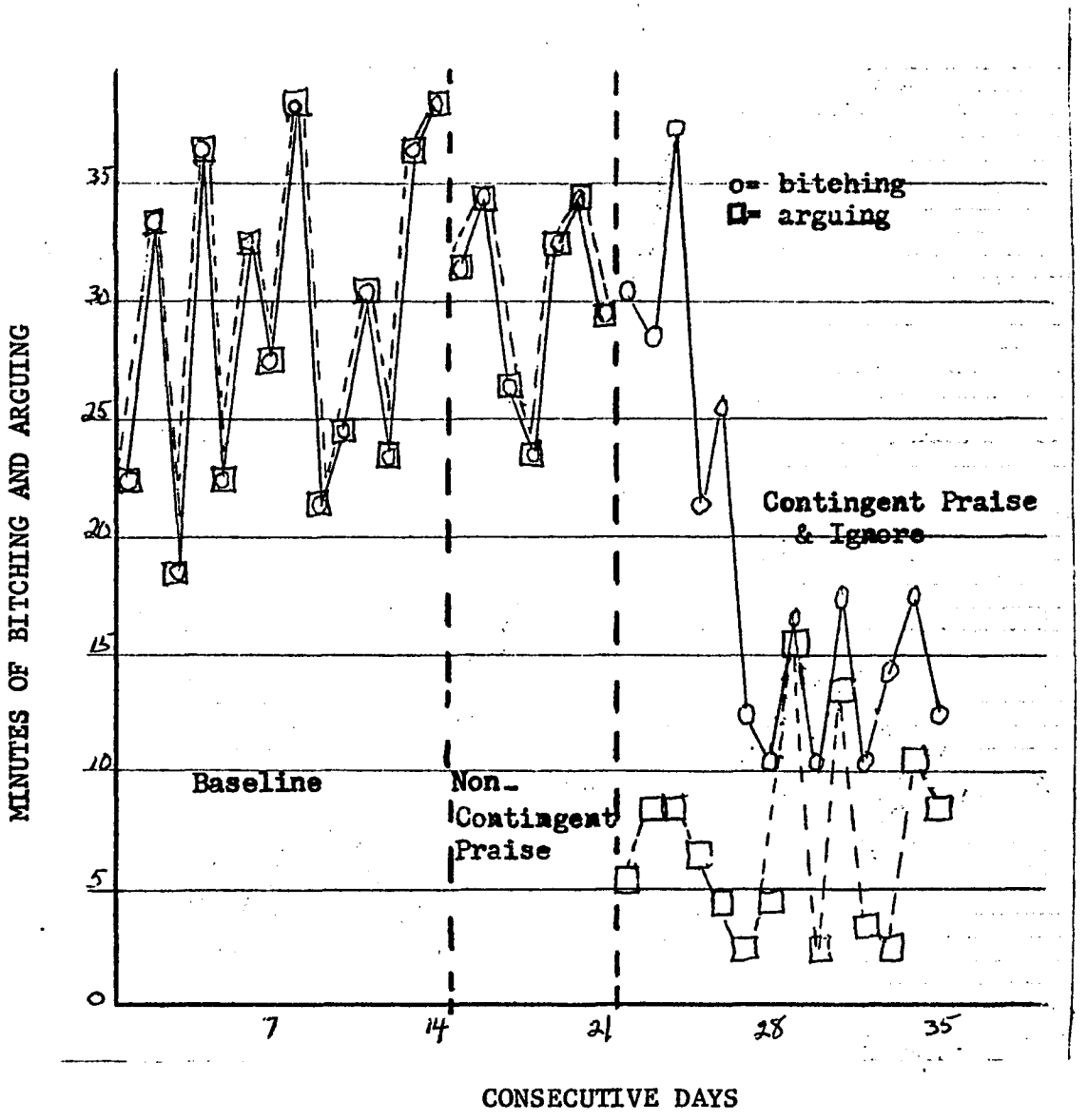

Figure 1. Rate of arguing by J. S. in response to the rate of bitching of his wife.

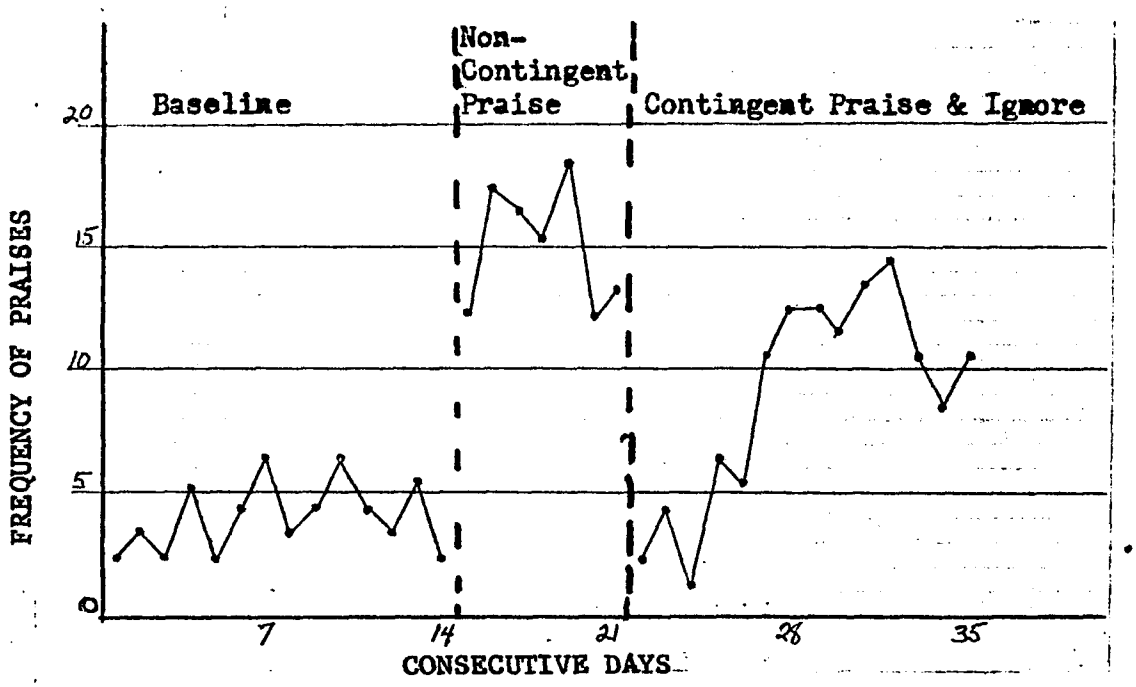

Figure 2. Rate of Praises Emitted by J. S. Per Day.

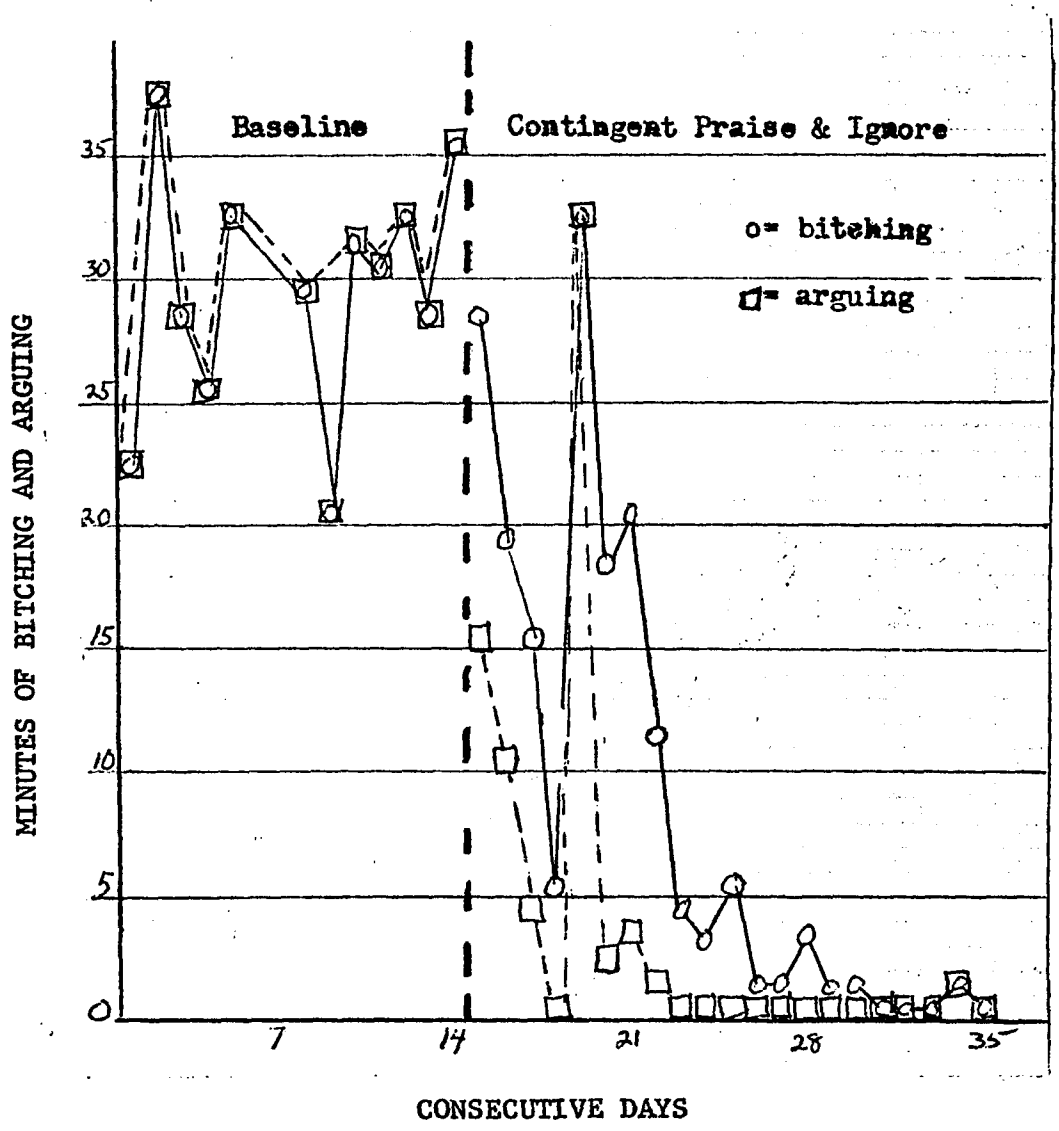

Figure 3. Rate of Arguing by R. P. and Bitching by His Wife Per Day.

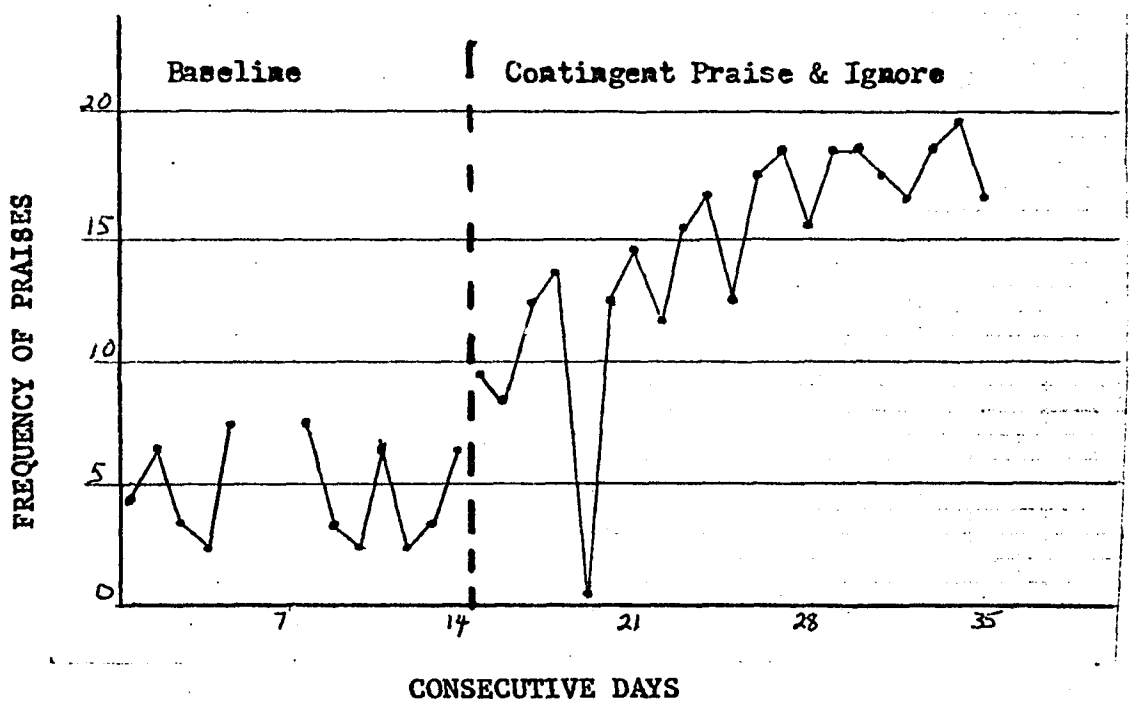

Figure 4. Rate of Praises Emitted by R. P.

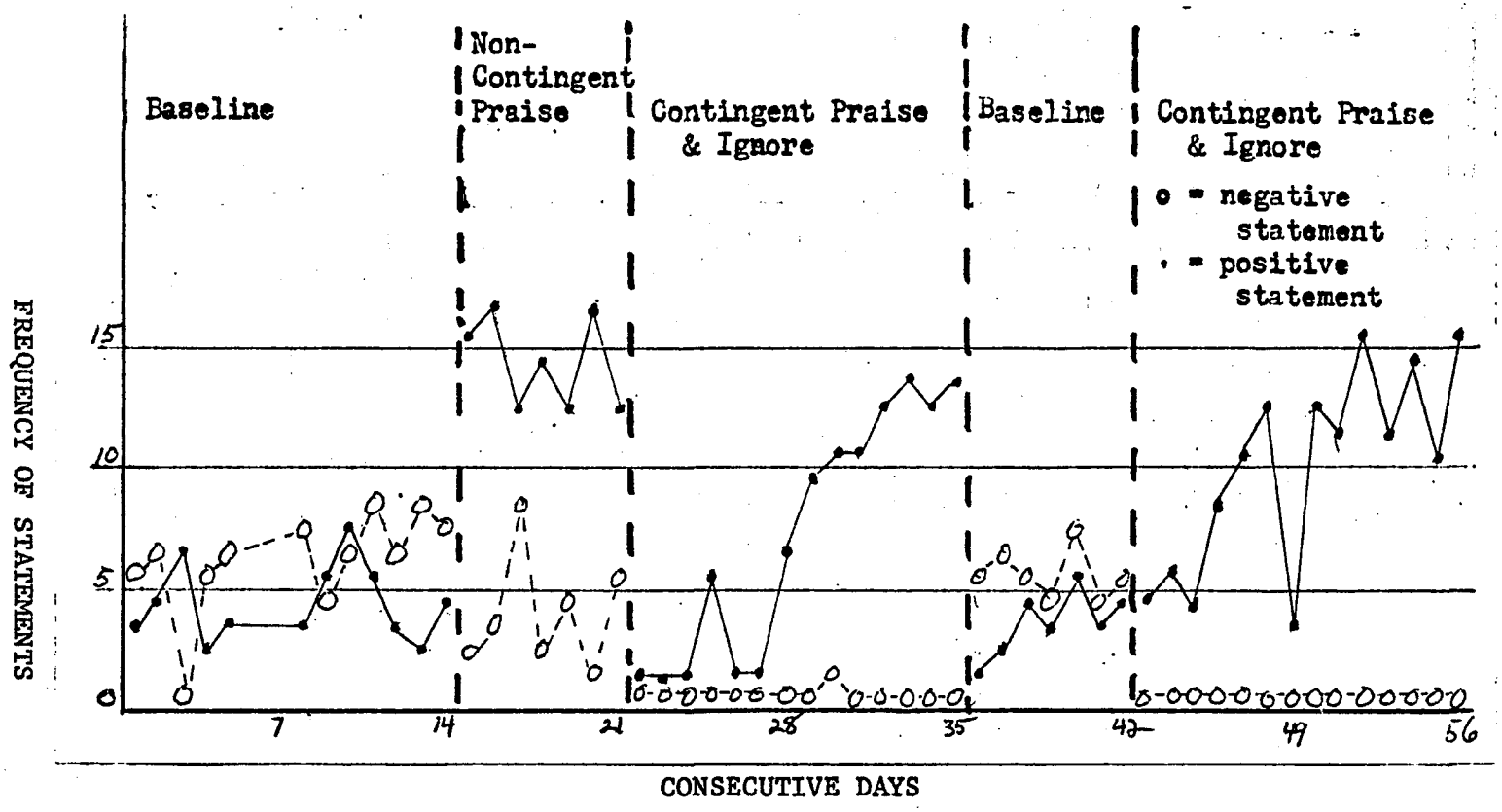

Figure 5. Rate of Negative and Positive Statements by R. H. to His Wife.

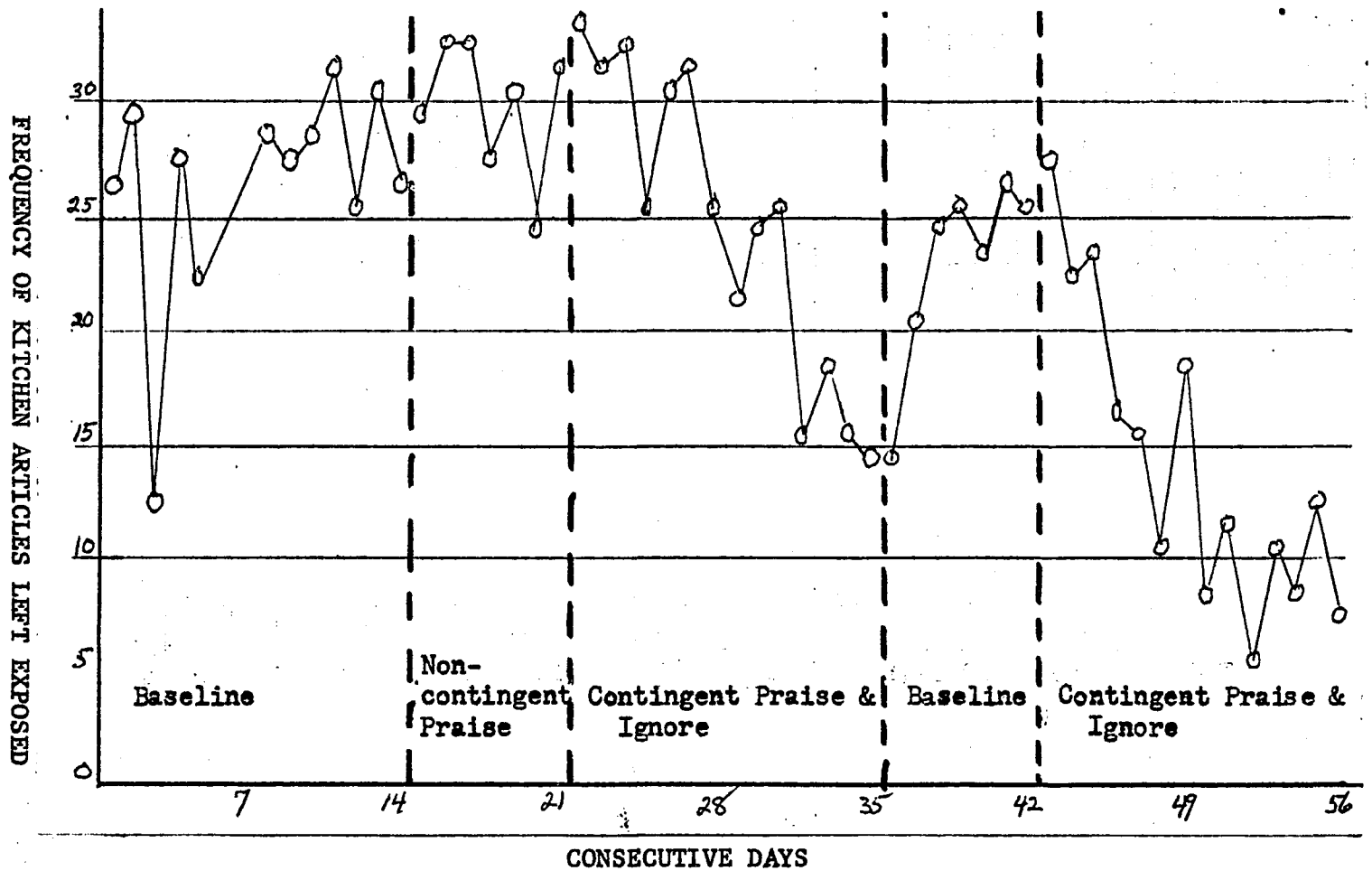

Figure 6. Rate Per Day of Kitchen Articles Left Out of Their Proper Place by the Wife of R. H.

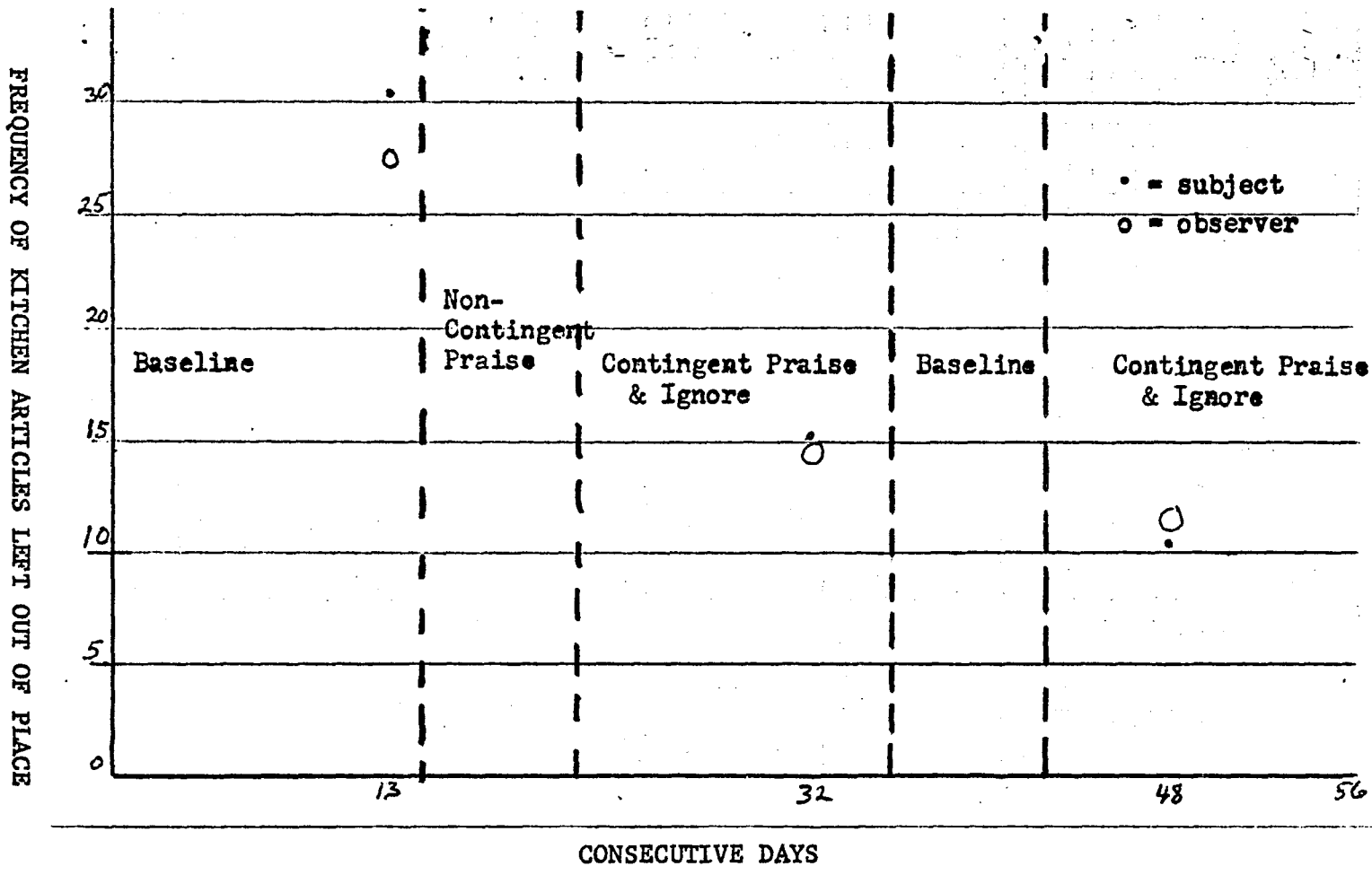

Figure 7. Comparison of Kitchen Articles Counted by R. H. and the Observer.

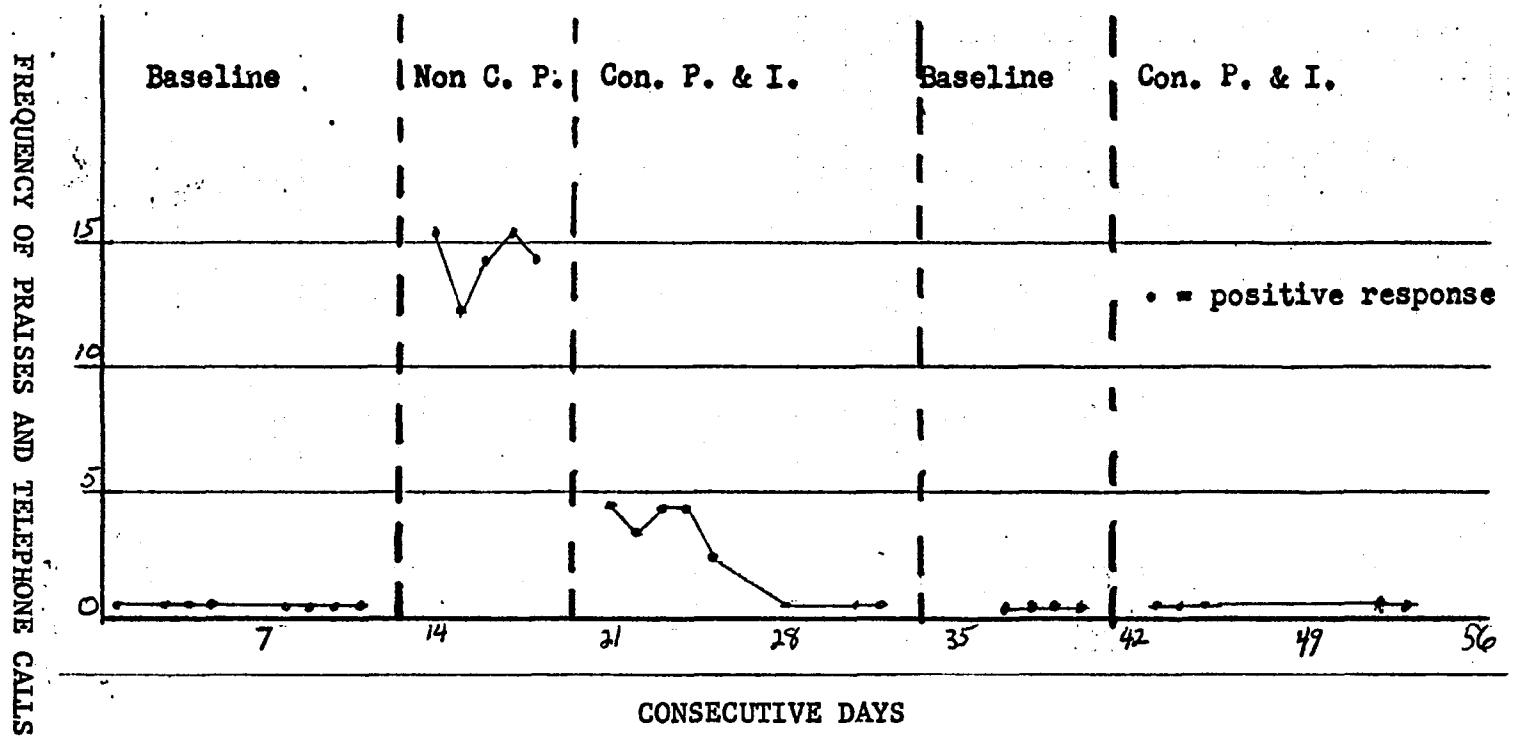

Figure 8. Rate of Positive Responses B. J. Made to Telephone Calls by His Wife.

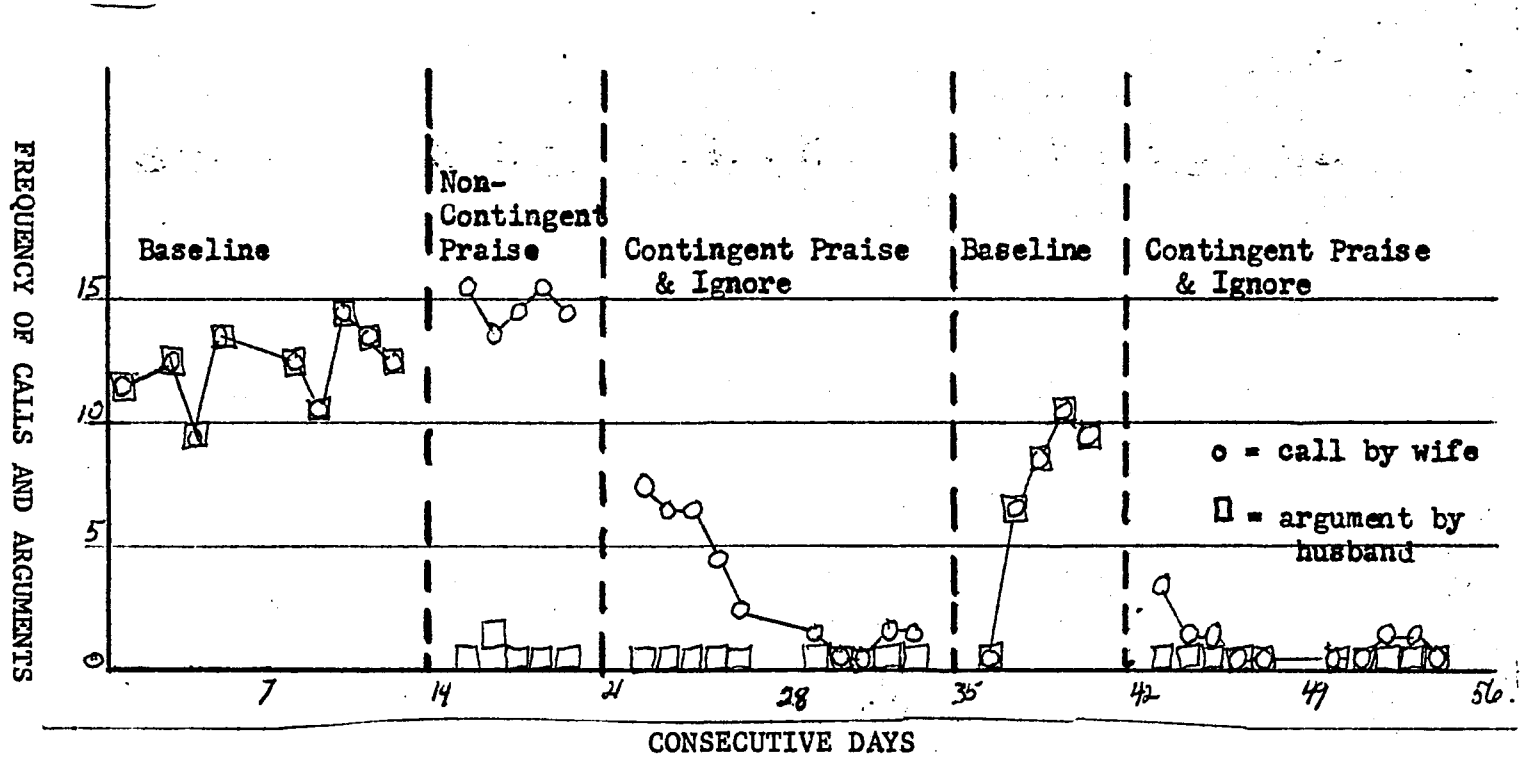

Figure 9. Rate of Calls B. J. Received from His Wife and His Rate of Arguments.

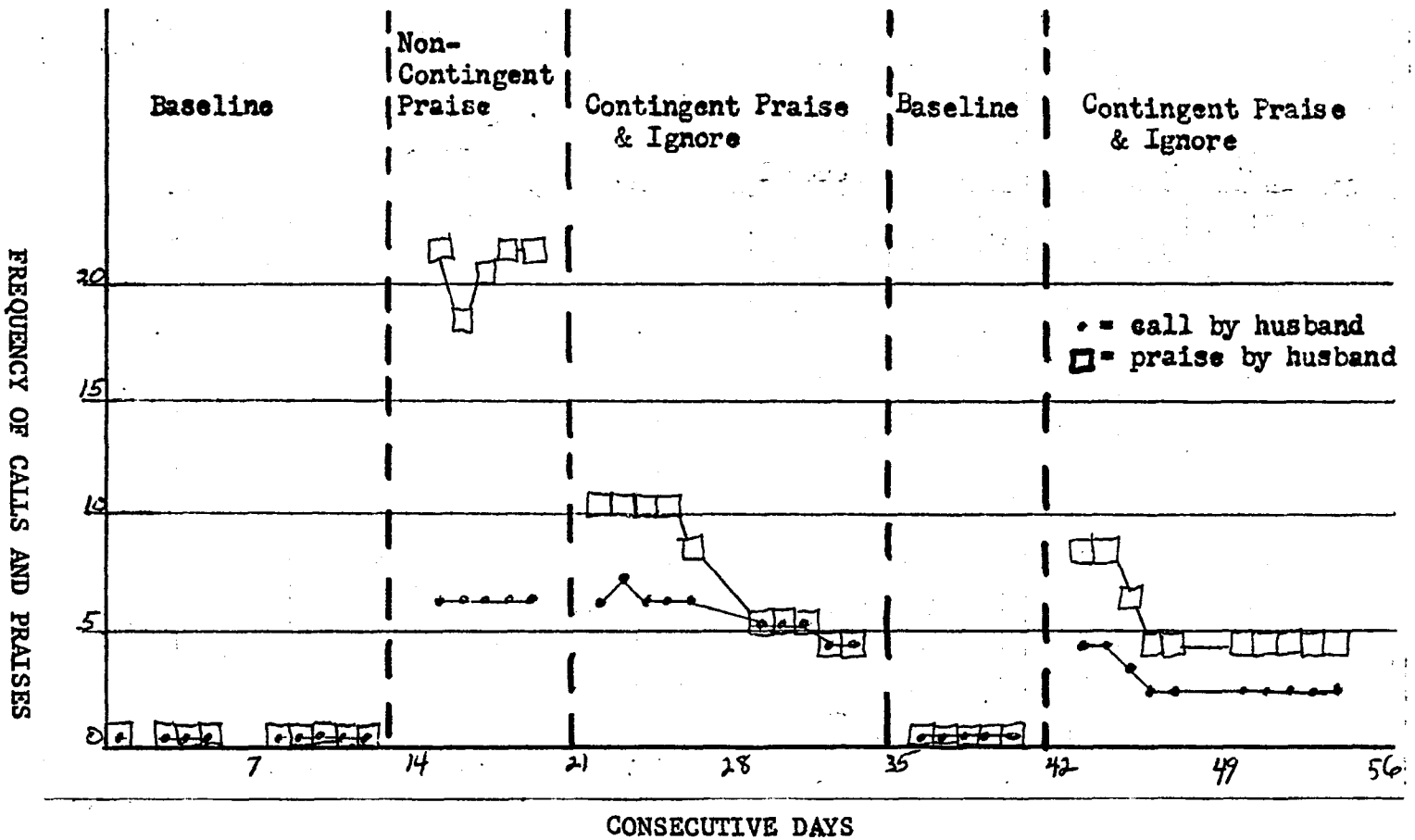

Figure 10. Rate of Calls and Praises by B. J.

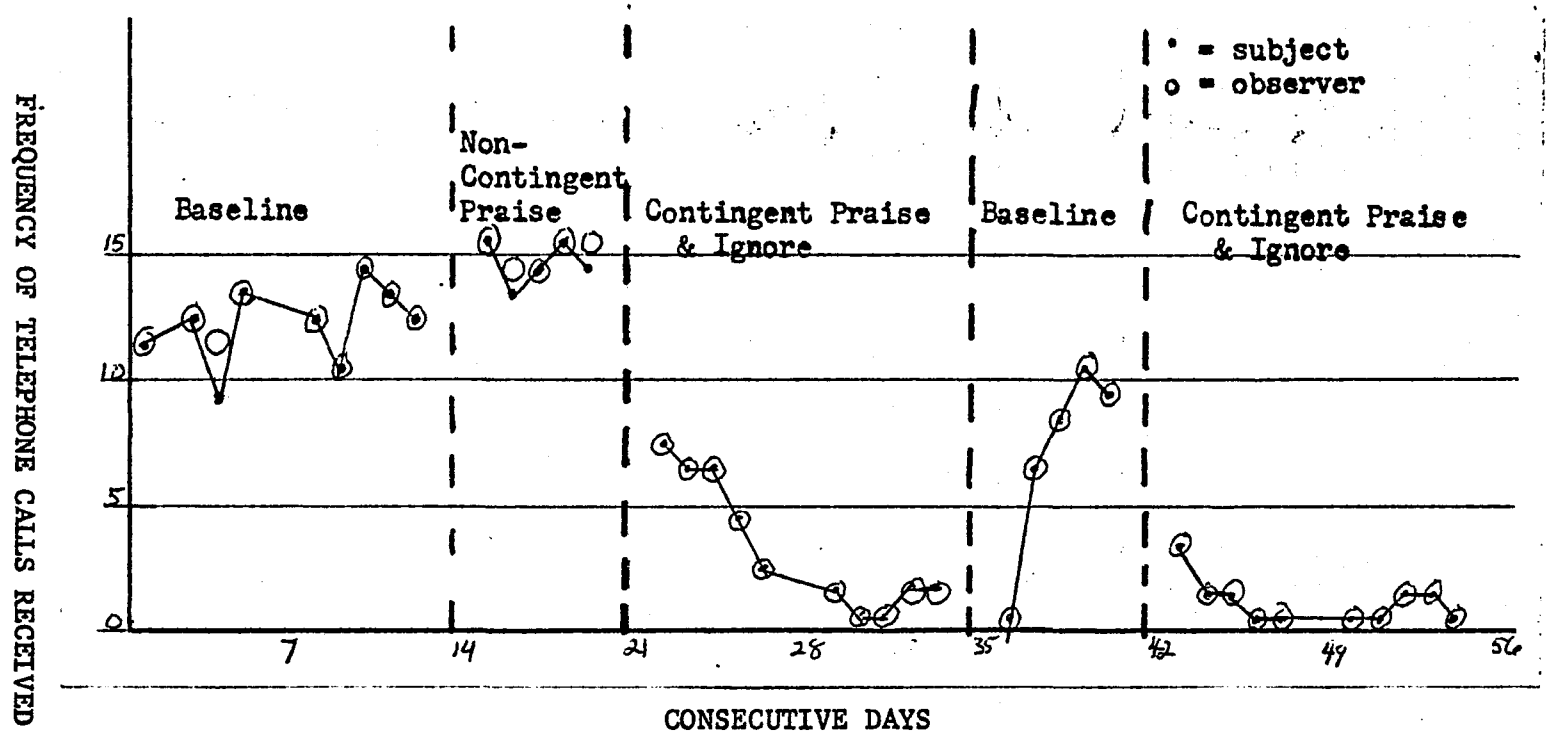

Figure 11. Rate of Telephone Calls Recorded by B. J. and Observer.

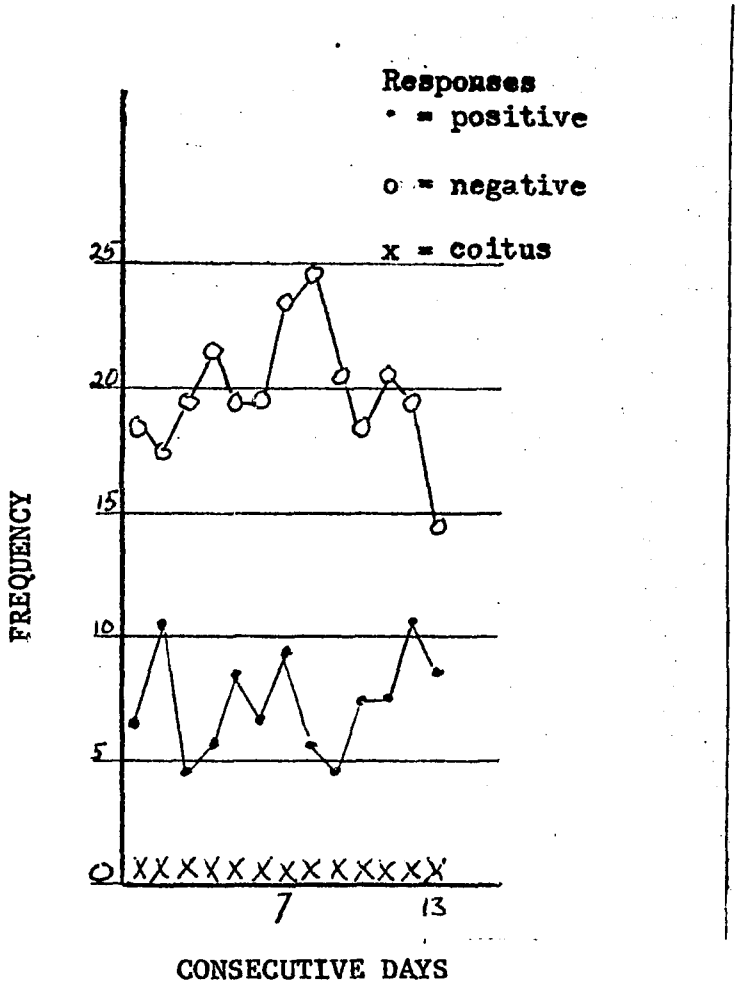

Figure 12. Rate of W. B.'s marital coitus and his rate of positive and negative statements to his wife.

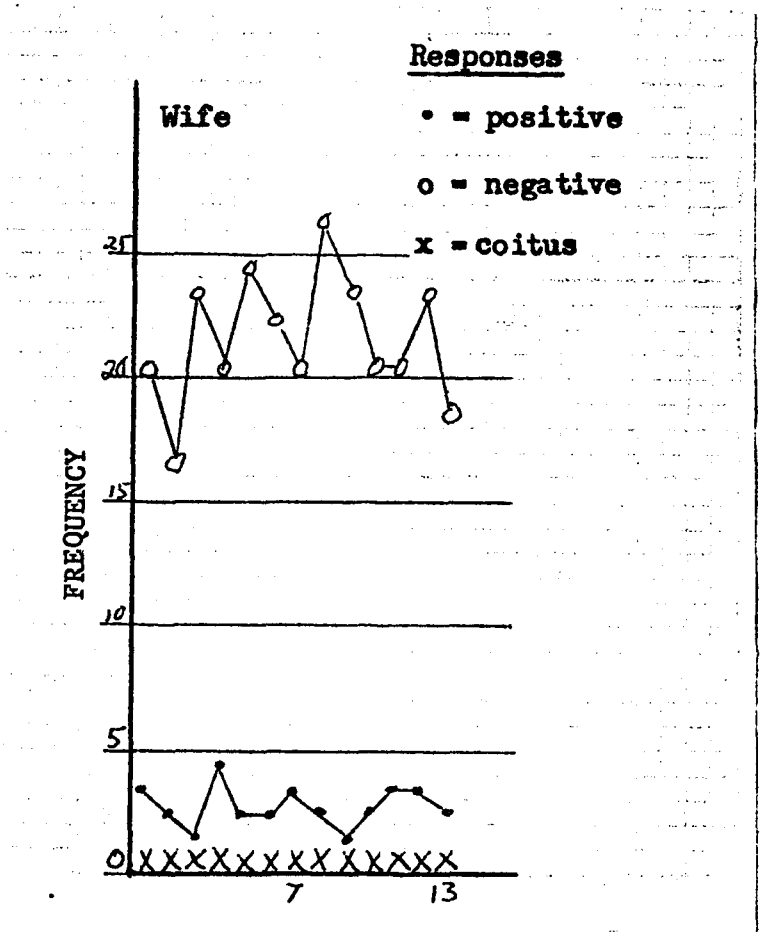

Figure 13. Rate of W. B.'s Marital Coitus and His Wife's Positive and Negative Statements to W. B.