

# Zen Meditation and Behavioral Self-Control

## *Similarities, Differences, and Clinical Applications*

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**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 Western laboratory and field settings and is based on social learning theory. Using tools of naturalistic observation and experimental analysis, Zen breath meditation is conceptualized as a sequence of behaviors involving certain cues and consequences, and thereby 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 article concludes with a discussion of the rehabilitative and preventive benefits that may be gained from a combination of the two techniques.*

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

This article compares self-control techniques developed within the Eastern "religion" of Zen Buddhism and the Western psychological framework of social learning theory. Because of seemingly different epistemological 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 that was developed thousands of years ago as a method of attaining religious insight (Kapleau, 1967; Maupin, 1969; Weinpahl, 1964). Behavioral self-control 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. Goldfried & Merbaum, 1973; Mahoney & Thoresen, 1974; Thoresen & Mahoney, 1974). In addition, Zen meditation is a technique within a religious-philosophical framework that has a view of man different from the philosophical view of man on which social learning theory rests (cf. Bandura, 1974a,

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1974b; Hirari, 1974; Suzuki, 1960). Finally, based on current split-brain research (Galín, 1974), it may be argued that Zen meditation may primarily involve the right side of the brain (i.e., nonrational, nonanalytic, simultaneous integration of material), while behavioral self-control strategies may primarily involve 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 humankind, systematic investigation of the two techniques is fruitful for several reasons: (a) 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. (b) Where behavioral differences do exist, further research might then document whether unique aspects of one could become profitable additions to the other. (c) Social learning theory employs a naturalistic observation technology to identify and measure behaviors and events (cf. Zifferblatt & Hendricks, 1974). By using these tools of experimental analysis (naturalistic observation), it is possible to gain an 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 that, if useful, could be practiced and understood by many people.

### Formal Zen Meditation: A Tentative Conceptualization

In this section of the article, a five-stage conceptualization of Zen breath meditation is suggested. The division of meditation into different steps is used here only as a heuristic device to help understand the "process" of meditation, and is not meant to give the impression that meditation consists of discrete, nonoverlapping steps. Further, the different steps discussed as follows should be considered only as plausible hypotheses until verified by additional research.

#### 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, with his hands placed together in his lap. Although an awkward-looking posture, the lotus position is not intended as a demonstration of a person's ability to contort the body; rather, the lotus position is considered to be a posture of "physical centeredness," with the knees and buttocks forming the solid base of a triangle (Kapleau, 1967; Weinpahl, 1964). Akishige (1974) and his colleagues (cf. Ikegami, 1974) compared muscle tensions in the lotus position with other relaxed forms of sitting and found that muscle tensions in the lotus position are lower than in any other posture except that of lying down.

#### 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 Ikegami have shown that it is the mental "attitude" of the meditator, and not his posture, that correlates with electroencephalograph changes. When the subject's "attitude was right" (i.e., when certain covert behaviors were engaged in, and certain others not engaged in), 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 was no rise in alpha activity, even in the formal meditation posture (see Ikegami, 1974).

Essentially, the practice of Zen breath meditation may be conceptualized as a five-step process. The beginning meditator is told to breathe through the nose, letting the air come in by extending the diaphragm: "Don't draw it in, rather, let it come to you" (Lesh, 1970). The person is taught to count one number (e.g., 1, 2 . . . up to 10) after each exhalation, and to let the numbers "descend" into the abdominal region (cf. Shapiro, in press-b, for extended description).

Anecdotal data suggest that when the person is first asked to observe his or her breathing, there is often an alteration in this behavior. The person has difficulty letting the air "come," catches his breath, and breathes more quickly and shallowly than normal. Often the person complains about not getting enough air and of "drowning" (see Figure 1, Step 1; cf. Shapiro & Zifferblatt, in press).

Soon, however, the person who is meditating forgets about the task at hand, stops focusing on his

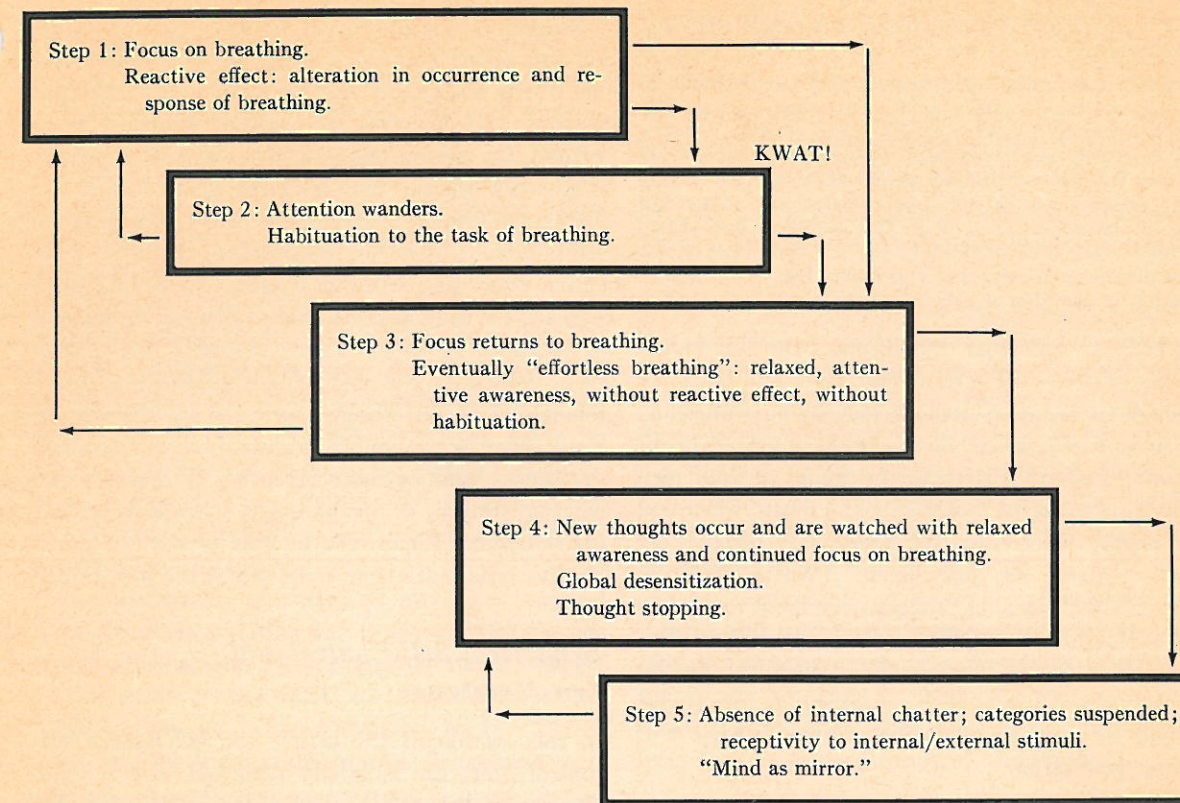


Figure 1. Process of Zen meditation (a behavioral analysis).

breath, and a variety of unrelated thoughts and images occur (Figure 1, Step 2).

In the third stage, the individual is taught to note every time his or her attention wanders from the task of breathing, and to turn the focus back to that task. "If images or thoughts 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 1, Step 3). With practice, the individual learns to focus on breathing without altering the behavior of breathing (the reactive effect of Step 1) and without habituating to the task (as in Step 2). This step may be described as "effortless breathing."

As new thoughts are self-observed, the meditator is able to take note of them and to continue focusing on breathing. Because he is in a relaxed, comfortable, and physically stable posture, he is able to self-observe with equanimity everything that comes into awareness: fears, thoughts, fantasies, guilts, decisions, and other covert events. No attempt is made to systematically structure the covert stimuli; rather, there occurs what may be referred to as a "global hierarchy" consisting of things that are currently "on a person's mind" (Goleman, 1971). In this way, the individual

learns to discriminate and observe all covert stimuli that come into awareness, without making any judgment, thereby desensitizing himself (unstressful) to those covert images and statements (Figure 1, Step 4).

Thus, at first, focus on breathing seems to reduce the aversiveness of the thoughts and images; then, focus on breathing becomes a competing response that eventually "empties the mind of internal chatter," that is, dispels covert thoughts and images. This reduction of thoughts and images (Figure 1, Step 5) seems to increase the receptivity of the individual to other covert stimuli typically ignored, which may be the reason Zen and Yoga masters "hear" their internal body signals so clearly; it further allows the individual to be more receptive to whatever stimuli are present in the external environment (Kasamatsu & Hirari, 1966; Lesh, 1970).

#### INFORMAL MEDITATION

In addition to formal 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 or she

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, p. 7)

Thus, in informal meditation, the individual merely observes all actions that he or she performs throughout the day, without judging or evaluating. As Alan Watts noted, 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, p. 142). The "listening" without comment and without evaluation that occurs during informal meditation seems to be functionally similar to the detached observation (i.e., observation of covert stimuli with equanimity) that occurs in Step 4 of formal meditation.

#### SUMMARY

A descriptive analysis of formal Zen meditation suggests the following: When a person begins to focus on 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 1). Soon, his attention wanders from the task of breathing (habituates to the task, Step 2). The individual is taught to catch himself whenever his attention 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 3). At this point the person has learned to observe his or her breathing without a reactive effect and without habituation.

As new thoughts come into awareness, the individual is able to continue to focus on breathing while at the same time watching the thoughts with equanimity (Step 4). This process serves the dual function of (a) desensitizing the individual to the thoughts (i.e., 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 5).

Breath meditation seems to serve several different functions. First, it is a type of relaxation training. The individual sits in a physically 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 reactive effect and without habituating to the task. Fourth, the individual is able to desensitize himself to whatever is on his mind: thoughts, fears, worries. And fifth, the meditator is able to eventually remove all covert thoughts and images, thereby allowing him to "let go" of cognitive labels, "reopen" the senses, and be more receptive to internal and external stimuli; or, in the words of the Zen master, the individual learns "To be able to see the flower the five hundredth time as he saw it the first time."

#### *Behavioral Self-Control and Zen Meditation*

In this section of the article the behavioral self-control literature is briefly reviewed, and a series of comparisons and contrasts are made with Zen meditation. In so doing, the foregoing descriptive analysis of Zen meditation should be clarified and interpreted more directly in terms of social learning theory.

#### BEHAVIORAL SELF-OBSERVATION

The concept of awareness, so predominant in the literature on meditation, is also critical to behavioral self-change strategies. In the behavioral literature, the means of attaining this awareness is called "self-observation." Self-observation is the initial step of a self-change strategy, and involves teaching a person how to monitor his or her own behavior (Kanfer & Phillips, 1966). Other behavior therapists (e.g., Ferster, 1972; Goldiamond, 1965; Thoresen & Mahoney, 1974) also stress the importance of a self-directed functional analysis of the environment as a prerequisite to behavior change. Ferster (1972) has referred to his 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. By learning to recognize what elements of the environment are controlling his or her behavior, the individual takes the necessary first step toward manipulating, rather

than being manipulated by, the environment (Bandura, 1974b).

Self-observation strategies are not limited to the individual's interaction with the external environment, and may include monitoring of covert thoughts and feelings, such as physiological reactions, somatic complaints, and covert images (Cautela, 1967, 1971; Homme & Tosti, 1971; Jacobson, 1971; Kazdin, 1974; Thoresen & Mahoney, 1974; Meichenbaum, Note 1). After discriminating and labeling certain specified behaviors in the internal and/or external environment, the individual then examines the antecedents and consequences of the behaviors. In this way the individual learns to recognize antecedent or initiating stimuli; to recognize consequences maintaining the behavior; and to recognize the behavior itself: frequency, latency, duration, and intensity.

Zen meditation also focuses attention both on inner experiences (Maupin, 1965) and on the external environment (Kasamatsu & Hirari, 1966). In Zen, however, the goal is to remain aware of the "ongoing present" without dwelling on it. Therefore, in Zen meditation, 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. 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). Furthermore, in Eastern self-observation strategies (cf. Rahula, 1959; Spiegelberg, 1962), the important factor is not what is observed (i.e., all behaviors experienced by the individual) but *how* it is observed (i.e., non-evaluative, without comment); in Western self-observation strategies, the important factor is the specific problem area observed, that is, the behavior 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) pointed out, self-observation appears to be intimately linked with self-evaluation and self-reinforcement. And Homme and Tosti (1971) suggest 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" (Book 4, p. 13). Several recent studies have attempted to verify this "reactive effect." Most indicate that self-observation of a behavior does in-

fluence 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. Broden, Hall, & Mitts, 1971; Johnson & White, 1971; Kazdin, 1974; McFall, 1970; McFall & Hammen, 1971; Thoresen & Mahoney, 1974). It was noted earlier how a similar reactive effect takes place during Step 1 of Zen meditation, in which self-observation of the behavior of breathing influences its occurrence. However, the reactive effect in Zen seems to serve no therapeutic value, but rather causes a difficulty in breathing. Because the behavior of breathing is presumably nonvalenced, further research needs to clarify the exact nature and differences between the reactive effects that occur in behavioral self-observation and meditation.

Thus, in summary, although both behavioral self-control and meditation strategies involve the concept of awareness, there are differences in terms of the nature of what is observed, the method by which it is observed, and the types of reactive effects that occur as a result of observation.

#### SELF-EVALUATION AND GOAL SETTING

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

The goal in Zen, on the other hand, is not to evaluate the effects of self-observation but rather to just self-observe. As Alan Watts (1972) 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" (p. 220). Further, Zen also stresses the importance of living in the present without setting goals. For example, Suzuki (1960) 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.

However, there is a contradiction in the Zen explanation of nonevaluative self-observation. In fact, two goals are posited: One is the goal of "living in the moment" without self-evaluation, and the other is the goal of not having any goals. From a behavioral standpoint, a series of techniques are involved that represent a successive approximation toward the "goal of nongoals." For

example, beginning meditators are taught, as noted earlier, to count from 1 to 10. More advanced meditators, however, are taught to just count "1" over and over again. This represents an attempt to focus the individual meditator more in the present, without striving after the goal of "reaching 10." Finally, there is a technique in the Soto Zen sect for the most 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 are 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, for example: "I'm no longer focusing on breathing; I'm being too self-critical, I should stop being so critical and return to just observing myself." Thus, a behavioral analysis, although not denying that Zen in fact has a goal of nonevaluation, raises the question of whether that goal can be reached and maintained without the aid of evaluating the effects of one's progress. Seemingly, one must first learn how to evaluate before one can experience nonevaluation.

#### ENVIRONMENTAL PLANNING

Once the individual has become aware of the target behavior, several self-management strategies are available for him or her to use. The first of these strategies is environmental planning, which occurs *prior* to the execution of the target behavior. Examples of environmental planning include arranging antecedent or initiating stimuli (stimulus control), preprogramming certain punishments or reinforcements for specified actions (e.g., self-contract), self-regulated stimulus exposure (e.g., self-administered desensitization), and covert self-verbalizations and imagery (e.g., self-instructions) (cf. Mahoney & Thoresen, 1974; Thoresen & Mahoney, 1974).

*Stimulus control.* The development of stimulus control may be a prerequisite step in successfully implementing a behavioral self-management strategy. The individual must identify and plan changes in relevant situations: ones that will "cue" or set the occasion for self-change responses to occur. Stimulus control strategies may involve the association of desired responses with stimuli likely to

evoke them; examples of successfully implemented stimulus control procedures have been reported in the areas of weight control (Ferster, Nurnberger, & Levitt, 1962), obesity (Stuart, 1967; Stunkard, 1972), study skills (Beneke & Harris, 1972), and smoking (Bernard & Efran, 1972; Shapiro, Tursky, Schwartz, & Shnidman, 1971).

The uncluttered location of the meditation setting may be seen as a type of stimulus control in that the individual prearranges the physical environment to reduce unwanted distractions and thereby to help him or her focus attention on breathing. Similarly, the physical posture may be seen as a way of reducing unwanted proprioceptive feedback; incense may be a means to block out other smells; the dimness of the lighting as a method of reducing unwanted visual distractions. All of the above are examples of stimulus control, in that the individual is trying to prearrange the physical environment to set the occasion for the proper occurrence of meditative behavior.

Other examples of environmental planning include meditating with a group of people in order to ensure daily practice (i.e., using social reinforcement to encourage the performance of certain actions). Similarly, in formal Zen meditation, the use of the *Kwat*,<sup>1</sup> a slap by the master to a "non-concentrating" student, represents a preprogramming of punishment to reduce "nonalert" behavior. These are examples of environmental programming because they occur *prior* to the execution of the target behavior of meditation, with the individual prearranging relevant environmental cues and social consequences to influence the occurrence of the 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

<sup>1</sup> In a Zen monastery, there is a special room set aside for the practice of meditation. During the act of formal meditation, the beginning meditator is aided by the Zen master, who walks around the meditation hall, literally carrying a big stick. He watches each of the meditators to make sure they are alert and receptive. Because sleepiness (*Kanchin*) is considered undesirable in Zen training, if the Zen master sees one of the students sagging or not concentrating, he will walk over to that student and bow. After the student bows back, the master raises the stick and gives a blow (*Kwat*), which "awakens" the student and brings him back to the ongoing present in a "non-verbal, nonreflective manner."

self-reinforcement. In the beginning, however, the need for these cues and consequences is both recognized and used.

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

Step 4 of formal meditation has several similarities to the Wolpe paradigm. First, Step 4 of formal meditation may be conceptualized as a type of counterconditioning (cf. Bandura, 1969; Davison, 1968b) in which responses incompatible with maladaptive behavior are practiced; that is, relaxation (Step 3: effortless breathing) precedes the feared image (Step 4). However, Step 4 of meditation is different from Wolpe's paradigm in that there is no structured hierarchy of anxiety-producing events, but rather a "global desensitization hierarchy" (Goleman, 1971).

There is still considerable debate, however, in the literature as to what exactly accounts for the success of systematic desensitization. Wolpe and others have argued on the basis on reciprocal inhibition: An incompatible response causes a counterconditioning to occur (Bandura, 1969; Davison, 1968b). Others have argued in favor of a cognitive refocusing model, suggesting that it is primarily the attention shifts that cause the effectiveness of systematic desensitization (Wilkins, 1971; Yulis et al., 1975).

Both of the above explanations would seem plausible alternatives for the effects that occur in Step 4 and Step 5 of formal meditation. A third explanation might involve the use of operant punishment, that is, behavioral thought stopping (Wolpe, 1969). In behavioral approaches to thought stopping, whenever the individual realizes the presence

of an unwanted aversive thought, he or she covertly yells "Stop!" It is possible that a similar process occurs during meditation, in which the individual tells himself to stop focusing on thoughts and images and to return to the behavior of breathing.

#### BEHAVIORAL PROGRAMMING

The second of the behavioral self-management strategies is behavioral programming. In behavioral programming, the individual presents himself with consequences following the occurrence 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) (Mahoney & Thoresen, 1974; Thoresen & Mahoney, 1974).

Although Zen does not espouse attachment to material possessions (i.e., material self-reward), Zen meditation does involve internal processes. Therefore, of particular interest to this discussion is the behavioral literature on covert events, both imaginal and verbal.

It is only within the last 10 years that behaviorists have actively begun to pay attention to covert events, finally entering the "lion's den of private events" (Cautela, 1967, 1971; Homme, 1965; Kanfer & Karoly, 1972; Mahoney, in press; Meichenbaum, Note 1). This expansion into the study of covert events has occurred for several reasons. First, improved scientific instrumentations have made it possible to study some internal processes (e.g., research on biofeedback: Barber et al., 1971; Shapiro et al., 1973; Stoyva et al., 1972). 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 almost invariably involved maladaptive cognitive problems.

As early as 1964, Skinner noted that internal events, even though self-reported and unobservable, are justified in a science of behavior 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. Several recent studies have attempted to show the relationship between

covert events and overt actions. Cautela (1967, 1971) has discussed the use of covert sensitization (covert imagery as punishment) as a technique for modifying maladaptive approach behavior such as alcoholism (cf. Ashem & Donner, 1968), sexual behavior (Barlow, Leitenberg, & Agras, 1969; Davison, 1968a), and obesity. Ferster (1965) has discussed the use of ultimate aversive consequences 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.

Other studies employing covert responses as examples of behavioral programming have been discussed by Cautela (1967, 1971) and Bandura (1974c). Both authors review studies suggesting that covert desensitization can be used to modify maladaptive avoidance responses, and that covert self-reinforcement, both positive and negative, can be used to modify maladaptive approach or avoidance behavior. Other studies have taken Homme's (1965) covert control therapy paradigm, which is based on the Premack principle (Premack, 1965), and have successfully applied it to modifying covert thoughts: increasing positive self-thoughts and decreasing negative self-thoughts (Johnson, 1971; Mahoney, 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).

Based on the recent research on covert events discussed above, several stress and tension management training packages have been developed (cf. Suinn & Richardson, 1971; Meichenbaum, Note 1). These training packages have altered the traditional Wolpe paradigm in both theory and practice. As noted earlier, Wolpe believed that relaxation should precede the fear-arousing imagery. In the new paradigm, the fear-arousing situation becomes a discriminative stimulus for relaxation. The two paradigms were recently 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 perform-

ance tests of climbing and looking down from a 12-story building, subjects in the active "stress as a cue to relax" procedure did significantly better (Jacks, 1972). The latter technique first involves training in deep-muscle relaxation and then teaching the person to discriminate anxiety by imagining the fear-arousing situation and maintaining that situation in the imagination. While maintaining the tension, the person then practices controlling arousal by means of muscular relaxation, covert self-modeling (i.e., observing himself acting in a competent and successful fashion in the anxiety-arousing situation), and self-instructions to cope with the situation (e.g., "relax," "I am in control," "I can handle the situation") (cf. Goldfried, 1973; Jacks, 1972; Mahoney, in press; Suinn & Richardson, 1971; Meichenbaum, Note 1).

These training procedures involve practices quite different from both formal and informal meditation. For example, in informal meditation, the individual observes *all* actions and behaviors throughout the day. In the training package, the individual is instructed to discriminate certain specified "anxiety-arousing" situations, and then to use those situations as discriminative stimuli for engaging in relaxation, covert self-modeling, and self-instruction activities. In informal meditation, although all cues are observed, the individual is instructed to "merely observe, as a witness" and to take no specific action after recognizing any particular cue. In terms of formal meditation, although the beginning meditator may subvocalize such self-instructions as "relax; keep focused on your breathing; your attention has wandered, better return to breathing again," the goal of meditation is to remove these verbal cues eventually and have an "empty mind," that is, an absence of covert statements and images (Step 5).

#### *A Clinical Combination of Zen Meditation and Behavioral Self-Control Techniques*

The preceding discussion has attempted to suggest that there is a common ground between 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 can when practiced alone? To date, there has been almost no research in this area. Therefore, the comments that follow are intended only as

plausible hypotheses and must await further research for empirical documentation of their effectiveness.

#### INFORMAL MEDITATION PLUS BEHAVIORAL SELF-CONTROL TECHNIQUES: "CONTINGENT INFORMAL MEDITATION"

Current research suggests that the technique of informal meditation can be converted into a more powerful clinical intervention strategy<sup>2</sup> by making its performance contingent on certain antecedent cues, and by coupling it with covert self-imagery, covert self-statements, and focused breathing. In this model, the subject, in addition to observing all events and behaviors occurring throughout the day (informal meditation), also discriminates certain 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, the individual also focuses on breathing and covertly initiates cues to relax, to feel in control, and imagines acting in a relaxed, competent fashion (cf. Boudreau, 1972; Shapiro, in press-c; Shapiro & Zifferblatt, in press).

The research thus far, though suggestive, is cursory and is based on case reports. Further replications are necessary; these replications should try to determine the variance of outcome effects attributable to various aspects of the treatment.

#### FORMAL MEDITATION PLUS BEHAVIORAL SELF-CONTROL TECHNIQUES

The acquisition of formal meditation behavior might possibly be facilitated by borrowing from certain behavioral self-management techniques. For

<sup>2</sup> It appears that making informal meditation contingent on certain cues and coupling it with covert self-modeling and self-instructions make informal meditation a more powerful clinical strategy for an immediate problem. However, this is in no way meant to suggest that the combination of informal meditation with behavioral self-control strategies makes informal meditation more effective for the goal for which it was originally intended: "ongoing awareness of all cues."

Similarly, from a Western perspective, formal Zen meditation is often seen merely as a technique that may be useful when applied to certain clinical problems. However, from an Eastern perspective, Zen meditation is a way of "being" in the world: a total awareness of oneself, of nature, of others. Thus, it is important to note that the technique of formal Zen meditation may be being used for goals other than those for which it was originally intended.

example, individuals have been given a wrist counter and instructed to punch the counter every time their attention 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 (cf. Shapiro & Zifferblatt, in press; Van Nuys, 1971). It is possible that biofeedback techniques might also serve to facilitate the acquisition and proper performance of meditative behavior.

Conversely, certain aspects of formal meditation might help complement and facilitate behavioral self-control skills. For example, during formal meditation, the individual learns to unstress (desensitize) himself (Step 4, Figure 1) and to reduce the frequency and duration of covert chatter and images (Step 5, Figure 1). It is hypothesized that this ability to relax and have an "empty mind" gained during formal meditation will help an individual be more alert and responsive to stress situations occurring at other times, thus facilitating a person's performance of behavioral self-observation of internal and external cues throughout the day (Shapiro, in press-a, in press-c; Shapiro & Zifferblatt, in press).

Second, formal meditation seems to give the individual practice in noticing when his or her attention wanders from a task. At first, there is usually a long time period that elapses between the attention wandering and the realization that the attention has wandered. With practice, however, the person may learn to catch himself almost as soon as he stops focusing on breathing. Similarly, in behavioral self-control 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 (Shapiro & Zifferblatt, in press). The practice of discriminating a stimulus (e.g., wandering attention) developed in meditation may generalize to situations involved in behavioral self-control strategies (e.g., reaching for a cigarette, the "need" for a fix). As such, the individual practicing meditation may be aided in eventually discriminating the stimulus as soon as it occurs, thereby placing the individual in a much better position to interrupt a maladaptive behavioral sequence.

The third way in which formal meditation might help behavioral self-control strategies involves the

cognitive set that meditation can help give to the 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, when recognizing tension at subsequent points during the day, the individual should be able to say to himself, "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). In this way the person may learn to increase feelings of self-control and learn to perceive himself as a responsible individual who has the ability to control his own behavior and actions (Lefcourt, 1966; Rotter, 1966, 1969).

Fourth, although the physiological data are still equivocal (cf. Hirari, 1974), aspects of the technique of formal meditation may make it more powerful than other self-management techniques in certain respects. For example, other self-control techniques, such as autogenic training (Luthe, 1968), self-hypnosis (Paul, 1969), or relaxation with covert self-statements (Jacobson, 1971; Meichenbaum, Note 1), employ certain covert images and self-statements (e.g., "I'm 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 that seems to allow the meditator to observe and become desensitized to "what's on his own mind" (Step 4, Figure 1). Repetition of preprogrammed covert statements and images would seemingly interfere with this process and would also seem to prevent the "mind from becoming empty" (Figure 1, Step 5). This "empty mind" (i.e., an absence of verbal behaviors and images) may be important in certain externally oriented situations, such as the counseling setting (Lesh, 1970) and interpersonal relationships (Shapiro, in press-c). The empty mind may also be important for hearing certain internal cues, especially in clinical areas dealing with stress and tension, obesity, tachycardia, migraine, and hypertension.

Finally, because during meditation the individual seems to be able to step back from personal fears, concerns, and worries, and observe them in a detached, relaxed way (Shapiro, in press-a, in press-c; Shapiro & Zifferblatt, in press), it is possible to hypothesize that *after* meditation the individual should be able to think about the fears and evaluate how he or she wants to act without being over-

whelmed or oppressed by them. Within Kanfer's behavioral model of self-management involving self-observation, self-evaluation, and self-reinforcement, this type of detached self-observation would presumably alter the subsequent self-evaluation by reducing the self-evaluative threat, that is, 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 or she need not be afraid to self-evaluate at a subsequent time (Kanfer & Karoly, 1972). Thus, even though during the process of formal meditation there is ideally no thinking or evaluation, subsequent to meditation the individual may be well prepared to think and make decisions. In this way, meditation might help produce "self-observation conditions such that inner feedback for behavior change is optimal" (Goleman, 1971, p. 17).

#### *Unanswered Questions: Concluding Remarks*

The foregoing discussion leaves several questions unanswered, both with respect to the effectiveness of meditation as a complementary strategy with behavioral self-control skills and also with respect to the exact mechanism by which meditation works. The first set of unanswered questions include the following: Is formal Zen meditation a necessary part of the intervention? Is it sufficient by itself? Is it the relaxation component of meditation that makes the greatest contribution? Is meditation really different from, or more effective than, deep-muscle relaxation (Smith, in press), systematic desensitization, covert imagery, and covert self-statements? Further research is necessary to address these questions and to determine the variance of outcome effects attributable to various aspects of the treatment.

A different set of questions involves the role of breathing in formal Zen meditation. There is a paucity of empirical literature dealing with the effect of breathing. Timmons, Salamy, Kamiya, and Girton (1972) have compared different types of breathing in general, and Nakamizo (1974) and Matsumoto (1974) have researched Zen meditation breathing in particular. However, the question is still unanswered as to whether focusing on breathing is more clinically effective than other types of cognitive focusing techniques. The Eastern literature is replete with different examples of cognitive focusing techniques (cf. Ornstein, 1971; Shapiro,

Note 2). The "objects of focus" can be located in either the external or internal environments. Examples from the external environment (*tratakam* meditation) include the Taoist focus on the abdomen, the early Christian focus on the cross, focus on a vase (Deikman, 1969), a guru, a mandala. The meditator can also focus on internal visual images (*Kasina*) such as a fire in the hearth, the symbol of a guru, sexual mandalas (cf. Moorkerjee, 1966; Spiegelberg, 1962), the third eye, or the vault of the skull (Raj Yogas). The meditator can also focus on words or phrases chanted aloud, such as the Sufi dervish call (cf. Ornstein, 1971) or a mantra (Mishra, 1959); or he or she can concentrate on internally generated unspoken sounds such as a bee humming (Mishra, 1959), a prayer, or a sentence (e.g., the Zen *Koan*); or the meditator can focus on internal bodily processes, for example, on the heart beating and on breathing (Datey, Deshmukh, Dalui, & Vinekar, 1969).

Although it is true that different types of meditation can produce different physiological and behavioral indexes *during* meditation (Anand, Chhina, & Singh, 1961; Kasamatsu & Hirari, 1966), it is not yet clear whether there are in fact any differences *after* the occurrence of different types of meditation. Although each school of focus seems to make claims and develops rationales for the use of its own particular technique, whether it be Zen's focus on breath (cf. Akishige, 1974; Hirari, 1974) or transcendental meditation's focus on an internal mantra (Bloomfield, Cain, & Jaffe, 1975; Kanellakos & Lukas, 1974), there has been almost no research comparing the clinical effectiveness of different types of cognitive focusing (cf. Yamaoka, 1974; Otis, Note 3).

Within the behavioral literature, there has also been an interest in different types of cognitive focusing, including work with delay of gratification (Mischel, Ebbesen, & Zeiss, 1972), the use of different types of imagery in therapy (Singer, 1974), and the use of cognitive focusing on external slides (Kanfer & Goldfoot, 1966) and on music (Yulis et al., 1975). Again, however, systematic comparison of different audiovisual techniques (both overt and covert) has not been undertaken. What truly seems needed is a convergence of several different schools and strategies, such as cognitive behavior modification (Mahoney, 1974), work on imagery (Singer, 1975), meditation research (cf. Hirari, 1974; Kanellakos & Lukas, 1974; Shapiro & Giber, Note 4), behavioral self-observation research (Kazdin, 1974), and biofeedback research (Blanchard &

Young, 1974; Schwartz, 1973), to deal with the common problems and issues involved in evaluating the clinical uses of covert processes. With this convergence of academic and clinical scholars, perhaps some of the unanswered questions will begin to be better understood.

This article has made an attempt to look at two clinical strategies: Zen meditation and behavioral self-control. Current research has suggested that either technique alone provides potentially effective self-directed attempts to control one's everyday life, thoughts, and feelings. Researchers have found meditation effective in reducing fear (Boudreau, 1972), curbing drug abuse (Benson & Wallace, 1971; Brautigam, Note 5), increasing empathy in counselors (Lesh, 1970), decreasing generalized anxiety (Girodo, 1974), decreasing test anxiety (Linden, 1973), and reducing blood pressure and hypertension (Datey et al., 1969; Wallace & Benson, 1972). The behavioral self-management literature suggests the effectiveness of social learning strategies applied to a variety of problems, such as weight reduction (Mahoney, Moura, & Wade, 1973; Jeffrey, Note 6), curbing smoking (Axelrod, Hall, Weis, & Rohrer, 1974; Premack, 1970), changing negative self-thoughts (Hannum, Thoresen, & Hubbard, 1974), reducing fears (Jacks, 1972), and in other clinical areas (cf. Bandura, 1969; Cautela, 1971; Goldfried & Merbaum, 1973; Meichenbaum & Cameron, 1974; Thoresen & Mahoney, 1974; Meichenbaum, Note 1).

The foregoing research suggests the clinical intervention effectiveness of the techniques of meditation and behavioral self-control strategies 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 such clinical areas as drug abuse (Shapiro & Zifferblatt, in press) and stress and tension management (Shapiro, in press-c). Currently pilot studies are extending these investigations both to rehabilitative programs, such as coronary heart problems (Zifferblatt, Note 7), and to preventive and educational programs dealing with "positive mental health" (Shapiro, in press-a; Shapiro, Note 8). Although the results of these pilot studies combining behavioral self-control and Zen meditation techniques are tentative and need further replication, the continued exploration of the applied interface between Eastern disciplines and Western psychol-

ogy promises to be an important and clinically useful area for further investigation.

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