New Directions in the Application of Covert and Overt Techniques to Behavioral Self-Control

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Western Michigan University

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NEW DIRECTIONS IN THE APPLICATION OF
COVERT AND OVERT TECHNIQUES TO BEHAVIORAL SELF-CONTROL

by

Sema Bayla Smith

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Master of Arts

Western Michigan University
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This thesis marks the completion of well over two years of graduate study in the Department of Psychology at Western Michigan University. During this time I have appreciated the support and encouragement given to me by faculty, family and friends. In particular, I have received assistance in the form of valuable feedback and direction from my thesis committee members, Hilary Karp and Fred Gault. Special thanks go to my thesis and program advisor, Malcolm Robertson, who has consistently conveyed an attitude of warmth and openness over many years and many miles. My parents, brother and grandmother need mention here for their unwavering and well motivated expressions of guidance toward this goal. Finally, to Joanne Benjamin-Bauman and John R. Turnage, I would simply like to say, thank you.

Sema Bayla Smith
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Most people initially associate the term self-control with thoughts of self-denial or restraint. Self-control can bring to mind the idea of a difficult and unpleasant task that one must force oneself to undertake. Feelings of discomfort or, at best, ambivalence are often experienced. However, when they extend their time focus into the future, people will frequently report that self-control leads to self-improvement and a sense of personal power. Here self-control is viewed as a process through which an individual becomes the principal agent in managing those aspects of his own behavior which may eventually lead to the desired consequences.

Self-control has long been attributed to the internal construct called "will". Within this frame of reference, the individual either has willpower or he does not. However, ascribing self-control to a vaguely defined state of the organism has seriously retarded research. Research efforts need to be directed toward the relevant variables surrounding the process of self-control.

Knowledge of self-regulatory processes would be much greater if attention were paid to the example of self-control that Homer gives in his description of the travels of Odysseus (Kanfer and Phillips, 1970). To protect his
ship from the bewitching effects of the Sirens, Odysseus had his oarsmen fill their ears with beeswax. To manage himself, he had his men tie him to the mast and commanded them not to release him regardless of his pleading. Instead of calling on gods to protect him from the lure of the Sirens or admonishing himself to have willpower, he directed his actions toward controlling himself by using his immediate environment. The key to Odysseus's success is his recognition that self-control involves the interaction between individual and environmental factors.

A rapidly expanding body of knowledge suggests that when external as well as internal circumstances are taken into account, effective self-regulatory procedures can be established. This information would be of value to the general population, as well as to a clinical population. In the clinical situation, where the focus of therapy is to help the client develop skills which will enable him to cope with his own problems, self-control techniques could have a profound influence. With these techniques, the therapist can shift some of the responsibility of change to the client and offer him the means to change, while the client can avoid the dependency and sense of powerlessness so frequently engendered in the course of therapy. Thus, adequate investigation of the processes of self-control will benefit therapists and clients, as well as the general populace.
Social relativity confounds the definition of self-control. Levine (1973) has pointed out that labeling a particular behavior as self-controlling depends very much on the social context, the conspicuousness of the external influences, and the perspective of the labeler. In this regard, self-control takes on the properties of other psychological terms such as mental illness, abnormality, and personality. For example, the behavior of withholding food from oneself is labeled differently if the person doing so is an obese housewife, a Buddhist monk, or a hospitalized "anorexic".

However, despite the social relativity inherent in the label, three main characteristics can be brought together to form a workable definition of the term: 1) Self-control always involves at least two alternate behaviors; 2) These behaviors and their consequences are conflicting; 3) A time gradient of consequation is involved. That is, the immediate aversive consequences of the self-controlling behavior are withstood to obtain the more powerful long-term positive consequences. It is because of this delay of reinforcement that cognitive variables often play a major role in self-controlling behavior, a role that until recently many behavioral psychologists have ignored.

The field of behavior modification, clinically, experimentally, and theoretically, has been moving in a new and a long overdue direction. Until the past eight years
or so, behavioral theories have functioned almost exclusively within the framework of overt behavior. The purpose of this was not to deny the existence of internal or covert events, such as thought, feeling, or imagery, but to emphasize the importance and the need to deal with external environmental events. In part, this emphasis stems from the scientific, experimental origins of learning theory; and in part, this was a reaction to the exclusively intra-psychic theories predominant during the formative years of behavioral theories.

The difficulties inherent in the scientific investigation of covert events have often been attributed to a lack of observability and measurability. However, this view is not entirely true. A thought is not entirely unobservable. Its nature and occurrence are perceived by a population of one. "By training the individual to be a personal scientist, covert events can be studied and controlled in much the same manner as overt behaviors." (Thoresen, 1973). Mahoney (1970) extends this argument by pointing out that many behaviorists' fears are unjustified if they can anchor their inferences in observable criteria, adhere to direct inferences, and find operational methods to evaluate covert phenomena.

The basic premise of covert behavior modification is the homogeneity or continuity assumption. That is, it is assumed that covert events can be viewed as behaviors, and
that these behaviors follow the same principles of learning as do overt behaviors. The validity of this premise is supported by a number of researchers including Bandura (1969), Agras (1972), Epstein (1973), and Mahoney and Thoresen (1974).

The fact that both overt and covert events are involved in the process of self-control provides the basis for the organization of the body of this paper. It is believed that, despite some overlap, the division between overt and covert techniques, and overt and covert target behaviors will be useful. The overt techniques listed here have been included in this category because of their primary reliance on overt methodology. The target behaviors to which they address themselves may or may not be overt, but their principle approach to the problem involves physical, external and/or observable procedures. The covert techniques primarily involve covert methodology. In addition, with the exception of covert self-consequence and covert modeling, which may also be applied to overt behaviors, these techniques generally apply to covert target behaviors. The next section of this paper is a brief historical survey of the antecedents of self-control theory, after which the current overt and covert techniques employed in self-control therapy are discussed.
Developmental psychologists often describe the growth of the egocentric child into a socialized adult as a process of learning self-control. In Freudian theory, the ability to delay gratification evolves in conjunction with the development of the superego, specifically, the injunctive portion of the superego. In popular terms, the superego has been labeled the conscience. This construct serves the function of partially regulating the individual's behavior as an internalized defense against the drives of the id. The superego prohibits the undesired behavior by reminding the individual of the negative consequences (i.e., guilt and loss of self-esteem) that would follow if the demands of the superego are disregarded.

Such internalized constructs do not fit within the framework of behavioral models. Current behavioral models of self-control are extensions of problems that learning theorists have been working on for some time. For example, there is the question of how well established habits are extinguished, unlearned, or counter-conditioned. Guthrie (1935) believed that habits, "bad" or otherwise, could be broken by learning a new response to the same stimuli which produced the initial response. This learning would interfere with the execution of the old response, and the formation of a new stimulus-response complex would occur. His
attention was focused on finding the antecedent stimuli associated with the particular behavior in question. Thus, as the individual becomes aware of these stimulus conditions, he is in a better position to control his own behavior.

Dollard and Miller (1950), in an attempt to define the operation of higher mental processes, produced a theoretical system which involved a level wherein responses were mediated by "symbolic internal activity". Within this level are "cue-producing responses" such as language, thought, and imagery which mediate overt instrumental behavior. Their clinical and theoretical work in many ways paved the road for Bandura's studies in the area of self-control (1969).

Bandura's conceptualization combines both cognitive and observable instrumental behavior to account for learning and performance changes. Self-reinforcement patterns, an essential element of self-control, is viewed as being transmitted through parents and other social agents and acquired to a great extent through vicarious observation. Self-control, then, is the blending of internalized standards and external environmental contingencies which result in complex social activity.

As staunch an environmentalist as Skinner is, he does not dismiss the importance of private events.
When we say that behavior is a function of the environment, the term 'environment' presumably means any event in the universe capable of affecting the organism. But part of the universe is enclosed within the organism's own skin....A small part of the universe is private. (1953, p. 257).

Skinner's conception of self-control exists within the framework of operant conditioning principles. Basically, the person has control of himself when he can effectively influence the relevant variables which control his behavior. Although he does allow for cognitive events, his emphasis was on overt rather than covert behavior.

Kanfer and Phillips (1970) offer some valuable ideas regarding the dimensions of self-control procedures. Their analysis, heavily influenced by Skinner, details a sequence of steps which they suggest will facilitate successful self-control. Early disruption of the stimulus-response chain, the use of environmental support systems which inhibit the maladaptive response and support alternate behavior, clear specification of the desired end product, and clear feedback are several of their main suggestions.
OVERT TECHNIQUES

Self-Observation

Awareness and insight are common features of almost all psychotherapies. Psychoanalytic therapies focus on the historical antecedents of behavior and hold that when insight occurs and a significant and long forgotten event rises into "consciously", this will be followed by an immediate change in behavior. Reflective and Gestalt therapies have the client focus on an awareness of the current situation, the global "here and now" impact of the environment on their feelings. This type of awareness is posited as necessary before change can occur. Behavioral therapies also focus on awareness, but of a different sort. Awareness, as such, comes about by observing how a behavior is influenced by its immediate antecedents and consequences.

Self-control strategies place major importance on self-observation as the first step for self-change. The person must be aware of what is happening before he can move to change it. Also, an accurate baseline will allow the individual to evaluate changes in the targeted behavior during the course of treatment.

A number of serious methodological problems exist in the procedure of self-observation. Serious doubts about
the reliability and validity of such data have been raised by a number of researchers (Herbert and Baer, 1972; Jeffrey, 1974). The problem becomes even more complicated when covert behaviors are being measured (Kazdin, 1974). Self-observation is a reactive procedure. Changes in behavior can occur directly as a result of observing and recording that behavior. Thus, it can lead to confusion in the assessment of the data that has been compiled.

The development of a technology for self-observation is currently at a very primitive stage. Some of the more common devices being used include the following: wrist counters, pocket counters, wrist pads, booklets, 3 x 5 cards, graphs, video tapes, and knitting tallies. The possibilities available to the observer are limited only by his creativity.

A summary of the existing data on self-observation includes the following generalizations:

1) Individuals are not naturally accurate self-observers. Successful training in the discrimination and recording of a behavior can occur and is essential. This may involve modeling, accuracy feedback, systematic reinforcement, and graduated transfer of recording responsibilities from an external observer to the self.

2) The accuracy of self-recorded data varies considerably between subjects, methods of observation,
situations, and behaviors. Discrete behaviors and simple recording methods facilitate accuracy.

3) Self-observation, as a measurement device, is a necessary preliminary step in the process of self-control.

4) Self-observation, as a treatment technique, has shown variable, sometimes dramatic success, but does not seem promising when used as the sole therapeutic technique. Its results are often short-lived.

Some interesting research questions still need to be answered. Does the desirability of the target behavior affect self-observation? That is, would it be better to record the number of cigarettes smoked or the nonsmoking behavior when the urge occurred? Would recording certain behaviors such as depressive and suicidal cognitions be contratherapeutic? Might calling attention to these cognitions precipitate a crisis? At what point in the stimulus-response-consequence chain would self-recording be most effective, e.g., sexual fantasy vs. sexual behavior? More well-controlled research is needed into the mechanism, techniques and effects of self-observation before this procedure can be understood and functionally applied in a well-designed program of self-control.
Relaxation

Relaxation is one of earliest-studied techniques to be employed in self-control strategies. Although its common usage has distant historical antecedents, its initial clinical usage is credited to Jacobson (1938). This process of autosuggestion used to facilitate deep muscle relaxation usually involves the therapist directing the client to alternately tighten and then relax all major muscle groups in the body (including the head, face, extremities and torso). Special attention is given to any area the client reports to be frequently associated with tension, for example, the stomach or neck. The subject is instructed to attend to the differences between the state of tension and relaxation. Detailed visual imagery is sometimes employed by the therapist to enhance the client's feeling of relaxation. When used as a self-control procedure, the client is taught to relax himself and is often given homework assignments.

Lang and Lazovik (1960) have written a very useful manual for relaxation and hypnosis training, while a more abbreviated training method can be found in Wolpe and Lazarus (1966). Some therapists prefer to play instruction tapes or records (Troubador Records, 1962) in order to save time and effort on their part and provide easy access to relaxation instruction for their patients.
Because of relaxation's notable physiological side effects, target behaviors have included such overt measures as blood pressure and heart rate. The alleviation of obstetric pain has also been a target behavior. Read (1944) makes use of rapid breathing exercises and deep muscle relaxation to break the cycle between fear, muscle tension, and pain in childbirth. Lamaze (1958), varying this procedure, attempts to raise the pain threshold. He uses uterine contractions as the cue for rapid breathing and has the patient focus her attention on the breathing and not the pain.

We have seen that relaxation is used in the medical field to reduce physiological stress. In the psychological field it is used predominantly to reduce anxiety, a covert target behavior. One of the most valuable aspects of this technique in the process of learning self-control is the ease with which it can be taught. Additionally, it helps the client focus on proprioceptive anxiety labeled stress cues, facilitating early recognition and disruption of the anxiety response.

Behavioral psychologists most often apply relaxation in conjunction with other techniques, notably systematic desensitization. This complication, as well as earlier negative findings (Dawson, 1968 and Rachman, 1965), contribute to the fact that research using relaxation as an isolated technique has been minimal. It seems that its clinical
application will continue to be part of a "packet" of treatment approaches.

Biofeedback

The basic mechanism employed in biofeedback training is an electronic system which amplifies a selected physiological response and informs the person of the ongoing activity of that response. The discrimination of internal events in conjunction with continuous feedback allows the person to gain a measure of control over that process or state.

Kamiya (1962), one of the earlier researchers in this area, taught subjects to discriminate the EEG, EMG, GSR, heart rate, vasodilation, and skin temperature. Within ten minutes one subject had voluntary control over the temperature of his hands and could change the direction of the temperature in as short an interval as one second (Ezios, 1971). Animal studies have demonstrated control over such complex physiological processes as blood flow in one ear lobe, blood flow in the stomach lining, peristalsis, and kidney functioning (Miller, 1969).

There is an interesting relationship between biofeedback and relaxation. Most of the physiological processes that have been conditioned are also modified by the state of relaxation. Subjects learning to increase alpha rhythm rate, lower muscle tension, lower heart rate, lower blood
pressure, lower GSR, and/or increase skin temperature report that there is an element of relaxation involved as they move in those directions. However, while a subject, through feedback of a particular response, may gain control over that particular response, other physiological responses are not necessarily affected. Even though the subject reports being relaxed, the processes seem to be remarkably independent (Ezios, 1971). None the less, Ezios and other biofeedback researchers who have had experience in teaching relaxation with a variety of methods, including Jacobson's, believe that they have taught deep relaxation through biofeedback of multiple physiological processes, in perhaps two or three hours rather than the much longer period necessary with other techniques.

The effectiveness of biofeedback has been amply demonstrated, and it is beyond the scope of this paper to review adequately the breadth of this field. Implications for the future of biofeedback as a self-control technique are tremendous and limited only by the lack of technological development. This too, however, is a rapidly expanding field. Future possibilities include a device to cue a woman as to her time of ovulation, the use of EMG feedback for athletes, and the use of biofeedback to control artificial limbs.
Stimulus Control

Stimulus control, also called environmental planning, deals with the alteration of the antecedent stimuli that influence the target behavior. Classical conditioning theory describes this as the association of undesired responses (CR-s) with stimuli that are gradually reduced in frequency. Simultaneously, desired responses (CR+s) are linked to stimuli whose frequency is systematically increased. Operant theory labels this discrimination training and describes it as the conditioning of a response in the presence of one stimulus (S^D) and extinguishing it in the presence of another stimulus (S^A). Stimulus control has been established when the response is more likely to occur in the presence of the S^D than in the presence of the S^A.

Self-control based on stimulus control was first introduced by Ferster, Nurnberger, and Levitt (1962) in relation to obesity. This technique is particularly relevant for the problem, as Ferster and his associates found that the obese person is motivated much more by external cues than the normal person. A typical program, as outlined by Stuart (1967), involves limiting the times when eating is permissible, eating without engaging in other reinforcing activities, such as watching television or talking to friends, and eating only in one specific
location. Stuart's results, which were very impressive, have been replicated by various researchers (Harris, 1969; Wollersheim, 1970; Jeffrey, Christensen, and Pappas, 1972), but not with the amount of weight loss he reported.

Other problems to which stimulus control has been applied include smoking behavior (Upper and Meredith, 1970; Roberts, 1969; Bernard and Efran, 1972); study habits (Goldiamond, 1965; Beneke and Harris, 1972); marital discord (Goldiamond, 1965); sulking (Goldiamond, 1965); and sexual deviation (Bergin, 1969). Stunkard (1972) provides an excellent review of stimulus control and obesity. It should be noted that this technique is often used in conjunction with contingency contracting, also called self-consequation; and although the results of these experiments have generally been quite good, it is difficult to separate the effects of one technique from the other. Also, it is of interest to note that the main body of literature in this area has dealt with overt target behaviors that fall into the category of consummatory responses. Consummatory behavior is one of the most persistent and difficult classes of behavior to extinguish; and at the same time, it is not a problem the typical clinician frequently encounters.
Self-Consequation

Self-consequation represents a self-administered change in one's environment that follows rather than precedes the behavior to be controlled. Four main types will be considered here:

1) **Positive self-reinforcement** is the addition or consumption of an available reinforcer contingent on the performance of a desired behavior, e.g., buying a new dress after losing five pounds.

2) **Negative self-reinforcement** is the removal of an aversive stimulus contingent on the performance of a desired behavior, e.g., placing packages of suet in the refrigerator at the beginning of a diet and removing one after losing five pounds.

3) **Positive self-punishment** is the addition of an aversive stimulus contingent on the performance of an undesirable behavior, e.g., snapping a rubber band that is around one's wrist after having smoked a cigarette.

4) **Negative self-punishment** is the removal of an available positive reinforcer contingent on the performance of an undesirable behavior, e.g., losing television privileges for the evening.
after having smoked too many cigarettes during the day.

**Positive self-reinforcement**

Positive self-reinforcement applications are numerous, (Goodlet and Goodlet, 1969, Beneke and Harris, 1972). Rehm and Marston (1968) present one of the earlier and more complex programs working with a population of socially inhibited male students. This involves an hierarchy of desired approach behaviors, attempting these in vivo, self-evaluation according to a previously determined approach-avoidance scale and self-administering points for success. This treatment was compared with a non-specific therapeutic approach and a no-treatment control group of students with similar social problems. Reports on decrease of anxiety and overt behavior change were significantly greater for the experimental group than for the other two groups.

One of the major theoretical questions surrounding self-reinforcement is in its effectiveness in comparison with externally administered rewards. Also, does it follow the same principles, e.g., reinforcement schedules and magnitude? Since external and self-reinforcement procedures often occur together in the nature’s environment, it is difficult to separate the effects of one from the other. However, a study by Bandura and Perloff (1967) attempted to isolate the two. Three groups of children
were set up: a self-reinforcement condition, an external reward condition, and a no reward control group. Results indicate that the two reward conditions were equally effective and have been supported by other researchers (Johnson, 1970; Kanfer, 1970). An impressive study by Bolstad and Johnson (1972), with disruptive classroom behavior, suggests that self-reinforcement can be slightly more effective than external reward.

**Negative self-reinforcement**

Clinical laboratory studies of negative self-reinforcement are relatively rare. One of the few clinical applications was done by Penick, Filion, Fox, and Stunkard (1971). Theirs was a weight reduction program that involved the removal of bags of pork fat, the aversive stimulus, from the refrigerator contingent on weight loss. This successful and reportedly popular technique was employed in combination with stimulus control.

Some generalizations and theoretical considerations are summarized below:

1) Self-reinforcement is always used to increase a specific target behavior.

2) Self-reinforcement rates tend to parallel previously learned rates of external reinforcement. These rates tend to be stable and show some consistency across tasks.
3) As the ambiguity of performance standards increases, or the magnitude of the reinforcement increases, self-reinforcement rates drop.

4) When given the opportunity to develop contingent criteria, subjects often impose high standards for themselves.

5) The Premack principles can be used.

6) Questions on the nature of the source of the reinforcement have yet to be answered, as well as studies in the relative effectiveness of positive vs. negative reinforcement.

**Positive self-punishment**

Relatively few clinical or experimental studies have been done in the area of overt self-punishment. Even so, it is evident that just as the area of self-reinforcement is dominated by research and clinical application of positive reinforcement, so is self-punishment dominated by positive punishment. Some relevant findings of a typical program involving positive self-punishment are those of Mees (1966). He divided smokers into three groups: 1) self-administered shock; 2) two variations of breath holding; and 3) placebo where a "subliminal electrical impulse" (no shock) was self-administered. Results show one breath holding technique to be the most effective, one the least, and placebo was more effective than shock.
These findings, including support for the effects of demand characteristics and placebo, have been replicated by others including Keutzer (1968) and Tyler and Straughan (1970).

A few cases have shown positive results with target behaviors such as obsessions (Mahoney, 1971); hallucinations (Buchner and Fabricatore, 1970); obesity (Rubin, Merbaum and Fried, 1971). However, the bulk of the literature suggests that positive self-punishment is not an effective technique for maintaining long term overt behavior change. It should be noted that in most of the studies the target behavior was smoking, one of the most difficult behaviors in which to maintain change (Mahoney and Thoreson, 1974).

**Negative self-punishment**

The literature on negative self-punishment is even more limited. However, an important study by Mahoney, Moura, and Wade (1973), comparing self-reinforcement, self-punishment and self-monitoring in obese patients suggests that positive self-punishment (the addition of an aversive stimulus) is more effective than negative self-punishment (the withdrawal of a reinforcing stimulus), and it is most effective when combined with self-reinforcement. This finding is consistent with Bandura's (1969) review of the literature.
Self-Instruction

The use of self-directed verbalization has been studied developmentally by Luria (1961). He found that until the age of four, children are not able to use self-verbalizations to control their own behavior. That this may be due to previous learning rather than an innate developmental level seems probable in light of several recent studies, such as Bem (1967) doing specialized training with three year olds, and Meichenbaum and Goodman (1971) in training self-control in impulsive grade school children. Typically, as in the Meichenbaum and Goodman study, the self-instruction procedure is as follows:

1) The expermenter performs a task while the subject observes.
2) The subject performs the same task while the experimenter instructs the subject aloud.
3) The subject performs the task while instructing himself aloud.
4) The subject performs the task while whispering.
5) The subject performs the task while self-instructing covertly.

Meichenbaum and Goodman's program is very similar to Meichenbaum and Cameron's work with schizophrenics (1973). They successfully trained schizophrenics to talk to them—
selves in order to improve their performance on attentional and cognitive tasks. Such self-instructions included "pay attention, listen and repeat instructions, disregard distraction". Their procedure involves a number of techniques including modeling, rehearsal, shaping, self-reinforcement, imagery, and a shift from overt to covert self-instruction.

Self-verbalizations are produced in much of man's more complex reasoning behavior. Research in the area of problem solving techniques has been done by D'Zurilla and Goldfried (1973). They outline a general procedure that can be used by the individual to help him cope more effectively with his presenting problem. This involves:

1) Orientation to recognize problem situations and inhibit the tendency to respond impulsively or to do nothing.
2) Problem definition and formulation.
3) Generation of alternatives, a creative as well as a memory and recall process.
4) Decision making, the selection of the "best" alternative.
5) Verification, "real life" matching of the actual outcome with the expected outcome.

The effectiveness of their program is supported by Parnes and Meadows (1959), in studies on "brainstorming", where it is suggested that people evaluate and reject
creative ideas too soon. Groups that were taught these techniques were able to generate more ideas and more viable ideas than groups who were told to produce "good" ideas. Evidence suggests that verbal self-direction seems to be an effective route for self-modification of both simple and complex behavior, and that its efficiency is increased with the addition of self-reinforcement.

Assertive Training

Assertive training is a group of techniques that is designed to allow the individual to stand up for his "personal rights" (Alberti & Emmons, 1974) while at the same time, according those same rights to the individual with whom he is interacting. The development of assertive training parallels, not coincidentally, the civil rights movement in its drive toward universal acceptance of the rights of the individual. Assertive training is designed for non-assertive and aggressive populations. The non-assertive population includes those who are shy or inhibited and often allow others to take advantage of them. The aggressive population includes those who get their own needs met at the expense of and regardless of the needs of others.

Assertive training is applied to groups and individuals. The process is often fairly structured, involving both overt and covert techniques. A typical six to eight session
program involves the following sequence:

1) Explain assertive behavior.
2) Discrimination training—assertive, non-assertive, aggressive behavior.
3) Explain the relationship between behavior and attitudes.
4) Explain personal rights.
5) Elicit areas or situations in which client has difficulty acting assertively.
6) Describe and implement treatment procedure. Procedure is as follows:
   a) describe situation
   b) covert rehearsal (client)
   c) model assertive behavior (trainer)
   d) assertive covert rehearsal (client)
   e) assertive overt behavioral rehearsal (client)
   f) feedback

An in-depth description of additional techniques and exercises applicable to assertive training has been gathered by Lange and Jakubowski in their book Responsible Assertive Training (1976).

Successful experimental and clinical assertive training has been reported by Lamont, et al (1969), McFall & Marston (1970), McFall & Twentyman (1973), and Eisler, et al (1973) as well as others. Treated populations have included children, junior high students, adult women, and hospitalized
psychiatric patients. However, the bulk of experimental investigations has involved college students. Negative findings have been reported by Serber & Nelson (1971), working with an inpatient schizophrenic population.

This narrow research sample does not clearly indicate the breadth of applicability of this mode of treatment. More widely sampled populations must be treated before this can be determined. Another methodological problem is the combination of techniques that is generally employed. As a packet approach it is difficult to isolate the specific variables that effect change. Attempts have been made to determine the relative effectiveness of modeling (audio, audio-visual and in vivo) rehearsal (covert and overt) and instruction with conflicting results (McFall & Lillesand, 1971; McFall & Twentyman, 1973; Thoresen, et al, 1972). More stringent pre and post test measures need to be included as well as controls for expectation and demand characteristics. Experimenter effects due to variations in experimenter modeled assertiveness need also be taken into account, perhaps with experimenter in vivo pre-treatment tests.

Summary

Of the overt techniques listed, self-observation and relaxation are the two most often used in conjunction with other techniques. Interest and research is growing in the
analysis of self observation with one of the most pressing and practical issues being the development of training methods to teach self-observation skills. In contrast, relaxation studies do not appear as frequently in the more current research studies. Zeisset's (1968) positive results suggest a new direction. After relaxation training, clients should then be instructed how and when to use this in vivo whenever they begin to feel tension. Biofeedback holds fascinating potential but because it involves sophisticated technology and a laboratory setting, its widespread clinical use is doubtful. Environmental planning strategies cover more traditional ground. They follow directly the stimulus-response-consequence sequence that shaped behavioral theories. This, as well as the broad applicability of the techniques it subsumes, probably accounts for the large amount of research and clinical attention environmental planning has received. Self-instruction techniques need refinement, but hold excitement and promise when one thinks of it in terms of teaching clients general problem solving and coping skills. If the client can be taught a general approach that helps him deal with life's problems as they arise, much will have been accomplished.
COVERT TECHNIQUES

Cognitive Relabeling

Cognitive relabeling is a formulation which has two major theoretical sources. One is Miller and Dollard's (1941) and Dollard and Miller's (1950) discussion of "higher mental processes", and the other is Schachter and Singer's (1962) interaction of cognitive and physiological factors in the production of emotional states. Dollard and Miller propose that it is often the "cue-producing response", that is, the label, that gets attached to the situation that produces the emotional response rather than the objective properties of the situation itself. Thus, if one can modify the label, one may be able to alter the emotional response. Similarly, Ellis (1962) states,

"It would appear, then, that positive human emotions, such as feelings of love or elation, are often associated with or result from thoughts, or internalized sentences stated in some form or variation of the phrase 'This is good!', and that negative human emotions, such as feelings of anger or depression, are frequently associated with or result from thoughts or sentences which are stated in some form or variation of the phrase 'This is bad!'" (p. 37).

Velten (1968) tested the effects of positive, negative, and neutral self-statements in mood states and found a
functional relationship between the statements and subjective and objective measures of mood. Rimm and Litvak (1969) also tested the effects of self-statements on emotional arousal, as indicated by breathing rate and depth, and found greater arousal with affect laden statements than with neutral statements. Thus, some empirical evidence exists to support the assumption that self-statements can elicit adaptive or maladaptive emotional responses.

Rational-Emotive Therapy (RET)

Ellis (1962) adds an additional component to the above assumption, and in his description of RET states that maladaptive emotional responses are the result of "irrational" self-statements. In therapy the client is instructed to attend to situations where he experiences emotional distress, determine if it is a result of an irrational thought, e.g., "I must get an A on this exam", and if so substitute a more rational thought, e.g., "It would be nice if I get an A on this exam." Thus, instead of engaging in a negatively arousing, self-defeating behavior, he is encouraged to understand and control these cue-producing responses through the use of relabeling.

Although Velten, and Rimm and Litvak support the underlying assumptions of RET, their data are primarily obtained from case studies. Other more well controlled research (Karst and Trexler, 1970; Meichenbaum, Gilmore, and
Fedoravicius, 1971), also offers promise for the potential effectiveness of these techniques.

**Thought Stopping**

The technique of thought stopping was developed by Wolpe in 1958. It is used to inhibit the production of maladaptive thoughts, usually obsessions or self-defeating statements. Treatment is initiated by the therapist who shouts "STOP" when signaled by the client that a maladaptive thought or image is occurring. Control is transferred to the client who initially shouts "STOP" aloud and then shifts to a covert self-statement. Treatment is maintained on a covert level until the target behavior is extinguished.

Wolpe has reported success as have other investigators, (e.g., Gershman, 1970; Yamagami, 1971), although most others have used this in combination with other techniques. As an isolated technique, thought stopping does not offer much promise, as it has been shown (Mahoney, 1971) that the reduction of inappropriate covert responses does not lead to an increase in appropriate covert responses.

**Systematic Desensitization**

Systematic desensitization has been included under covert techniques because of its emphasis on cognitive variables as a primary treatment modality. Since its inception (Wolpe, 1958), it has been used widely and most frequently
with phobias. The treatment initially begins with training in deep muscle relaxation. This is followed by setting up a graduated hierarchy of fearful situations concerning one theme or specific fear. The client is then presented verbally with increasingly fearful items in the hierarchy while in a relaxed state. He is told to imagine these items as vividly as possible. This technique, believed to be based on reciprocal inhibition, is a counter-conditioning process, and great care is taken to avoid arousal of any anxiety during treatment.

There is conflicting evidence in studies on imagery regarding the cognitive control of anxiety and pain tolerance. An important variable seems to be the level of intensity of anxiety or pain. Danaher and Thoresen (1972) suggest that simply visualizing an imaginal scene is not sufficient. Actual involvement in the scene itself with the patient as actor is more often required, with the experience involving more than one (typically visual) sensory modality. This leads one to the thought that with the inclusion of more sensory modalities in the imaginal process greater levels of anxiety/pain tolerance could be achieved.

Studies indicate (Marquis and Morgan, 1968; Donner, 1970; Suinn, 1970) that when self-administered, systematic desensitization can be as effective as when it is applied by a therapist. Promising variations on this technique have been developed by Suinn and Richardson (1971) and

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Meichenbaum and Cameron (1974). Basically, they suggest that the individual decondition himself to internal stress cues and use the internal stress cues as a signal for coping self-instruction. The technique then has much more general application than its traditional use in single phobias.

**Covert Self-Consequation**

The strategy for covert self-consequation is the same as that of overt self-consequation. That is, the appropriate reinforcer or punisher is delivered contingent upon the production of a desired or undesired response. The difference is that the consequences are self-administered covertly, either through thought or imagery. Two important questions concerning covert events have been raised. First, can covert events affect overt behavior? Second, if so, can they function as consequences? These questions have been answered affirmatively by Weiner (1965), Staats (1972), and Epstein and Peterson (1973).

**Covert self-reinforcement**

Covert positive and negative self-reinforcement through imagery has been described by Cautela (1971). In this procedure, the individual practices imagining a specific rewarding scene, predetermined by the individual. The scene is then self-administered after an appropriate response.
A number of researchers have used covert reinforcement successfully, including Denholtz (1973), Guidry (1973), and Lambly (1974). Problem behaviors have included compulsions, gagging, obesity, phobias, lack of assertiveness, and test anxiety. Most often this technique is used in conjunction with other techniques, but some research has been done in an attempt to isolate its effects. Marshall, Boutilier, and Minnes (1974) worked with phobic clients and compared six groups: 1) desensitization; 2) covert positive reinforcement; 3) covert negative reinforcement; 4) noncontingent covert positive imagery; 5) placebo; and, 6) no treatment. Their results show covert positive reinforcement to be as effective as desensitization and slightly more effective than covert negative reinforcement. The therapeutic procedures were more effective than either the placebo or the no treatment groups.

**Covert self-punishment**

The most frequently studied covert technique has been covert sensitization (Cautela, 1967). This involves the use of relaxation and imagery. While in a relaxed state, the subject imagines himself moving closer to performing the target behavior and at the same time becoming more and more nauseous. Just prior to execution of the target behavior, the subject imagines himself vomiting, followed by withdrawing from the situation and a consequent removal of
the feeling of nausea. The technique has been used in conjunction with cigarette smoking (Keutzer, 1968; Barrett and Sachs, 1974); obesity (Cautela, 1972; Reeves, 1973); deviant sexual behavior (Barlow, Leitenberg, and Agras, 1969; Cautela, 1973); disruptive classroom behavior (Shatus, 1974); and juvenile delinquents (Cautela, 1973).

The research on this procedure has shown mixed but generally favorable reports as to its effectiveness. Variables that seem to influence covert sensitization, as well as other covert techniques involving imagery, include the degree of vividness of imagery and the frequency of repetition of the sequence (Cautela, 1972). Other variables that may influence the effectiveness of this procedure have been the subjective feeling of self-control (Cautela, 1973), self-monitoring (Kachorek, 1972), and expectancy. However, Barlow, Agras, and Leitenberg (1970) controlled for expectancy by telling their subjects that the procedure would have the opposite result. Although their results confirmed the effectiveness of covert sensitization, it is questionable how many subjects actually believed that the results would be in the opposite direction. Booster sessions have been recommended by several authors to aid in the maintenance of the desired behavior and the use of incompatible behaviors, e.g., heterosexual vs. homosexual imagery.
One problem associated with the use of covert reinforcement and punishment is the assessment of imagery in the individual. It is theorized that the more vividly and clearly the subject can imagine the reinforcing or aversive situation the more effective the outcome of the procedure. McCullough and Powell (1972) presented a four step procedure designed to assess the clarity of imagery in clients undergoing covert reinforcement and covert sensitization therapy. They describe a Subjective Unit of Imagery scale which would facilitate initial screening of clients who needed imagery practice. Tondo and Cautela (1974), using the Imagery Survey Schedule, assessed high and low imagery subjects on a size estimation task. Danaher and Thoresen (1972) undertook a methodological study and concluded that further validation of various imagery assessment procedures was necessary before implementing them as a diagnostic tool. In addition, they suggest expansion of these procedures to include the training and assessment of somatic and visual sensory awareness.

Covert Modeling

Another potentially powerful technique is covert modeling. Covert modeling has the subject imagine himself in a particular situation while performing certain adaptive behaviors. Kazdin, in several well controlled studies (1973, 1974, 1974a), showed positive behavior change in
the reduction of snake avoidance and the increase of assertive behavior. The addition of covert reinforcement to the modeling technique also facilitated behavior change, while having the subject imagine himself vs. imagining someone else as the model did not affect treatment outcome. The use of a mastery model vs. a coping model has also been studied by Kazdin, as well as Meichenbaum and Cameron (1974). A coping model would be depicted as initially anxious but eventually fearless in fear relevant scenes, and a mastery model would be depicted as performing fearlessly throughout the scenes. In all cases coping model subjects evidenced greater improvement than did mastery model subjects.

Idealized Self-Image

Similar to Kazdin and Meichenbaum's approach of covert modeling is Susskind's (1970) technique referred to as Idealized Self-Image (ISI). This approach which is described below uses expectancy as a major component and is taken from Beck's cognitive theoretical framework.

1) The low self-esteem client is instructed to imagine his ISI with all the characteristics and qualities he would like to possess and could reasonably attain. This stage is viewed as a progressive one with high aspirations being added in increments.
2) The client superimposes his own self-image onto his ISI and changes his current self-image to match his ISI.

3) An incident or experience in which the client feels a sense of accomplishment or satisfaction is then recalled.

4) The client is instructed to extend this feeling to present and future opportunities.

5) The client is told to identify with his ISI in daily living situations, on the job, walking down the street, etc.

This technique may have potential, but needs research. There are at least several areas which need clarification, particularly stages 2, 4 and 5. How does the client merge the two images and change his current image to match his ISI? How and when does one extend the positive feeling into the present and future? What does the author mean by "identify with his ISI" and how does she get the client to do this?

Coveranting

Homme (1965) and Homme and Tosti (1971) use the term coverant, a contraction of covert operant, instead of cue-producing responses (Dollard and Miller, 1950) or self-statements. Coverants are not images, but thoughts. They offer a promising program for self-management of these
coverants. Using the example of smoking they suggest the following sequence: 1) urge to smoke; 2) objection to smoking; e.g., smoking causes cancer; 3) positive reason not to smoke; e.g., I will live longer; and, 4) high probability behavior; e.g., drinking a cup of coffee. They suggest initially practicing this sequence in the absence of the antecedent stimuli, and after this is well established, in the presence of the antecedent stimuli of the target behavior to be decreased. They also suggest making a list of a variety of positive and negative statements and using various statements from the list to avoid loss of effectiveness. Several modified versions of this technique have been studied, (e.g., Keutzer, 1968; Gordon and Sach, 1971). The closest replication was done by Horan and Johnson (1971) with good results, however, further empirical research is needed to corroborate the effectiveness of this procedure. A potential methodological problem is that the individual may be reminded of the behavior to be eliminated. This may lead to an increase rather than a decrease in the target behavior.

Summary

Much of the literature on covert behavior modification suffers from methodological and design problems. Covert events present a complex problem in terms of data collection, in that the subject is the only direct observer of
the data. Self-report and other indirect measure will have to be refined in order to get accurate data. Many covert experiments have failed to: 1) provide explicit definitions of their techniques; 2) assess results in other than self-report form or that the techniques were even followed; 3) use appropriate control groups for other than the self-control technique; 4) pay sufficient attention to demand characteristics, expectancy, reactivity of self-observation; and, 5) provide long term follow-up data. Despite these problems, the literature shows sufficient evidence to warrant the continuation of research in this promising area.
CONCLUSION

Acquiring self-control shifts the focus of control to the individual. He controls his behavior rather than allowing his behavior to be controlled. He manages his environment, both external and internal, rather than allowing his environment to manage him. This is the goal of self-control strategies. The effectiveness of these strategies is the point which must be addressed. The following is a summary of some of the major problems associated with the research in self-control.

The relevant variables affecting self-control strategies have remained relatively obscure partly due to research sparsity and partly because of the inadequacies of many self-control inquiries. Some of these inadequacies stem from experimental naivete and/or carelessness, e.g., the absence of experimental controls or treatment follow-up as in Rutner (1967). The sole use of self-monitoring controls (e.g., Lawson & May, 1970) has probably led to inaccurate estimates of treatment effectiveness. Problems in causal interpretations are present in combined treatment strategies (e.g., Tooley & Pratt, 1967). Broader sampling techniques need to be considered and there is the obvious need for more consistent efforts to avoid external control if self-control effects are to be isolated.
In addition to experimental deficiencies there are several methodological problems which complicate self-control research. Since self-control research is eventually directed toward application, the research must establish both internal and external validity. Regardless of the design chosen, controls must be established for both types of validity. Since all factors cannot be controlled in every study, direct and systematic replications are needed. The reliability of self-observation is another such problem. Many self-control studies have totally relied upon the accuracy and honesty of self-reports. Smoking research, for example, has relied heavily on self-reports. Even obesity studies where the experimenter can observe the end result, leave much question as to the consistency and quality of self-imposed techniques. The ideal research situation is one where a clearly defined target behavior and self-control techniques are unobtrusively observable by the experimenter. This allows for a reliability check on self-reported behavioral frequency and on the actual self-control technology.

Self-control of covert behaviors presents a more formidable problem to researchers seeking reliability. When such behaviors are linked to overt responses the latter may provide an indirect index of treatment effectiveness. Otherwise, a direct inference from self-report to the covert behavior must be employed. Mahoney, et al (1972) have reported that reliability checks can be made on some covert behaviors
and that covert behavior appears to follow the same beha-
vioral principles as does overt behavior. It must be
emphasized that the difficulties inherent in studying co-
vert behavior should not deter continued research into
this area. In addition to the dire need for clinical ap-
plication of covert behavior modification, research efforts
are at least partially justified by existing reports of
successful application.

Two of the purported advantages of training self-control
are that the generalization across time, situations, and/or
behaviors, and the efficiency of the treatment are greater
than in other strategies. However, at the present time
there is a paucity of data to support these assumptions
(Jeffrey, 1974). Hopefully, self-control investigators
will begin to include systematic follow-up and cost-
effectiveness analyses in future studies.

One final research problem in self-control deals with
experimenter and subject biases. Almost all self-control
research suffers from their susceptibility to demand
characteristics and experimenter and subject expectations.
To prescribe a particular technique is tantamount to asking
for a given behavior change. The experimenter's confidence
in a technique also complicates causal interpretation. The
problem of determining experimental control is particularly
apparent in single subject designs. The ABAB design is
seldom used possibly because the subject is unwilling to
reverse a successful treatment approach, or because the behavior is irreversible. One possible solution is the multiple baseline.

The foregoing paper has been a brief review of some of the theoretical underpinnings, research data, and relevant issues in the area of behavioral self-control. While a few sub areas have received the majority of research interest, there is an overall sparsity of empirical investigations into several self-control topics. Reliable data on the relative efficacy of various techniques is rare. The issue of current vs. potential consequences is lacking in the literature. In addition, covert self-control issues have only recently begun to receive their experimental due. In short, there is a great deal of work to be done in the experimental analysis of behavioral strategies for self-control. While this summary presents some of the problems in the self-control literature, there should be little doubt that the area of behavioral self-control is one of the most promising developments in behavior change research.
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