DOCUMENT RESUME

ED 108 084 CG 009 903

AUTHOR Shapiro, Deane H., Jr.
TITLE Zen Meditation and Behavioral Self-Control: Some Similarities and Differences.
PUB DATE [75]
NOTE 39p.; Paper presented at the Annual Meeting of the American Educational Research Association (Washington, D.C., March 30-April 3, 1975)
AVAILABLE FROM Deane H. Shapiro, Jr., P. O. Box 2084, Stanford, California 94035

EDRS PRICE MF-$0.76 HC-$1.95 PLUS POSTAGE
DESCRIPTORS *Behavior; *Behavioral Objectives; *Comparative Analysis; Philosophy; Prevention; Rehabilitation; *Self Control; *Self Directed Groups; Speeches
IDENTIFIERS *Zen Meditation

ABSTRACT

An attempt is made to understand the behaviors involved in two different self-control strategies: Zen meditation and behavioral self-management. The first technique is derived from the Eastern "religious-Philosophical" tradition of Zen Buddhism; the other technique is derived from laboratory and field studies in Western settings. Using tools of naturalistic observation and experimental analysis, Zen meditation is conceptualized as a sequence of behaviors involving certain cues and consequences, and thereby being under explicit contingency arrangements. The same tools of experimental analysis are then applied to the behavioral self-management techniques, and a series of comparisons and contrasts are made between the two. After briefly reviewing the clinical outcome literature for both strategies, the paper concludes with a discussion of the rehabilitative and preventive benefits which may be gained from a combination of the two techniques. (Author)

ZEN MEDITATION AND BEHAVIORAL SELF-CONTROL: SOME SIMILARITIES AND DIFFERENCES

Deane H. Shapiro, Jr.
Psychological Studies Institute
Palo Alto, California

Reprints may be obtained from D. H. Shapiro, Jr., Ph.D., P. O. Box 2084, Stanford, California 94035

ABSTRACT

An attempt is made to understand the behaviors involved in two different self-control strategies: Zen meditation and behavioral self-management. The first technique is derived from the Eastern "religious-philosophical" tradition of Zen Buddhism; the other technique is derived from laboratory and field studies in Western settings. Using tools of naturalistic observation and experimental analysis, Zen meditation is conceptualized as a sequence of behaviors involving certain cues and consequences, and thereby being under explicit contingency arrangements. The same tools of experimental analysis are then applied to the behavioral self-management techniques, and a series of comparisons and contrasts are made between the two. After briefly reviewing the clinical outcome literature for both strategies, the paper concludes with a discussion of the rehabilitative and preventive benefits which may be gained from a combination of the two techniques.

Based on current biofeedback, meditation, and self-control research, a new paradigm of man is emerging within the scientific community. This paradigm conceptualizes the healthy person as an individual who can pilot his own existential fate in the here and now environment, and who can have far greater self-regulatory control over his own body than heretofore imagined. Concomitant with this new paradigm is an attempt to develop and improve techniques by which man can self-observe his behavior, change it (if desired), and then continually modify and monitor it according to his needs.

The goal of this paper is to explore self-control techniques developed within the Eastern "religion" of Zen Buddhism and the Western psychological framework of social learning theory. Because of seemingly different epistomological and cultural frameworks, it might at first appear an impossible task to bridge this gap between an Eastern religious technique, such as Zen meditation, and Western therapeutic strategies, such as self-management skills. There is certainly no doubt that differences both in origin and goals do exist.

For example, formal Zen breath meditation (Zazen) is a single technique which was developed thousands of years ago as a method of attaining religious insight (cf. Lesh, 1970; Weinpahl, 1964; Maupin, 1969). Behavioral self-management techniques, on the other hand, involve a constellation of strategies tailored to specific problem areas, and are the product of recent empirical investigations derived from experimental research in Western laboratories and field settings (cf. Thoresen and Mahoney, 1974; Goldfried and Merbaum, 1973; Mahoney and Thoresen, 1974). In addition, Zen meditation is a technique within a philosophical-religious framework which has a view of man different from the

philosophical view of man upon which social learning theory rests (cf. Suzuki, 1960; Bandura, 1974; Shapiro, 1972). Finally, based on current split brain research (cf. Ornstein, 1972), it may be argued that Zen meditation attempts to strengthen the right side of the brain: i.e., nonrational, nonanalytical, simultaneous integration of material, whereas behavioral self-management strategies strengthen the left side of the brain: i.e., analytical, rational, sequential processing of information.

Despite the fact that the techniques were developed in different eras, for different philosophical purposes, and with different assumptions about the nature of man, systematic investigation of the two techniques is fruitful for several reasons: 1) By looking closely at the behaviors involved in both techniques, it might be possible to determine when behavioral differences in fact exist between the two, and when the supposed differences are merely semantic distinctions. 2) Where behavioral differences do exist, it might be possible to determine whether unique aspects of one could become profitable additions to the other. 3) Social learning theory employs a naturalistic observation technology to identify and measure behaviors and events (cf. Zifferblatt and Hendricks, 1974). By using these tools of experimental analysis (naturalistic observation), it is possible to gain understanding of meditation as a series of behavioral events under explicit contingency arrangements. In this way, meditation is removed from the realm of "mystical practice," accessible only to the select few, and is redefined as a technique which, if useful, could be practiced and understood by many people.

Formal Zen Meditation: A Behavioral Analysis

Preparation

The individual picks a quiet spot, either in a natural setting or in a room set aside for that purpose. If a room is selected, often incense is lit, and the room is semidarkened. In formal Zen meditation, the person sits in a full or half lotus position. In this position he is physically centered, his knees and buttocks forming the solid base of a triangle (Weinpahl, 1964; Kapleau, 1967). His hands are placed together in his lap.

From a behavioral or social learning framework, the location of the meditation setting, the dimness of the lighting, the incense, and the physical posture of the individual are all a type of environmental planning. These behaviors occur prior to the execution of the target behavior (meditation), with the individual prearranging relevant environmental cues to influence the occurrence of the behavior (Thoresen and Mahoney, 1974). The dim lights, the quiet spot, the physical posture, all set the stage for the actual behavior of meditation.

The Target Behavior

Although the posture and environment are helpful prerequisites to proper meditation, they do not, in and of themselves, ensure its occurrence. For example, the studies of Akishige (1968) have shown that it is the mental "attitude" of the Zen meditator, and not his posture, which correlates with EEG changes. When the attitude was right (i.e., when certain covert behaviors were engaged in, and certain others not engaged in), the alpha rhythms appeared in both ordinary postures, such as sitting in a chair, as well as in the formal meditation posture. Without this attitude, there is no rise in alpha activity, even in the formal meditation posture (Akishige, 1968). *Thus, for the practice of proper meditation, the covert behaviors in which the individual engages are*

equally important, if not more so, than the environmental planning.

Essentially, Zen meditation is a five-step process. The beginning meditator is told to breathe through his nose, letting the air come in by extending

INSERT FIGURE ONE ABOUT HERE

his diaphragm: "Don't draw it in, rather let it come to you" (Lesh, 1970). He is taught to count one number (e.g., one two...up to ten) after each exhalation, and to focus his mind on the belly region (see Shapiro, 1974a, for extended description of techniques).

When the person is asked to observe his breathing, there is an alteration in the behavior of breathing. He has difficulty letting the air come to him and catches his breath, breathing more quickly and shallowly than normal. Often he complains that he is not getting enough air, and is "drowning" (Figure One, Step One).

Similarly, in the behavioral self-observation literature, discriminating and labeling a behavior influences the occurrence and response of that behavior (e.g., McFall and Hammen, 1971; Broden, Hall and Mitts, 1971; Kazdin, 1974; Hendricks, Thoresen, and Hubbard, 1974). Soon, however, the person who is meditating forgets about the task at hand, his mind wanders, and he stops focusing on his breath (Figure One, Step Two): a variety of unrelated thoughts and images occur. *This process has also been noted in the behavioral self-observation literature where the subject forgets to record behavior (e.g., Broden, Hall, and Mitts, 1971). When this "forgetting" occurs, or when formal self-observation stops, then the behavior returns to the preself-observation phase (e.g., talking out behavior of Stu, in Borden, Hall and Mitts, 1971; "nonconscious" breathing in meditation).*

In Zen meditation, there is a third stage, not found in the behavioral self-observation literature: the individual is taught to note every time his mind wanders from the task of breathing, and to turn his focus back to that task. "If images or ideas come into awareness, do not follow them, do not try to expel them, but merely relax, let go, and focus on counting the inhalations and exhalations of your breath" (Figure One, Step Three)(Shapiro, 1974a). With practice, the individual learns to focus on his breathing without altering the behavior of breathing (the reactive effect of Step One) and without habituating to the task (as in Step Two). The person is then breathing effortlessly (Figure One, Step Three).

As new thoughts are self-observed, the meditator is able to take note of them and continue focusing on his breathing. Since he is in a relaxed, comfortable, and physically stable posture, he is able to self-observe with equanimity everything that floats before his mind: fears, thoughts, fantasies, guilts, decisions, and other covert events. In this way he becomes "unstressed" to whatever is "on his mind" (Figure One, Step Four) (cf. Goleman, 1971). *This fourth step of meditation is comparable to the behavioral technique of systematic desensitization. In systematic desensitization (Wolpe, 1958, 1969), there is a structured hierarchy of graded anxiety-provoking situations. Before the presentation of any phobic scene, the subject is relaxed by the therapist. In meditation, relaxation (Step Three, effortless breathing) can occur before desensitization (Step Four, "unstressing").*

However, in meditation, no attempt is made to systematically structure the anxiety-provoking stimuli; rather, there occurs what Goleman (1971) has referred to as a "global hierarchy" consisting of things that are currently on a person's mind. Whenever the individual meditates, he learns to look at all that passes before his mind, without making any judgment, and thereby desensitizing himself (unstressing) to his own covert images and statements.

This process of standing back from one's self and one's problems and watching with equanimity, makes the problems seem less drastic and overwhelming, and is referred to in this paper as "detached self-observation." *Within Kanfer's behavioral model of self-management involving self-observation--self-evaluation--self-reinforcement, this type of detached self-observation would presumably alter the subsequent self-evaluation by reducing the self-evaluative threat: i.e., making the problem seem less intense; and by giving the person a sense of strength and control (from the firm, centered posture, and relaxed, focused breathing) so that he need not be afraid to self-evaluate at a subsequent time (Kanfer and Karoly, 1972).*

Further, by focusing on a competing incompatible behavior--breathing--the meditator is able not only to self-observe his thoughts equitably, but eventually to remove them completely from his mind. *This is functionally similar to the process of counterconditioning (Bandura, 1969) in which responses incompatible with maladaptive behavior are practiced, and is also similar to the process of thought-stopping. In behavioral approaches to thought-stopping, the individual, whenever he realizes he is having an unwanted aversive thought, covertly yells "stop!" This technique, one would hypothesize, would habituate quickly, and therefore be ineffective with repeated use (cf. Thoresen and Mahoney, 1974; Hannum, Thoresen, and Hubbard, 1974).* In meditation, however, the person is instructed <u>not</u> to force out the aversive thought, but merely, "relax, let go, and focus on counting the inhalations and exhalations of your breath." Thus, at first, focus on breathing reduces the aversiveness of the thought and desensitizes the individual to it; then, focus on breathing becomes a competing response which eventually removes the thought and empties the mind of "internal chatter." This reduction of thoughts and images (Step Five, Figure One) increases the receptivity of the mind to other covert stimuli typically ignored, the reason Zen and Yoga masters "hear" their internal body

signals so clearly. It further allows the individual to be receptive to whatever is on hand, unblocked by preconceptions and internal chatter (cf. Kasamatsu and Hirari, 1966; Lesh, 1970).

Summary

A behavioral analysis of formal Zen meditation suggests the following: when a person begins to focus on his breathing, there is a "reactive effect": his breath comes faster, he feels as though he is not getting enough air, and forces more air into himself (Step One). Soon, his mind wanders from the task of breathing (habituates to the task, Step Two). The individual is taught to catch himself whenever his mind wanders, and to return to the task of breathing. This will either cause another reactive effect or, with practice, the person will learn to breathe effortlessly (Step Three). At this point the person has learned to observe his breathing without a reactive effect, and without habituation.

As new thoughts come into his mind, he is able to continue to focus on his breathing while at the same time watching the thoughts with equanimity (Step Four). This process forms the dual function of a) desensitizing the individual to the thoughts which enter his mind (detached observation of thoughts); and b) eventually removing those thoughts by the continued focus on the competing response of breathing. In this way, the person feels relaxed, calm, and with a mind emptied of internal chatter (Step Five).

Breath meditation serves several different functions. First, it is a type of relaxation training. The individual sits in a centered posture and breathes in a calm, effortless way. Second, the person learns to focus attention on one thing--his breath--and to do so in a relaxed, yet deliberate, fashion. Third, the person learns to be self-conscious (i.e., to self-observe) without a stumbling, reactive effect and without habituating to the task.

Fourth, he is able to desensitize himself through detached self-observation to "whatever is on his mind": thoughts, fears, worries. And fifth, he is able to stop all thoughts, and have a clear, empty, receptive mind. This allows him to let go of cognitive labels, reopen his senses, and thereby be more in touch with both internal and external stimuli.

Informal Meditation

In addition to formal Zen meditation, an individual often is asked to practice Zen meditation informally throughout the day. This informal meditation requires that one be conscious of everything he does, to attend very closely to ordinary activities. "Be aware and mindful of whatever you do, physically or verbally, during the daily routine of work in your life. Whether you walk, stand, sit, lie down, or sleep, whether you stretch or bend your legs, whether you look around, whether you put your clothes on, whether you talk or keep silent, whether you eat or drink, whether you answer the calls of nature--in these and other activities you should be fully aware and mindful of the act performed at the moment, that is to say, that you should live in the present moment, in the present action" (Rahula, 1959).

Thus, in informal meditation, the individual merely observes all actions that he does throughout the day, without judging or evaluating. As Alan Watts notes, in discussing informal meditation: "Listen. Listen to the sound of your own complaint when the world gets you down, when you are angry, when you are filling out income tax forms. Above all, just listen" (Watts, 1972). The "listening" without comment and without evaluation that occurs during informal meditation is functionally similar to the detached observation of Step Four in formal meditation.

Behavioral Self-Management

Self-Observation

The concept of awareness is a prerequisite for self-change strategies within a behavioral framework. For example, in Kanfer and Phillips' model of behavior psychotherapy, the first step involves teaching the individual how to monitor his own behavior (Kanfer and Phillips, 1966). Other behavioral therapists (e.g., Goldiamond, 1965; Ferster, 1972; Thoresen and Mahoney, 1974) also stress the importance of a functional analysis of the environment as a prerequisite to behavior change. Ferster (1972) has referred to this functional analysis as "outsight therapy," noting that probably the most significant and difficult event to learn to observe is the functional relationship between one's own behavior and the elements of the environment that are controlling it. Yet, he continues, this knowledge of the external functional environment is absolutely necessary for effective action: to learn how to avoid and escape aversive elements, while at the same time acting on positive elements in the environment. In this way, the individual learns to recognize that elements of the environment are controlling his behavior, a necessary first step so that he can manipulate them rather than be manipulated by them.

This awareness is not limited to the external environment, but also includes the monitoring of covert thoughts and feelings, such as physiological reactions, somatic complaints, and covert thoughts and images (Homme and Tosti, 1971; Meichenbaum, 1971; Kazdin, 1974; Thoresen and Mahoney, 1974; Jacobson, 1971; Cautela, 1967, 1971).

In behavioral self-observation strategies, an emphasis is placed on discriminating and labeling certain cues in the internal and external environment, and then examining the antecedents and consequences of specified actions.

Thus, the individual learns to recognize antecedent or initiating stimuli; to recognize consequences maintaining the behavior; and to recognize the behavior itself in terms of its frequency, latency, duration, and intensity.

Zen meditation also focuses attention on inner experiences as well as the external environment. In Zen, however, the goal is to remain aware of the "ongoing present" without dwelling on it. The contrast might be one of a relaxed awareness, a receptive "letting go" compared to an active focusing and dwelling on data (cf. Deikman, 1971). Therefore, unlike behavioral self-observation strategies, no attempt is made to plot data charts, use counting devices, or employ systematic and written evaluation of data gathered from the ongoing present. Furthermore, in Eastern self-observation strategies (cf. Rahula, 1959; Spiegelberg, 1962) the focus of the strategy is on the process of self-observation itself, i.e., nonevaluative, without comment, and the content includes all behaviors; in Western self-observation strategies, the focus of the observation is on the content of the problem area, i.e., the behaviors to be changed or altered.

One of the consequences of behavioral self-observation is that the procedure serves both as a method of gathering data and also as a possible self-change technique. As Kanfer and Karoly (1972) point out, self-observation appears to be intimately linked with self-evaluation and self-reinforcement. And Homme (1971), for example, suggests that the "act of plotting on a graph serves as a positive consequence for self-management, and, once conditioned, the operation of a wrist counter appears to act as a reinforcer in its own right" (p. 4-13). There have been several recent studies attempting to verify this "reactive effect." Most indicate that self-observation of a behavior does influence the occurrence of that behavior, depending on such factors as the valence of the behavior, the timing of the self-observation, the nature of

the response monitored, and the frequency of the observations (cf. McFall, 1970; McFall and Hammen, 1971; Broden, Hall, and Mitts, 1971; Johnson and White, 1971; Thoresen, Hubbard, Hannum, Hendricks, and Shapiro, 1974; Kazdin, 1974). It was noted earlier how a similar reactive effect takes place during Step One of Zen meditation, in which self-observation of the behavior of breathing influences its occurrence.

Thus, in summary, although both meditation and behavioral self-observation strategies involve an initial reactive effect, there are differences, both in terms of the nature of what is observed, and the method by which it is observed.

Self-Evaluation and Goal Setting

In a behavioral self-management strategy, after discriminating, labeling, recording, and charting the data, the individual evaluates the data and often sets a goal for himself (e.g., Kolb and Boyatzis, 1970; Kanfer and Karoly, 1972).

Zen meditation, on the other hand, attempts to teach a person to live in the present, without evaluating it. As Alan Watts put it: "Zen meditation is a trickily simple affair, for it consists only in watching everything that is happening, including your own thoughts and your breathing, without comment" (Watts, 1972, p. 220). This process of watching without comment, of letting the thoughts "flow down the river" when they occur, is what has been referred to in this paper as detached self-observation. The goal in Zen is not to evaluate the effects of self-observation, but rather to just self-observe. Further, Zen also stresses the importance of living in the present without the use of setting goals. For example, Suzuki discusses the dilemma of modern Western man who is so busy striving after future accomplishments that he is unable to appreciate the day-to-day beauty right beside him (Suzuki, 1960).

However, there is a contradiction, or at least a paradox, in the above statements. First, two goals are posited: one is the goal of "living in the

moment" without self-evaluation and the second is the goal of not having any goals. From a behavioral standpoint, a series of techniques are involved which represent a successive approximation toward "goals of nongoals." For example, beginning meditators are taught, as noted earlier, to count from one to ten. More advanced meditators, however, are taught to just count "one" over and over again. This represents an attempt to focus the individual meditator more in the present, without striving after the goal of "reaching ten." Finally, there is a technique for advanced meditators, called Shikan-taza, which means, just sitting, and involves neither focusing on counting nor breathing. Thus, rather than no goals in Zen, there is a series of subgoals designed to help the person reach the goal of being "goal free" and fully in the present.

A similar analysis could be made of the goal of no self-evaluation. In order for an individual to be able to observe himself without comment and without evaluation, he has to be able to discriminate, label, and evaluate those times when he in fact evaluates: e.g., "I'm no longer focusing on breathing; my mind has wandered; I need to again return to the task of breathing; I'm being too self-critical, I should stop being so critical and return to just observing myself." Thus, from a behavioral standpoint, although not denying that Zen, in fact, has a goal of nonevaluation, there is some question as to whether that goal can be reached and maintained without the aid of monitoring and evaluating the effects of one's progress. Seemingly, one must first learn how to evaluate before he can experience nonevaluation.

Environmental Planning

In behavioral self-management, once the individual has become aware of the target behavior, several strategies are available to use. The first of these strategies is environmental planning, which occurs prior to the execution of the target behavior. Examples of environmental planning would

include arranging antecedent or initiating stimuli (e.g., stimulus control); preprogramming certain punishments or reinforcements for specified actions (e.g., self-contract); self-regulated stimulus exposure (e.g., self-administered desensitization); covert self-verbalizations and imagery (e.g., self-instructions) (cf. Thoresen and Mahoney, 1974; Mahoney and Thoresen, 1974).

When an individual picks a quiet, uncluttered spot for meditation, he is engaging in environmental planning. Similarly, if he lights incense to block out other smells and to help him focus his attention on breathing, or, if he meditates with a group of people in order to help ensure daily practice, he is attempting to bring his behavior under stimulus control, and/or use social reinforcement to encourage the performance of certain actions. Further, in Zen meditation, the use of the Kwat, a slap by the master to a "nonconcentrating student," represents a preprogramming of physical punishment to reduce "nonalert" behavior.

It is important to note, however, that although the meditator prearranges environmental cues, and may use social reinforcement and consequences to influence the occurrence and proper execution of meditative behavior, the long-term goal of meditation is eventually to eliminate the need for social consequences, environmental cues, or even covert self-reinforcement. In the beginning, however, the need for these cues and consequences is both recognized and utilized.

Systematic desensitization. Wolpe (1958, 1969) borrowed from Jacobson's relaxation techniques, and used them as the first step in his three-step process of systematic desensitization. Wolpe hypothesized on the basis of reciprocal inhibition that the presence of a phobic or stressful event would extinguish if it could symbolically occur in the presence of an incompatible response, such as relaxation:

> ...The ability of a given stimulus to cause anxiety is weakened if a response antagonistic to anxiety can be made to occur in the presence of the anxiety-evoking stimuli. This can cause a complete or partial suppression of the anxiety response. (Wolpe, 1958.)

Wolpe had the patient construct elaborate hierarchies, labeling them in ascending order of subjective units of disturbance (SUD). He would relax the S using Jacobson's method and, once the S was relaxed, have him visualize the lowest SUD anxiety-producing item on the hierarchy. If S began to feel tense, Wolpe would have him dismiss the image, and continue to relax. If the S felt no tension, the therapist would have him imagine the next highest tension-producing item.

More recent work has altered the Wolpe paradigm in both theory and practice. Wolpe believed that relaxation should precede the fear-arousing imagery. The new paradigm has the fear-arousing situation become a discriminative stimuli (S^d) for relaxation. This technique has been successfully used by several investigators (e.g., Goldfried, 1973; Jacks, 1972; Menefee and Thoresen, 1975; Suinn and Richardson, 1971). After training in deep muscle relaxation, the person learns to discriminate anxiety by imagining the fear-arousing situation and maintaining that situation in the imagination. While maintaining the tension, the person uses relaxation and positive imagery to reduce it.

These two paradigms were compared in a group study involving acrophobics. One group practiced the passive paradigm (relaxation before phobic scene and avoidance of arousal) and one group practiced the active paradigm (fear arousal as a discriminative stimulus for active relaxation and positive imagery). On both self-report and actual performance test of climbing and looking down from a twelve-story building, subjects in the active, "stress as a cue to relax" procedure did significantly better (Jacks, 1972).

INSERT FIGURE TWO ABOUT HERE

Step Four of formal Zen meditation is similar to the Wolpe paradigm in that relaxation precedes the feared image. However, it is different in that there is no structured hierarchy of anxiety producing events, but rather, as pointed out earlier in the paper, a "global desensitization."

Behavioral Programming

The second of the behavioral self-management strategies is behavioral programming. In behavioral programming, the individual presents himself with consequences following the outcome of a target behavior. These consequences can be either verbal, imaginal, or material self-reward (positive or negative, overt or covert) or verbal, imaginal, or material self-punishment (positive or negative, overt or covert) (Thoresen and Mahoney, 1974; Mahoney, 1974).

As Zen does not espouse attachment to material possessions (e.g., material self-reward), of particular interest to the discussion here is the behavioral literature on covert events--both imaginal and verbal. *It is only within the last ten years that behavioralists have actively begun to pay attention to covert events, finally entering the "lion's den of private events" (Kanfer and Karoly, 1972; Cautela, 1971, 1967; Meichenbaum, 1971; Homme, 1965; Mahoney and Thoresen, 1974; Thoresen and Mahoney, 1974). This expansion into the study of covert events has occurred for several reasons. First, improved scientific instrumentation has made it possible to study some internal processes (e.g., research on biofeedback). Second, animal studies (e.g., Miller, 1969) began to question the traditional distinctions of operant and classical conditioning, especially the interdependence of environmental-cognitive influence processes and the primary role of "symbolic processes" in behavior change. Third, the*

clinical experiences of clients and patients have always involved maladaptive cognitive problems.

As early as 1964, Skinner stated that "self-reported, unobservable phenomena are justified if they delineate functional behavioral relationships." L. Homme (1965) in a seminal article entitled "Control of Coverants, the Operants of the Mind," hypothesized that a behavioral relationship existed between what a person said to himself covertly, and his subsequent overt behavior. He coined the term coverant: a covert operant. A coverant refers to covert behavior (thinking, ruminating, reflecting) which operates or works on the environment.

There have been several recent studies attempting to show the relationship between covert events and overt actions. Cautela has discussed the use of covert sensitization (covert imagery as punishment) as a technique for modifying maladaptive approach behavior such as alcoholism (cf. Ashem and Donner, 1968); sexual behavior (cf. Davison, 1968; Barlow, Leitenberg, and Agras, 1969); and obesity. An interesting example of covert imagery as punishment is cited by Ferster (1965). Ferster discussed the use of Ultimate Aversive Consequences (UAC) in which the individual (e.g., with a problem of smoking) imagines an aversive future consequence (e.g., lungs rotting, doctors talking over his decayed body) every time he begins to engage in the maladaptive behavior (e.g., lighting a cigarette). The individual thereby learns to modify his overt behavior by covertly summoning up aversive future consequences at the onset of his present maladaptive activity.

Cautela also discussed the use of covert desensitization in order to modify maladaptive avoidance responses, and cites literature suggesting that covert self-reinforcement, both positive and negative, can be used to modify maladaptive approach or avoidance behavior (Cautela, 1967, 1971; cf. Bandura, 1974).

Other studies have taken Homme's Coverant Control Therapy Paradigm (Homme, 1965) based on the Premack principle (Premack, 1965) and successfully applied it to modifying covert thoughts: increasing positive self thoughts, decreasing negative self thoughts (Mahoney, 1971; Johnson, 1971). Further, it has been shown that covertly practicing the behavior (behavioral rehearsal) is a successive approximation of the overt act, and increases the likelihood of its successful occurrence (Johnson, 1971).

Because of the importance of covert events suggested by these studies, behavioral therapists are paying increasing attention to the internal environment. Below are two examples of anxiety management training packages which give concrete illustrations of the use of internal events in self-management strategies (Suinn and Richardson, 1971; Meichenbaum, 1971; cf. also, Mahoney, in press).

Suinn and Richardson developed an anxiety-management training package in which anxiety cues or other discriminative stimuli were used to promote nonanxious, incompatible actions such as relaxation and positive imagery. The training package lasted two and one-half hours. The first thirty minutes consisted of deep muscle relaxation. One hour was spent on training S to visualize anxiety-arousing scenes in which S saw himself acting in a competent and successful fashion; then S was asked to visualize a scene in which he was feeling calm and relaxed. The final hour was more of the same (Suinn and Richardson, 1971).

A similar training package has been developed by Meichenbaum (1971) for use with acting-out, impulsive children, and with schizophrenics. He refers to the training package as a type of stress innoculation, in which S is "injected with psychological antibodies." His procedure involved 1) a Schacterian explanation of emotion; 2) practice in controlling arousal by means of muscular relaxation and slow, deep breathing; and 3) practice in

rehearsing self-instructions to cope with stress situations (e.g., "relax, I am in control, I can handle the situation") (Meichenbaum, 1971).

Both these training packages involve a shift away from the Wolpe model of desensitization discussed earlier, and towards the Goldfried model. Further, the training packages illustrate an expansion in methodology of social learning principles, such that internal private events are now considered legitimate foci for scientific investigation.

In formal meditation, there is also a great interest in and focus on internal thoughts and images. However, the goals are somewhat different in that the individual is instructed not to pay attention to internal thoughts and images, and to "let them float on down the stream of consciousness." Therefore, although the beginning meditator may subvocalize such cues as "relax; keep focused on your breathing; your mind has wandered, better return to breathing again," the goal of formal Zen meditation is eventually to have an empty mind, uncluttered by covert statements and images (Steps Four and Five, Figure One).

A Synthesis of Zen Meditation and Behavioral Self-Management Techniques

It is clear from the preceding discussion that many differences and similarities exist between formal Zen meditation and behavioral self-management techniques. One of the more important clinical questions, however, still remains unexplored: Can these techniques complement each other to provide a more effective treatment strategy in combination than either strategy when practiced alone?

Informal Meditation Plus Behavioral Self-Management Techniques: "Contingent Informal Meditation"

Current research is suggesting that the technique of informal meditation can be made a more powerful clinical intervention strategy by making its

performance contingent upon certain antecedent cues, and by coupling it with covert self-imagery, covert self-statements, and focused breathing (cf. Shapiro, 1974a; Shapiro and Zifferblatt, 1975; Boudreau, 1972). In this new model, the subject does not listen noncontingently to all events occurring throughout the day (informal meditation) but rather, discriminates only specified cues in the internal and external environment (e.g., tension, anger, anxiety, social events). Once the individual has discriminated those cues, he then self-observes in a "detached" nonevaluative manner, as in informal meditation. However, he also focuses on breathing and covertly initiates cues to relax, to feel in control, and images himself acting in a relaxed, competent fashion.

Thus, informal meditation may be made into a more powerful clinical intervention strategy in two ways: 1) by making its performance contingent upon certain internal and external cues; and 2) by coupling it with covert imagery, self-instructions, and focused breathing. Likewise, the behavioral self-management strategy may be made more powerful by the addition of the detached observation "listening" derived from informal meditation.

Formal Meditation Plus Behavioral Self-Management Techniques

The acquisition of formal meditation behavior can be facilitated by borrowing from certain behavioral self-management techniques. For example, individuals have been given a wrist counter and instructed to punch the counter every time their mind wandered from the task of breathing. The punching of the wrist counter was then made a discriminative stimulus for returning attention to the task of breathing. Functionally, a tool used in behavioral self-observation (the wrist counter) took the place of the Kwat of the Zen monk. Through behavioral technology, the individual was aided in learning when his mind wandered from the task (Figure One, Step Two), and in bringing it back

to the task (Figure One, Step Three), thus facilitating the acquisition and proper performance of formal meditation (cf. Shapiro and Zifferblatt, 1975; Van Nuys, 1971).

Conversely, there are certain aspects of formal meditation that complement and facilitate behavioral self-management skills. For example, during formal meditation, the individual learns to unstress (desensitize) himself (Step Four, Figure One) and to empty his mind of covert chatter and images (Step Five, Figure One). By meditating formally twice a day, the individual is thereby able to be more alert and responsive to stress situations occurring at other times during the day. Thus, the ability to relax and have a "clear mind" gained during formal meditation helps facilitate an individual's performance of a behavioral functional analysis of internal and external cues throughout the rest of the day (cf. Shapiro and Zifferblatt, 1975).

Secondly, formal meditation gives the individual practice in noticing when his mind wanders from a task. At first there is usually a long time period which elapses between the mind wandering and the realization that the mind has wandered. With practice, however, the person learns to "catch himself" almost as soon as he stops focusing on his breathing. Similarly, in behavioral self-management strategies, often several minutes or longer pass before the individual realizes that he is supposed to have discriminated a cue and subsequently interrupted the maladaptive behavioral chain. For example, the chronic smoker illustrates this lack of awareness (Premack, 1970) as does the heroin addict (cf. Shapiro and Zifferblatt, 1975). The practice of discriminating a stimulus (e.g., wandering mind) gained during formal meditation should generalize to the situations involved in behavioral self-management strategies (e.g., reaching for a cigarette, the "need" for a fix). As such, the individual should be aided in eventually discriminating the stimulus immediately upon its occurrence,

thereby placing him in a much better position to interrupt a maladaptive behavioral sequence.

The third way in which formal meditation aids behavioral self-management strategies involves the cognitive set which meditation can help give its practitioner. Formal meditation allows the individual an opportunity for fixed reference points in the day during which he feels relaxed, calm, and in control. Therefore, upon recognizing tension at subsequent points during the day, the individual should be able to say, "I was relaxed, calm, and in control this morning," thereby attributing current stress to a specific situation, rather than to an "anxious personality trait" (Mischel, 1968, 1971). In this way the person increases his feelings of self-control and learns to perceive himself as a responsible individual who has the ability to control his own behavior and actions (Rotter, 1966, 1969; Lefcourt, 1966).

Fourth, there are aspects of the technique of formal meditation which make it more powerful in certain respects than behavioral self-management techniques. Other techniques such as autogenic training (Luthe, 1968), self-hypnosis (Paul, 1969), or relaxation with covert self statements (cf. Jacobson, 1971; Meichenbaum, 1971) employ certain covert images and statements (e.g.,"I am feeling warm; my right arm feels heavy; I am feeling relaxed"). In formal Zen meditation, the individual does not say anything to himself, nor does he attempt to engage in positive covert images or thoughts. It is this absence of preprogrammed covert thoughts and images which allows the meditator to observe "what's on his own mind." Repetition of preprogrammed covert statements and images would interfere with this process (Figure One, Step Four), and would also prevent the mind from ever becoming "empty" (Figure One, Step Five) because the mind would be filled continually with the repetition of these preprogrammed images and statements.

Finally, because the individual has been able to step back from his fears, concerns, worries, and observe them in a detached, relaxed way during formal meditation, afterwards he can think about the fears and evaluate how he wants to act without being overwhelmed or oppressed by them. Thus, even though during the process of formal meditation there is ideally no thinking or evaluation, subsequent to meditation the individual is well-prepared to think and make decisions. In this way, meditation helps produce "self-observation conditions such that inner feedback for behavior change is optimal" (Goleman, 1971).

Summary

In summary, formal meditation is aided by a technique from behavioral self-observation (i.e., a counting device); informal meditation is made more powerful by making it contingent upon certain internal and external cues, and by coupling the listening (detached self-observation) with covert imagery, self-statements, and focused breathing.

Formal meditation may aid behavioral self-management strategies in several ways: increased alertness to contingent cues throughout the day, facilitating behavioral functional analysis; fixed reference points of calmness; and smaller time lags in recognizing cues, thereby facilitating interruption of maladaptive behavior sequences.

Further, formal meditation's absence of preprogrammed covert images and statements allows the individual to "empty his mind of internal chatter," thereby allowing him a clear mind so that after meditation he can more easily make decisions.

Conclusion

Both Zen meditation and behavioral self-management strategies occur within theoretical frameworks which postulate that the locus of control or change is man himself; both strategies also endeavor to provide man with specific tools

to become more self-aware and to modify, if desired, one's own behavior.

Current research suggests that Zen meditation or behavioral self-management techniques alone provide potentially effective self-directed attempts to control one's everyday life, thoughts, and feelings. For example, researchers have found meditation effective in reducing fear (Boudreau, 1972); curbing drug abuse (Benson and Wallace, 1971; Brautigam, 1971); developing empathy in counselors (Lesh, 1970); decreasing generalized anxiety (Shapiro, 1974a;) and reducing blood pressure and hypertension (Wallace and Benson, 1972; Datey, Deshmukh, Dalui, and Vinekar, 1970). Behavioral self-management literature reveals effectiveness of social learning strategies applied to a variety of problems, such as weight reduction (Mahoney, Moura, and Wade, 1973; D. Balfour Jeffrey, 1974); curbing smoking (Premack, 1970; Axelrod, Hall, Weis, and Rohrer, 1974); changing negative self-thoughts (Hannum, Thoresen, and Hubbard, 1974); reducing fears (Jacks, 1972), and in other clinical areas (cf. Cautela, 1971; Meichenbaum, 1971; Bandura, 1974; Thoresen and Mahoney, 1974; Goldfried and Merbaum, 1973).

These studies suggest the clinical intervention effectiveness of the techniques of meditation and behavioral self-management alone. Subsequent research should determine whether a combination of the two techniques will, in fact, be more powerful in dealing with applied clinical problems. To this end, pilot studies have applied a treatment package combining Zen meditation and behavioral self-management techniques to clinical areas such as drug abuse (Shapiro and Zifferblatt, 1975); stress and tension management (Shapiro, 1974a); and are currently extending these investigations to both rehabilitative programs, such as coronary problems (Zifferblatt, 1975) as well as to preventive and educational programs (cf. Shapiro, 1974b; 1975). Although the results of these pilot studies combining behavioral self-management and

Zen meditation techniques are tentative and need replication, the continued exploration of the applied interface between Eastern disciplines and Western psychology promises to be a most important and clinically useful area for further investigation.

REFERENCES

Akishige, Y. Psychological studies on Zen. Bulletin of the Faculty of Literature, Kyushu University, Japan: V, 1968.

Anandi, B. K., Chhina, E. S., & Singh, B. Some aspects of electroencephalographic studies in Yogis. EEG Clinical Neurophysiology, 1961, 13, 452-456.

Ashem, B., & Donner, L. Covert sensitization with alcoholics: A controlled replication. Behavior Research and Therapy, 1968, 6, 7-12.

Axelrod, S., Hall, V., Weis, L., & Rohrer, S. Use of self-imposed contingencies to reduce the frequency of smoking behavior. In M. J. Mahoney & C. E. Thoresen (Eds.) Self-control: Power to the person. Monterey: Brooks-Cole, 1974. Pp. 77-86.

Bandura, A. Principles of behavior modification. New York: Holt, Rinehart & Winston, 1969.

Bandura, A. Self-reinforcement processes. In M. J. Mahoney & C. E. Thoresen (Eds.) Self-control: Power to the person. Monterey: Brooks-Cole, 1974 86-111; reprinted from R. Glaser (Ed.), The nature of reinforcement. New York: Academic Press, 1971, Pp. 228-278.

Bandura, A. Behavior theory and the models of man. American Psychologist, 1974, 29, 859-869.

Barber, T., DiCara, L. V., Kamiya, J., Miller, N. E., Shapiro, D., & Stoyva, J. (Eds.) Biofeedback and self-control. Chicago: Aldine, 1970.

Barlow, D. H., Leitenberg, H., & Agras, W. S. Experimental control of sexual deviation through manipulation of the noxious scene in covert sensitization. Journal of Abnormal Psychology, 1969, 74, 597-601.

Bem, D. Self-perception theory. In L. Berkowitz (Ed.), Advances in experimental social psychology. Vol. 6. New York: Academic Press, 1972. Pp. 1-62.

Benson, H. & Wallace, R. Decreased drug abuse with Transcendental Meditation: A study of 1962 subjects. Narcotics research rehabilitation and treatment: Hearings before the select committee on crime, House of Representatives, Washington, D. C., 1971.

Boudreau, L. Transcendental meditation and yoga as reciprocal inhibitors. Journal of Behavior Therapy and Experimental Psychiatry, 1972, 3, 97-8.

Brautigam, E. The effects of Transcendental meditation on drug abusers. Unpublished research report. Malmo, Sweden, 1971.

Breuer & Freud, S. Studies in hysteria (James Strachey, tr.), 1895. In The standard edition of the complete psychological works of Sigmund Freud (Vol. 2). London: Hogarth Press and the Institute of Psychoanalysis, 1962.

Broden, M., Hall, R. V., & Mitts, B. The effects of self-recording on the classroom behavior of two eighth-grade students. Journal of Applied Behavioral Analysis, 1971, 4(3), 191-199.

Cautela, J. R. Covert sensitization. Psychological Record, 1967, 20, 459-468.

Cautela, J. R. Covert conditioning. In A. Jacobs & L. B. Sachs (Eds.), The psychology of private events: Perspectives on covert response systems. New York: Academic Press, 1971. Pp. 109-130.

Datey, K. K., Deshmukh, S. N., Dalui, C. P., & Vinekar, S. L. Shavasan, a yogic exercise in the management of hypertension. Angiology, 1969, 20, 325-333.

Davison, G. C. Elimination of a sadistic fantasy by a client-controlled counter-conditioning technique: A case study. Journal of Abnormal Psychology, 1968, 73, 84-90.

Davison, G. C. Counter-control in behavior modification. In L. Hamerlynck, L. Handy, & G. Mash (Eds.), Behavior change: Methodology, concepts, practice. Illinois: Research Press, 1973.

Deikman, A. Bimodal consciousness. Archives of General Psychiatry, 1971, 25, 481-489.

Ferster, C. B. Classification of behavior pathology. In L. Krasner & L. P. Ullman (Eds.), Research in behavior modification. New York: Holt, Rinehart, & Winston, 1965. Pp. 6-26.

Ferster, C. B. An experimental analysis of clinical phenomena. Unpublished manuscript. American University, 1972.

Goldfried, M. R. Reduction of generalized anxiety through a variant of systematic desensitization. In M. R. Goldfried & M. Merbaum (Eds.), Behavior change through self-control. New York: Holt, Rinehart, & Winston, 1973. Pp. 297-304.

Goldfried, M. R. & Merbaum, M. (Eds.), Behavior change through self-control. New York: Holt, Rinehart, & Winston, 1973.

Goldiamond, I. Self-control procedures in personal behavior problems. Psychological Reports, 1965, 17, 851-868.

Goleman, D. Meditation as metatherapy. Journal of Transpersonal Psychology, 1971, 1.

Hannum, J., Thoresen, C., & Hubbard, D. A behavioral study of self-esteem with elementary teachers. In M. Mahoney & C. E. Thoresen (Eds.), Self-control: Power to the person. Monterey, California: Brooks-Cole, 1974. Pp. 144-156.

Hendricks, C. G., Thoresen, C. E., & Hubbard, D. The effects of self-observation on elementary teachers. Stanford Research & Development in Teaching Memorandum, 1974.

Homme, L. E. Perspectives in psychology: XXIV. Control of coverants, the operants of the mind. Psychological Record, 1965, 15, 501-511.

Homme, L. E. & Tosti, D. Behavior technology: Motivation and contingency management. San Rafael, California: Individual Learning Systems, 1971.

Jacks, R. Self-management versus desensitization in the treatment of acrophobia. Unpublished doctoral dissertation. Stanford, School of Education, Stanford University, 1972.

Jacobson, E. The two methods of tension control and certain basic techniques in anxiety tension control. In J. Kamiya, T. Barber, L. V. DiCara, N. E. Miller, D. Shapiro, & J. Stoyva (Eds.), Biofeedback and self-control. Chicago, Aldine, 1971. Pp. 463-482.

Jaffrey, D. B. Relative efficacy of external control and self-control in the production and maintenance of weight loss. Paper presented at the 82nd American Psychological Association Convention, New Orleans, 1974.

Johnson, S. M. & White, G. Self-observation as an agent of behavioral change. Behavior Therapy, 1971, 2, 488-497.

Johnson, W. G. Some applications of Homme's coverant control therapy: Two case reports. Behavior Therapy, 1971, 2, 240-248.

Kamiya, J., Barber, T., DiCara, L. V., Miller, N. E., Shapiro, D., & Stoyva, J. (Eds.), Biofeedback and self-control. Chicago: Aldine, 1971.

Kanfer, F. H. & Goldfoot, D. A. Self-control and tolerance of noxious stimulation. Psychological Reports, 1966, 18, 79-85.

Kanfer, F. M. & Karoly, P. Self-control: A behavioristic excursion into the lion's den. Behavior Therapy, 1972, 3, 398-416.

Kanfer, F. M. & Phillips, J. S. Behavior therapy: A panacea for all ills or a passing fancy? Archives of General Psychiatry, 1966, 15, 114-128.

Kapleau, A. Three pillars of Zen. Boston: Beacon Press, 1967.

Kasamatsu, A., & Hirari, T. An electroencephalographic study of the Zen meditation (Zazen). Folia Psychiatria et Neurologica Japonica, 1966, 20, 315-335. Reprinted in C. Tart (Ed.), Altered states of consciousness. New York: Wiley, 1969.

Kazdin, A. E. Self-monitoring and behavior change. In M. Mahoney & C. E. Thoresen (Eds.), Self-control: Power to the person. Monterey, California: Brooks-Cole, 1974. Pp. 218-247.

Kolb, D. A. & Boyatzis, R. E. Goal setting and self-directed behavior change. Human Relations, 1970, 23, 439-458.

Kostenbaum, P. The vitality of death: essays in existential philosophy and psychology. Westport, Connecticut: Greenwood Press, 1967.

Lefcourt, H. M. Internal versus external control of reinforcement: A review. Psychological Bulletin, 1966, 65, 206-220.

Lesh, T. Zen meditation and the development of empathy in counselors. Journal of Humanistic Psychology, 1970, 10, 39-74.

Luthe, W. Autogenic training: Method, research, and applications in medicine. In C. Tart (Ed.), Altered states of consciousness. New York: Wiley, 1968. Pp. 309-321.

Mahoney, M. The self-management of covert behavior: A case study. Behavior Therapy, 1971, 2, 575-578.

Mahoney, M. Research issues in self-management. In M. Mahoney & C. E. Thoresen (Eds.), Self-control: Power to the person. Monterey, California: Brooks-Cole, 1974. Pp. 247-263.

Mahoney, M. Cognitive behavior modifications. Boston: Ballinger, in press.

Mahoney, M., Moura, N. G. M., & Wade, T. C. The relative efficacy of self-reward, self-punishment, and self-monitoring techniques for weight loss. Journal of Consulting and Clinical Psychology, 1973, 40, 404-407.

Mahoney, M. J. & Thoresen, C. E. Self-control: Power to the person. Monterey, California: Brooks-Cole, 1974.

Maupin, E. Individual differences in response to a Zen meditation exercise. In C. Tart (Ed.), Altered states of consciousness. New York: John Wiley, 1969. Pp. 187-199.

McFall, R. M. The effects of self-monitoring on normal smoking behavior. Journal of Consulting and Clinical Psychology, 1970, 35, 135-142.

McFall, R. M. & Hammen, C. L. Motivation, structure, and self-monitoring: The role of nonspecific factors in smoking reduction. Journal of Consulting and Clinical Psychology, 1971, 37, 80-86.

Meichenbaum, D. Cognitive factors in behavior modification: Modifying what people say to themselves. Paper presented at the Fifth Annual Meeting of the Association for the Advancement of Behavior Therapy, Washington, D. C., 1971.

Meichenbaum, D. & Cameron, R. The clinical potential of modifying what clients say to themselves. In M. J. Mahoney & C. E. Thoresen (Eds.), Self-control: Power to the person. Monterey, California: Brooks-Cole, 1974. Pp. 263-290.

Menefee, M. and Thoresen, C. E. The use of contact desensitization in treating acrophobia. Unpublished doctoral dissertation, Stanford University, 1975.

Miller, N. G. Learning of visceral and glandular responses. Science, 1969, 163, 434-453.

Mischel, W. Personality and assessment. New York: Wiley, 1968.

Mischel, W. Introduction to personality. New York: Holt, Rinehart & Winston, 1971.

Naranjo, C. Meditation: Its spirit and techniques. In C. Naranjo and R. Ornstein, The psychology of meditation. New York: Esalen-Viking, 1971.

Ornstein, R. The techniques of meditation and their implications for modern psychology. In C. Naranjo & R. Ornstein, The psychology of meditation. New York: Esalen-Viking Press, 1971.

Ornstein, R. The psychology of consciousness. San Francisco: W. H. Foreman, 1972.

Paul, G. Physiological effects of relaxation training and hypnotic suggestion. Journal of Abnormal Psychology, 1969, 74, 425-437.

Premack, D. Reinforcement theory. In D. Levine (Ed.), Nebraska symposium on motivation. Lincoln: University of Nebraska Press, 1965. Pp. 123-180.

Premack, D. Mechanisms of self-control. In W. Hunt (Ed.), Learning and mechanisms of control in smoking. Chicago: Aldine, 1970. Pp. 107-123.

Rahula, W. What the Buddha taught. New York: Grove Press, 1959.

Reps, P. Zen flesh, Zen bones. Vermont: Charles Tuttle, 1958.

Rogers, C. E. On becoming a person: A therapist's view of psychotherapy. Boston: Houghton Mifflin, 1961.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80 (1, Whole No. 609).

Rotter, J. B. Internal-external control scale. In J. Robinson & P. Shaver (Eds.), Measures of social psychological attitudes. Ann Arbor, Michigan: University of Michigan Press, 1969.

Schacter, S. The interaction of cognitive and physiological determinants of emotional states. In L. Berkowitz (Ed.), Advances in experimental social psychology. New York: Academic Press, 1964, Vol. 1. Pp. 49-80.

Schacter, S. & Singer, J. Cognitive, social, and physiological determinants of emotional state. Psychological Review, 1962, 69, 379-399.

Schwartz, G. E. Meditation as an altered trait of consciousness: Current findings of stress reactivity and creativity. Paper presented at the annual meeting of American Psychological Association, New Orleans, 1974.

Shapiro, D. The role of self-awareness in four systems of therapy: Id psychology, ego psychology, social learning theory, & Zen Buddhism. Unpublished manuscript, Stanford University, 1972.

Shapiro, D. Meditation: Theory, research, practice. Paper presented at the annual meeting of the American Psychological Association, Montreal, 1973.

Shapiro, D. Zen meditation and behavioral self-management applied to a case of generalized anxiety. Submitted for publication. 1974a.

Shapiro, D. Behavioral and attitudinal changes resulting from a "Zen experience" workshop and Zen meditation. Submitted for publication. 1974b.

Shapiro, D. Values, identity, and self-control: An East-West approach. Grant proposal submitted to National Science Foundation. January, 1975.

Shapiro, D. & Shapiro, J. The implications of Zen meditation and values for counseling: Intervention strategy and preventive therapy. Research in Education, Educational Resource Information Center. Ann Arbor, Michigan: July, 1974.

Shapiro, D. & Zifferblatt, S. The use of a Zen meditation—behavioral self-management training package in reducing opioid addiction: A case study. Submitted for publication, 1975.

Skinner, B. F. Behaviorism at fifty. In T. W. Wann (Ed.), Behaviorism and phenomenology. Chicago: University of Chicago Press, 1964. Pp. 79-108.

Skinner, B. F. Contingencies of reinforcement. New York: Appleton-Century-Crofts, 1969.

Spiegelberg, F. Spiritual practices of India. New York: Citadel Press, 1962.

Suinn, R. & Richardson, R. Anxiety management training: A non-specific behavior therapy program for anxiety control. Behavior Therapy, 1971, 2, 498-510.

Suzuki, D. T. Lectures in Zen Buddhism. In E. Fromm, D. T. Suzuki, & DeMartina, Zen Buddhism and Psychoanalysis. New York: Harper-Collephon, 1960.

Thoresen, C. E., Hubbard, D., Hannum, J., Hendricks, C. G., & Shapiro, D. H. Self-observation training with a nursery school teacher. Research and Development Report No. 110, Palo Alto, California: Stanford Center for Research and Development in Teaching, June, 1973.

Thoresen, C. E. & Mahoney, M. J. Behavioral Self-Control. New York: Holt, Rinehart, & Winston, 1974.

Timmons, B., Salamy, J., Kamiya, J., & Girton, D. Abdominal, thoracic respiratory movements and levels of arousal. Psychon. Science, 1972, 27(3), 173-175.

Ullman, L. & Krasner, L. A psychological approach to abnormal behavior. Englewood Cliffs. New Jersey: Prentice-Hall, 1969.

Van Nuys, D. A novel technique for studying attention during meditation. Journal of Transpersonal Psychology, 1971, 3, 125-133.

Wallace, R. & Benson, H. The physiology of meditation. Scientific American, New York: 1972, 84-92.

Watts, A. The sound of rain. Playboy. April, 1972.

Weinpahl, P. The matter of Zazen. New York: New York University Press, 1964.

Wolpe, J. Psychotherapy by reciprocal inhibition. Palo Alto, California: Stanford University Press, 1958.

Wolpe, J. The practice of behavior therapy. New York: Pergamon Press, 1969.

Zifferblatt, S., Hendricks, C. G. Applied behavioral analysis of societal problems. American Psychologist, 1974, 28, 750-761.

Zifferblatt, S. Self-management training for stress and tension reduction in coronary disease prone patients. Manuscript in process. Stanford University, Department of Psychiatry, 1975.

Zimbardo, P., Maslach, P., & Marshall, G. Hypnosis and the psychology of cognitive and behavioral control. In E. Fromm & R. E. Shor (Eds.), Hypnosis: Research developments and perspectives. Chicago: Aldine, 1972.

FIGURE 1

PROCESS OF ZEN MEDITATION
(A Behavioral Analysis)

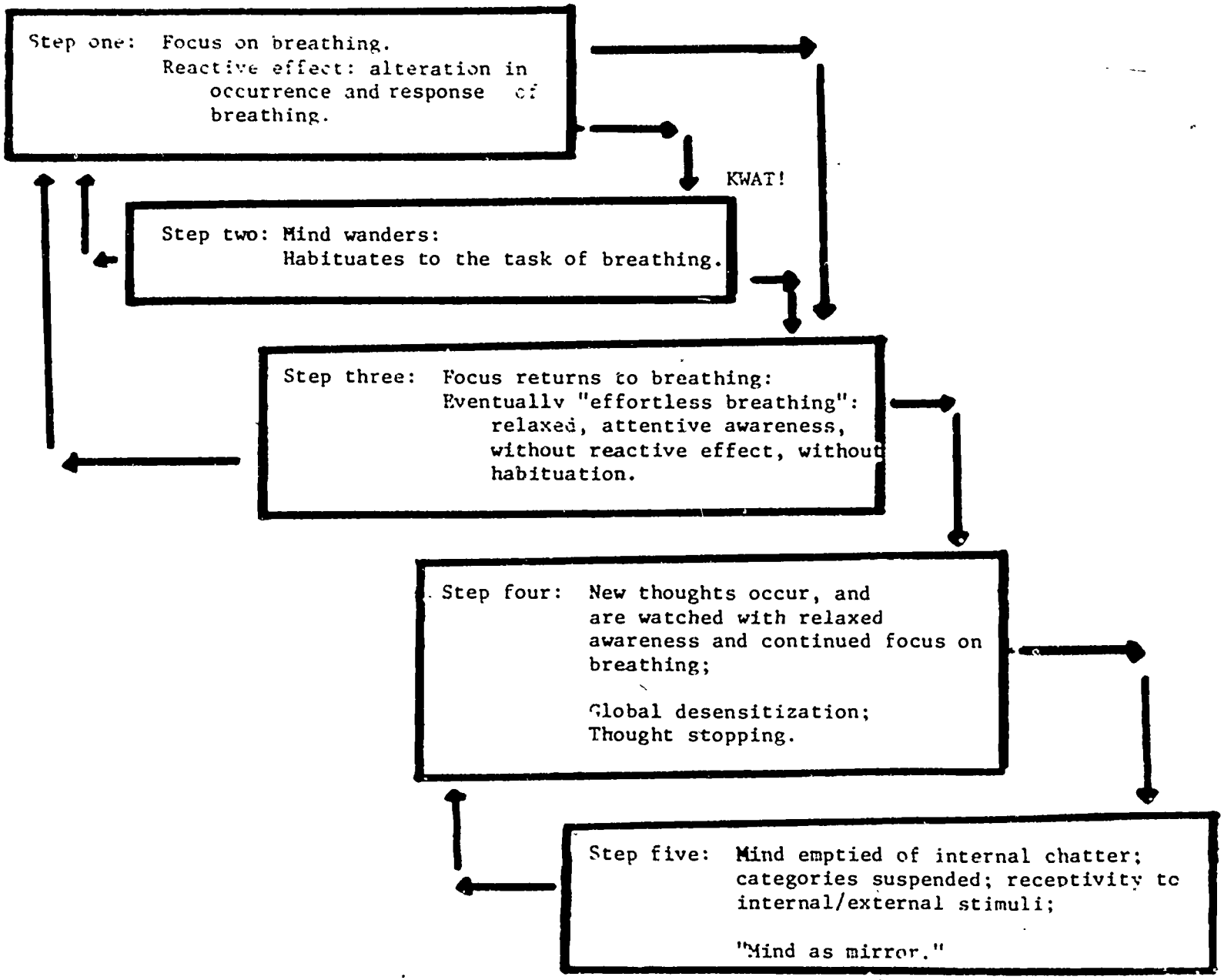

Figure 2: COMPARISON OF MEDITATION

AND BEHAVIORAL SELF-MANAGEMENT TECHNIQUES

TOPICS:	FORMAL MEDITATION	*BEHAVIORAL SELF-MANAGEMENT*	INFORMAL MEDITATION	CONTINGENT INFORMAL MEDITATION
ENVIRONMENTAL PLANNING: • where intervention strategy occurs:	Specified setting (e.g., room, or in nature). Reduced external stimuli to initially help individual focus on object of meditation.	*In natural environment where problem behavior occurs; or symbolically in neutral environment.*	Occurs in natural environment;	[illegible] self-management:
• if stimulus cues are used;	Stimulus cues (control): e.g. incense; or, in case of concentrative meditation, the object of meditation as stimulus cue.	*Specified cues in natural environment (programming antecedent or initiating stimuli).* *Self-regulated stimulus exposure*	everything is a stimulus cue for "awareness";	*Same as behavioral self-management.*
• nature of physical posture:	Specified body posture: lotus or half-lotus, to reduce bodily distractions.	*Symbolic desensitization occurs in relaxed posture: e.g., reclining in thick armchair*	No specified posture;	No specified posture.
• if preprogrammed punishments or reinforcers:	"KWAT" as preprogrammed punishment for non alert behavior.	*Preprogramming of certain punishments or reinforcements*	no preprogrammed punishments or reinforcers	Sometimes preprogrammed punishment [illegible]
COGNITIVE VARIABLES: • Effects of observation	In formal Zen meditation, focusing on behavior of breathing alters the behavior: a stumbling reactive effect (Step one). soon mind wanders, i.e., habituation to task of observing. (Step two).	*Behavioral self-observation alters behavior observed (generalization one); then there is habituation to task; subject forgets to monitor; when subject stops monitoring, behavior returns to pre-self-observation phase (generalization two).*	The goal is that observation have no interference or interruption of daily activities.	Observation is used as a discriminative stimulus to interrupt a maladaptive behavioral sequence. (*See also behavioral self-observation*).
• what is observed	Initially just breathing is focused on (Steps one, two, three); eventually openness and receptivity to all stimuli, internal and external (Steps 4,5) occurs.	*Functional analysis: observation of problem behavior, antecedents, and consequences;*	All behaviors, actions, and thoughts are observed: Global awareness.	Only specified cues (e.g., anxiety, stress) in internal and external environment are observed
• how behavior is observed --self-evaluation --goal setting	Thoughts, behavior, breathing, are observed without analysis; no charting, no evaluation, no goal-setting: i.e., "detached" self-observation	*Parameters of behavior observed: frequency, latency, duration, intensity; behavior is counted, charted; systematic evaluation is made; and goals are set.*	observation without comment and without evaluation.	[illegible] however, also try to maintain detached self observation at the [illegible] time.
• desensitization paradigm --when occurs	Relaxation (Step three) precedes feared images (Step four): In formal meditation, a "global" desensitization with no specific cues. Formal meditation occurs at specified times throughout the day, regardless of antecedent stimuli.	*Relaxation precedes phobic scene (cf. Wolpe, 1958, 1969): involves subjective hierarchy of disturbing scenes. Or, relaxation follows phobic scene (real or symbolically) and is contingent on discriminating certain cues (cf. Goldfried, 1973).*	Continuous discrimination of cues in daily environment.	Relaxation follows phobic scene or certain stress cues.
• cognitive statements and images --thought stopping	Observation without comment (no self-statements); and without evaluation (no thinking) Covert images are allowed to "flow down the river of consciousness" and are not dwelled on; Focus on competing response of breathing helps remove thoughts (Step 4).	*Covert image and self-instruction used extensively: e.g. covert sensitization (images as punishment); covert rehearsal (images and self-instructions as successive approximation); self-modeling; covert self-reinforcement; covert behavior modification: either alter self-statements, or emit relaxing instructional self-statements. To stop thoughts, covert yelling of word "STOP"*	No cognitive statements or images involved in the performance of actions.	Use of covert images, self-modeling; and self-instruction: e.g., "I am breath," "I am relaxed, in control, I can handle this."
• focused attention	In formal Zen meditation, attention focused on breathing (Steps 1--4): the KWAT (in Step 2) helps return the wandering mind to the object of focus. In Raj Yoga (cf. Anandi, Chhina, & Singh, 1961) note the use of internal focusing as technique for self-management of pain.	*Kanfer and Goldfoot (1966) discuss the use of external focusing as a technique for self-management of pain.*	Attention focused on the here and now action only.	In contingent informal breath meditation, attention focused on breathing; in transcendental Meditation, attention focused on covert sacred syllable.

Figure 2: COMPARISON OF MEDITATION

AND BEHAVIORAL SELF-MANAGEMENT TECHNIQUES
(continued)

TOPICS:	FORMAL MEDITATION	*BEHAVIORAL SELF-MANAGEMENT*	INFORMAL MEDITATION	CONTINGENT INFORMAL MEDITATION
BREATHING: --effects of; --type used	Breathing from the abdomen; goal is effortless, autonomic breathing plus awareness of that breathing; Used as a type of relaxation (Step 3); an aid in unstressing (Step 4) and in thought stopping (Step 4).	*"Controlled" breathing; voluntary breathing from chest/thoracic area. Used in deep muscle relaxation.*	Relaxed, aware autonomic breathing from abdomen.	Controlled breathing in contingent informal breath meditation (cf. Shapiro, 1974a); non-focus on breathing (but rather on sacred sound) in "contingent" Transcendental Meditation (cf. Boudreau, 1972).
CONTRIBUTIONS OF THE STRATEGIES TO EACH OTHER:	The acquisition and proper performance of formal meditation is facilitated by a wrist counter, a device used in behavioral self-observation. The naturalistic observation methodology of social learning theory is useful in understanding meditation as a series of behaviors under explicit contingency arrangements.	*Clear mind gained during Step five of formal meditation helps facilitate a behavioral functional analysis of internal and external events throughout the rest of the day.* *The practice of discriminating a stimulus (e.g., wandering mind) gained during formal meditation, should help an individual interrupt a maladaptive behavioral chain earlier and more quickly.* *Meditation involves a "detached observation" of concerns, thereby reducing the threat of the concerns and producing optimal conditions for behavior change.*	In terms of a clinical intervention strategy, informal meditation is made more powerful by making its performance contingent upon certain internal and external cues, and by coupling it with covert imagery, self-instructions, and focused breathing.	This technique is a combination of informal meditation and behavioral self-management strategies. Covert imagery, self-instructions, focused breathing, functional analysis all come from the behavioral self-management strategy; however, at the same time the technique involves the use of "detached self-observation" derived from informal meditation.