3

A Content Analysis of the Meditation Experience

MOST RESEARCH on meditation carried out in Western laboratory and field settings has focused on physiological and overt behavioral changes: meditation as a self-regulation strategy (see Chapter Five). Recently, however, Western investigators have begun to call for a more detailed phenomenology of the meditation experience in order to assess subjective changes during meditation more precisely (Tart, 1975; Shapiro & Giber, 1978; Walsh, 1977): meditation as an altered state of consciousness (see Chapter Seven).

There are three primary reasons for this. First, from a social learning or cognitive psychology standpoint, the role of internal events, thoughts, and images has become an increasingly important area of study (Homme, 1965; Mahoney & Thoresen, 1974; Meichenbaum & Cameron, 1974; Ellis, 1962; Shapiro & Zifferblatt, 1976). Since meditation is a technique purported to bring about strong subjective experiences in practitioners, experiences which involve radically new perceptions of their relationship with themselves, others, and the world around them, it becomes crucial to understand what goes on "internally."

Second, several research studies which have focused primarily on the physiological and overt behavioral changes resulting from

meditation have found no differences between meditation and other self-regulation strategies (e.g., Michaels, Huber, and McCann, 1976; Beiman et al., in press; Marlatt et al., 1980, in press). However, in some cases, although there have been no physiological or overt behavioral differences between meditation and other self-regulation strategies, subjects have reported their experiences of meditation as more profound, deeper, and/or more enjoyable than the comparative control groups (Morse et al., 1977; Cauthen & Prymak, 1977; Travis et al., 1976; Curtis and Wessburg, 1975-6). Thus, even though there may not be overt behavioral and/or physiological differences between meditation and other self-regulation strategies, subjective differences occur, and from a clinical or research standpoint these may be critical.

Third, although there are many different conceptual definitions of meditation, it seems important to attempt to identify what "covert behaviors" actually occur during meditation. In other words, what kinds of thoughts and images does a person have while meditating? what kinds of statements does a person make prior to and after meditating? By investigating these questions, the "internal behaviors" of meditation may be compared with the "covert behaviors" of other cognitive self-regulation strategies to determine where similarities and differences exist.

3.1 Previous Research on the Phenomenology of Meditation

THERE HAVE BEEN several ways that previous researchers have tried to gather information about the phenomenology of meditation. Since these are reviewed in detail in Chapter Seven, we will only mention them briefly here. One way to gather information is by looking at the classical texts, such as the *Abhidhamma* and its summary by Buddhaghosa, the *Visuddhimagga,* (Goleman, 1972, 1977) and the classical root texts of the Mahamudra tradition (Brown, 1977). These texts provide phenomenological reports of the experience of advanced meditators.

A second experimental methodology is to have individuals meditate and then to give them the opportunity to describe their meditation experience. In this approach the meditator and the experimenter/investigator are different individuals. This

methodology has been used by several investigators (Van Nuys, 1973; Kubose, 1976). They had individuals push a button during the meditation experience to determine frequency of thought intrusion, and later asked subjects about the nature of their thoughts. Corby et al., (1978) looked at physiological changes and compared those changes with the subjects' accounts of their subjective experiences. Banquet (1973) had subjects push buttons signaling different types of subjective experience and tried to correlate that with EEG data.

Other techniques used to understand phenomenological content include a retrospective content analysis of the meditation experience in terms of thought intrusions (Kanas & Horowitz, 1977); rater coding of the meditation experience (Maupin, 1965; Kornfield, 1979; Lesh, 1970); a factor analysis of self reports about the meditation experience (Osis et al., 1973; Kohr, 1977); and verbal report from the client after meditation focus (Deikman, 1966).

A third approach involves having the subject be both the meditator and the experimenter. This approach, suggested by Tart (1971) involves training individuals in behavioral science skills and then having them be their own subjects in an experiment to look at internal experiences. Tart himself has utilized this approach (Tart, 1971), describing a one year experience with Transcendental Meditation, and Walsh (1977; 1978) has utilized this approach describing a two year meditation experience.

Each of these approaches has advantages and disadvantages. The experience of long-term, proficient meditators described in the classical texts is useful because it provides first-hand accounts of individuals who have had extensive meditation experience. However, one of the potential limitations of this approach is these individuals' lack of behavioral science skills and the resultant inattention to non-specific placebo effects such as expectation effects and demand characteristics.

The second approach—with the experimenter and subjects separate—gives some useful information about subjective experiences, but those experiences are susceptible to certain contaminating variables. First, they are retrospective accounts (except in Banquet, 1973) and thus subject to the vagaries of *post hoc* subject "memory." Second, the subjects' experiences are filtered through hypotheses generated by different individual experimenters who may or may not be sensitive to subtle

nuances of meditation experience. Further, as with factor analytic research (Osis et al., 1973; Kohr, 1977), the factors are an artifact of and are limited by the experimenter's initial coding questionnaire.

The third approach, having an individual subject/experimenter, has the advantage of allowing for immediate access of material between subject and experimenter, though presenting a greater potential for problems of experimenter bias (Rosenthal, 1962) and demand characteristics (Orne, 1962). This is the primary reason Tart recommends that the experimenter be someone well trained in the behavioral sciences.

The current study utilizes this third approach. Using the self as subject in an N=1, intensive-design phenomenological methodology, it attempts to refine and extend earlier studies of this nature (Tart, 1971; Walsh, 1977, 1978). The previous studies provided global, retrospective accounts of the meditation experience and its effects. The current study attempts to record thoughts, feelings and images *during* the meditation experience by having the subject report every such intrusion aloud. In this way, precise information can be obtained about the covert behaviors actually occurring moment by moment during the meditation sessions. Second, a coding instrument was developed in order to determine what type of intrusions occurred during these meditation sessions as well as their relative frequency. Third, a comparison was made between length of time of the meditation session in which thoughts, feelings, and images were present; and the length of time for which they were not present.

Although this study was primarily exploratory and heuristic in nature, several hypotheses were formulated.

3.2 Within Session Hypotheses

HYPOTHESIS 1.* Breathing is shallower and quicker (therefore of shorter duration) during a thought period than during a period of non-thought.

Hypothesis 2. Breathing is deeper and longer (fewer breaths of longer duration) at the end of the meditation session than at the beginning.

*These hypotheses are not stated in null terms.

Hypothesis 3. There are fewer thoughts at the end of a session than at the beginning.

Hypothesis 4. There is a higher percentage of negative thoughts (and conversely, a lower percentage of positive and neutral thoughts) at the beginning of a session than at the end; the percentage of negative thoughts decreases and the percentage of positive and/or neutral thoughts increases during the course of a session.

Two types of meditation were practiced: counting one through ten, and counting one. Counting one through ten was practiced for five sessions; then counting one was practiced for five sessions. Because the subject had been meditating for over seven years at the time of the experiment, there were no hypotheses related to practice effect. However, with naive subjects, the following hypotheses would be plausible:

BETWEEN SESSION

Hypothesis a. The fifth session involves fewer and longer breaths, more positive and neutral thoughts, and fewer negative thoughts than the first session.

Hypothesis b. Counting one is more difficult than counting one through ten, and therefore subjects have more distractions and shallower, more frequent breaths in counting one sessions than in counting one through ten sessions.

3.3 Subject and Setting

SUBJECT:

In Chapters One and Two I argue for the importance of gathering intensive historical information about subject's background before meditation, including initial motivation, belief systems, expectations, as well as background during meditation, including length and frequency of meditation, the maintaining of commitment, and adherence and compliance. As a brief model of how to do this, information is included about various aspects of the subject.

BACKGROUND

TYPE AND LENGTH OF MEDITATION:

At the time of the experiment, September, 1977, the subject was a twenty-nine year old psychologist who had begun meditating in 1970. Although the data are not precise, the subject noted that he had been meditating consistently for the seven years prior to the study. The length of meditation varied from a maximum of three hours per day (three half-hour periods in the morning and three half-hour periods in the afternoon) to several minutes (three to five minutes once or twice a day).

The subject varied the type of meditation he engaged in though all were within the Zen framework. Sometimes he counted breaths, one to ten, particularly in the earlier years of his training, and also in later years when he needed the "goal" of reaching ten as a transition from his external commitments into the session. Often he would switch from counting breaths (one through ten) to counting breaths (one, one, one) within the same session. With greater frequency in the middle years, he practiced (and continues to practice) this counting-breaths technique (one, one, one). More recently, the subject also practiced, with greater frequency, a type of meditation in the Soto Zen tradition known as Shikan-taza, or just sitting: choiceless awareness. Here he would not count breaths, but try to sit and be mindful of any event which entered his field of awareness. Generally, his goal during the sessions, regardless of specific technique, was a type of mindfulness. Eyes were open and directed a few feet in front of him (or, in case of a mirror meditation, on his navel in the mirror). When thoughts arose, an attempt was made to note the thought, but not engage in dialogue with it, and return attention back to the breathing or to just sitting. All three of these techniques may be seen as a successive approximation of achieving mindfulness within the meditation session (cf. Shapiro, 1978a).

ADHERENCE AND COMPLIANCE:

Off and on since 1972, the subject had kept records of his formal meditation frequency. These records indicated that he meditated formally approximately seventy-five percent of the days, not meditating formally approximately twenty-five percent of the

time. In retrospect the subject noted on days when he did not meditate, it sometimes seemed purely from laziness or an excuse like "I don't have the time," or he felt himself so caught up in the external activities (such as giving talks on meditation!) that he did not take the time to meditate. On the other hand, the subject noted that some of the days on which he did not formally meditate were actually an experiment to see how well he could generalize "mindfulness" to all aspects of the day. On these days he practiced no formal meditation and tested himself by trying to informally meditate and be mindful all day. Thus the subject noted that he probably was practicing some type of formal or informal meditation with about eighty to eighty-five percent compliance.

MOTIVATION AND COMMITMENT:

Here we need to look at two factors: first, the subject's initial belief system about what meditation would or would not give him. In other words, why did he begin meditating? Second, we need to look at commitment, which involves specific expectations and beliefs to maintain the practice on a daily basis: e.g., cognitive statements made prior or subsequent to meditation which influence the continuation of the practice.

INITIAL MOTIVATION:

The experimenter thinks the following material, taken from the subject's journals may be the best way to describe his initial motivation.

> I was quite motivated and ready when I began the practice of meditation. During my junior year in college, a variety of interpersonal and personal "crises" in my life raised for me a series of religious existential questions of meaning and purpose.
>
> I began to question whether the path I had chosen for myself—a combined law and business career—was one that would give me the most personal meaning and fulfillment. This path heretofore had been what my significant others had wanted for me. But because of my own questioning at that time, I began to reconsider that direction and to read existential writers and religious thinkers such as Camus, Kierkegaard,

> Buber, and Dostoevsky. This reading led me to Israel, to a study of the Old and New Testaments, and ultimately to the Orient.
>
> As I conceptualized it to myself, I was on a spiritual search, in Ouspensky's words "in search of the miraculous." I found myself unable to make decisions between graduate school in law or perhaps a career in religious studies until I could first solve some of these larger personal questions for myself. It was no longer sufficient to just pursue advanced degrees for their own sake. I needed the time out in order to reassess. Part of the reassessment had to do with the content of my professional direction and part of it had to do with the process of pursuing that direction. I felt that the upwardly mobile, very competitive, ambitious lifestyle in which I had been brought up, and in which I very much believed, was causing me a great deal of difficulty. I was looking for an alternative to that.
>
> Therefore, for me, the contextual framework within which I turned to the Oriental disciplines, in general, and meditation in particular, was twofold: 1) I was looking for some larger value and philosophical framework which would give me a sense of meaning and purpose in my own life; and 2) I was looking for alternative values to the ones in which I had been raised. I felt that this larger sense of meaning and purpose in my own life was necessary before I could continue with other "societal duties." Therefore I was highly motivated, as I felt in many ways that I was really searching for a foothold into my own life.

COMMITMENT: MAINTENANCE OF THE PRACTICE

Commitment, as noted, refers to what the subject says before he sits down to meditate or when s/he is planning a time to meditate. These are more specific statements that occur on a daily basis about what s/he believes meditation does for him/her. From reviewing the subject's journals, it can be seen that these thoughts were of two types. One type of statement involved a need to get away from the external environment when he was feeling a "sensory overload." These types of thoughts included:

> I really need a cooling-out space; I've had too many inputs and need to withdraw; I've lost my perspective and feel confused.

Still other times the subject noted that he meditated because he felt he "should"; he knew it would be "good for him" yet it felt as though it was "just another task" he had to do in a day.

Other statements involved the value which the subject placed on meditation and what it might do for him. These statements included:

> This is my time to let go and accept. This is the time to drop all the ego games and just let myself be; this is a special time for me to allow that yielding, soft, delicate side to be there; this is a time for opening myself up, cleansing myself; this is a time for feeling the harmony with all that is around me and within me; this is a way of practicing the values that I believe in in a pure way.

3.4 Setting:

THIS EXPERIMENT took place during the month of September, 1977 in the subject's home-office, where he had a meditation room. The subject was on vacation during the month of September and was not in Menlo Park the full time. Therefore, the ten days in which meditation sessions were recorded were the ten days that he was actually meditating at the Menlo Park office. The meditation room consisted of a Japanese style (tatami) floor, shoji screens, and green plants. A large floor-to-ceiling mirror covered one wall.

PROCEDURES:

TECHNIQUE

The first five tape-recorded sessions were Zen breath meditation, counting breaths one to ten, and the last five sessions recorded were counting the number one over and over again. Given the method of data gathering described below, Shikan-taza was not done because it would not have been possible to collect comparable information on thought blocks versus non-thought blocks.

METHOD OF DATA GATHERING

Two types of data were gathered in this experiment. One type refered to thought blocks vs. non-thought blocks. The second type involved the coding of the thoughts into different categories.

THOUGHT BLOCK VS. NON-THOUGHT BLOCK

The subject was instructed to count out loud the numbers one through ten or the number one between the end of the inhalation of a breath and before beginning the exhalation of a breath. Subject was asked to state aloud any thoughts, images, verbalizations, feelings, emotions, or sensations that were noticed or discriminated. Thus, as a working definition, a thought block referred to a statement aloud, made about discriminated feelings, images, sensations, or internal verbalizations. If, between any two numbers, there was no aloud verbalization then it was assumed that this was a period of "mindful" blankness or no thought—"Non-Thought Block." If there was verbalization aloud, then that period between numbers was referred to as a "Thought Block." It should be noted that the label "Thought Block" subsumes any aloud verbalization of a noticed intrusion into a blank, or "empty mind," including, but not limited to thoughts, images, sensations, etc. Since we do not really know how long an intrusion takes—the verbalization of the intrusion is different than the experience of the intrusion itself—(hereafter referred to as "thought")—it was decided to make thought blocks an all-or-none proposition. If a "thought" occurred between numbers, the entire time was counted as the thought time whether there were one or more thoughts between the numbers. Thus, there may be an error in that there is an appearance of more thought time than there actually is. In addition, most individuals who have spent time meditating or been involved with some technique which involves a sensitive discrimination of internal cues will recognize that often thoughts or internal sensations seem as though they hover just beneath awareness. If the subject noticed such "activity," he was instructed to state aloud "noticing activity." This was considered a "thought block" even if he could not recognize the actual words or images that were occurring.

CODING OF THOUGHTS

There were many possible ways to approach the developing of a coding instrument. First, past coding instruments were reviewed. Maupin (1965) used a five-point discrimination of subjective experience in hierarchically descending order of depth of experience: concentration, detachment, pleasant body sensations—vivid breathing, relaxation, and dizziness. Kubose (1976) had five different categories: bodily sensations, present situation, past situation, future situation, not involving a time component. Banquet (1973) had individuals push a button depending upon whether they were having body sensation, involuntary movement, visual images, deep meditation, or transcendence. The classical root text of the Mahamudra tradition divides "thoughts" into reasoning, memory, anticipation, and categorizing (Brown, 1977) and the Vipassana tradition of meditation discusses remembering, sensing, worrying, thinking, judging, hearing (Goldstein, 1975).

The current instrument is derived in many ways from a combination of the above instruments. Six different categories were used. Category I refers to general, philosophical thoughts of a non-temporal nature. Category II refers to thoughts related specifically to the meditation task at hand. Category III involves thoughts about the future. Category IV involves temporally current thoughts, and Category V thoughts about the past (memories). Category VI is for miscellaneous, uncodable responses. Each category (one through five) is followed by a + (positive affect), a 0 (neutral affect), or − (negative affect). The categories and some examples are found in Table 3.1.

The actual determination of which category a thought fit into (I-VI) or what affect was associated with it (positive, neutral, negative) was a rating made by the subject. This procedure departs from traditional scientific practice in that external raters were not trained and rater reliability was not obtained prior to the coding. However, a decision was made to depart from traditional practice for two reasons. First, it was felt that the subject would know better than an external rater what his affect was to a given thought. Because of the heuristic nature of this study, the subject's own report, therefore, seemed critical. Second, at the beginning of the experiment, it was realized how important

TABLE 3.1: *Coding Instrument*

I. General/Philosophic
Example: What is the exact role of responsibility in psychotherapy? 1.1 0 (neutral)

II. Related to the task at hand

2.1 *Body sensations*
Example: Sweat on the right side. 2.1 0 (neutral)

2.2 *Self-Statements*
Example: feeling myself yield more + (positive statement); Just relax and let go (self-instruction) 0 (neutral affect); Thoughts are running wild; I can't control them − (negative affect).

2.3 *Images*
Example: external image (seeing windchimes in mind) +

2.4 *Miscellaneous* insights, ideas, related to task at hand
Example: You've got to be highly motivated to do precise meditation (0).

2.5 a stopped and looked at time
a' would like to look at time
b writing down ideas

III. Future

\+ +a=ego competitive "thought" e.g., I think that soon I will be able to ace out Mr. X in terms of visibility and that makes me feel good.
+b=a nice positive thought, e.g., I like the image I've planned for myself.

0 =neutral, I might want to use Johnston's book in my research class next month.

− =I'm confused about where I'm heading.

IV. Current Situations, Events

\+ +a=ego/competitive/positive
+b=nice thought
c=neutral (non-self related)

0 =affectless

− =competitive feelings, out of control, anger

V. Memories (Past)

VI. Uncodable

6.1 Can't hear

6.2 Preverbal — can't code

6.3 Makes no sense — noncodable

honesty would be in the subject's reporting of his internal experience. It was believed that if the subject felt others were going to listen to the tape, there could easily occur a censoring of information which would, in effect, defeat the purpose of the study. Therefore, the subject rated the thoughts.

3.6 Results

THOUGHT BLOCKS VERSUS NON-THOUGHT BLOCKS

The data for the ten sessions were grouped according to time spent in thought blocks and time spent in periods of blankness—non-thought blocks. This information is reported in Figure 3.1. The $\bar{x}$ percent of non-thought time was 73.3% across the ten sessions; and $\bar{x}$ percent of thought time was 26.7%. Although the mean percent between sessions 1-5 (counting 1-10) involved a slightly higher non-thought time (75.2%,) than sessions 6-10 (counting one) (71.3%), the difference is not significant.

The longest time the subject spent without thoughts was 160.7 seconds, spanning thirteen breaths. The shortest and longest breaths without thoughts were 6.0 seconds and 65.0 seconds.

The longest time spent in continuous thought was 82.5 seconds, consisting of five breaths. The shortest and longest breaths with thought were 6.7 and 62.3 seconds.

HYPOTHESIS ONE

Visual inspection of Figure 3.2 and t-test calculations (Table 3.3) show that the mean length of a breath was significantly longer in a thought segment ($\bar{x}$ = 18.8; S.D. = 7.7) than in a non-thought segment ($\bar{x}$ = 12.7; S.D. = 2.5) for all ten sessions.

This directly refutes hypothesis number one, which posited that breathing would be shallower and of shorter duration during thought periods than in non-thought periods.

Further inspection of Figure 3.2 and Table 3.3 suggests that there was no significant difference between the breath lengths for the five sessions counting one to ten and the five counting just

TABLE 3.2 *Percent of Breath Blocks: Thought and Non-Thought (By Session)*

	Session												
%	1	2	3	4	5	1-5	6	7	8	9	10	6-10	1-10
△	28.3	24.2	21.1	18.6	27.9	24.8	32.5	33.6	29.7	19.1	17.6	28.7	26.7
▽	71.7	75.8	78.9	81.4	72.1	75.2	67.5	66.4	70.3	80.9	82.4	71.3	73.3

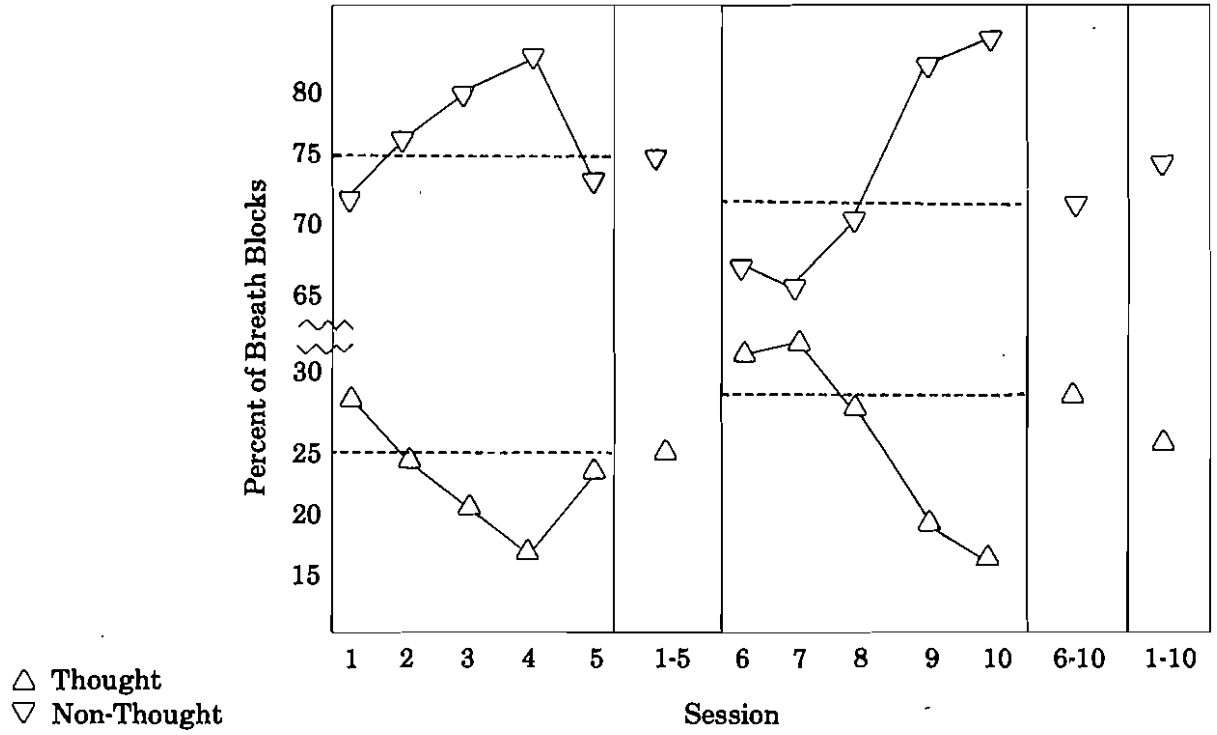

FIGURE 3.1 *Percent of Breath Blocks: Thought and Non-Thought*

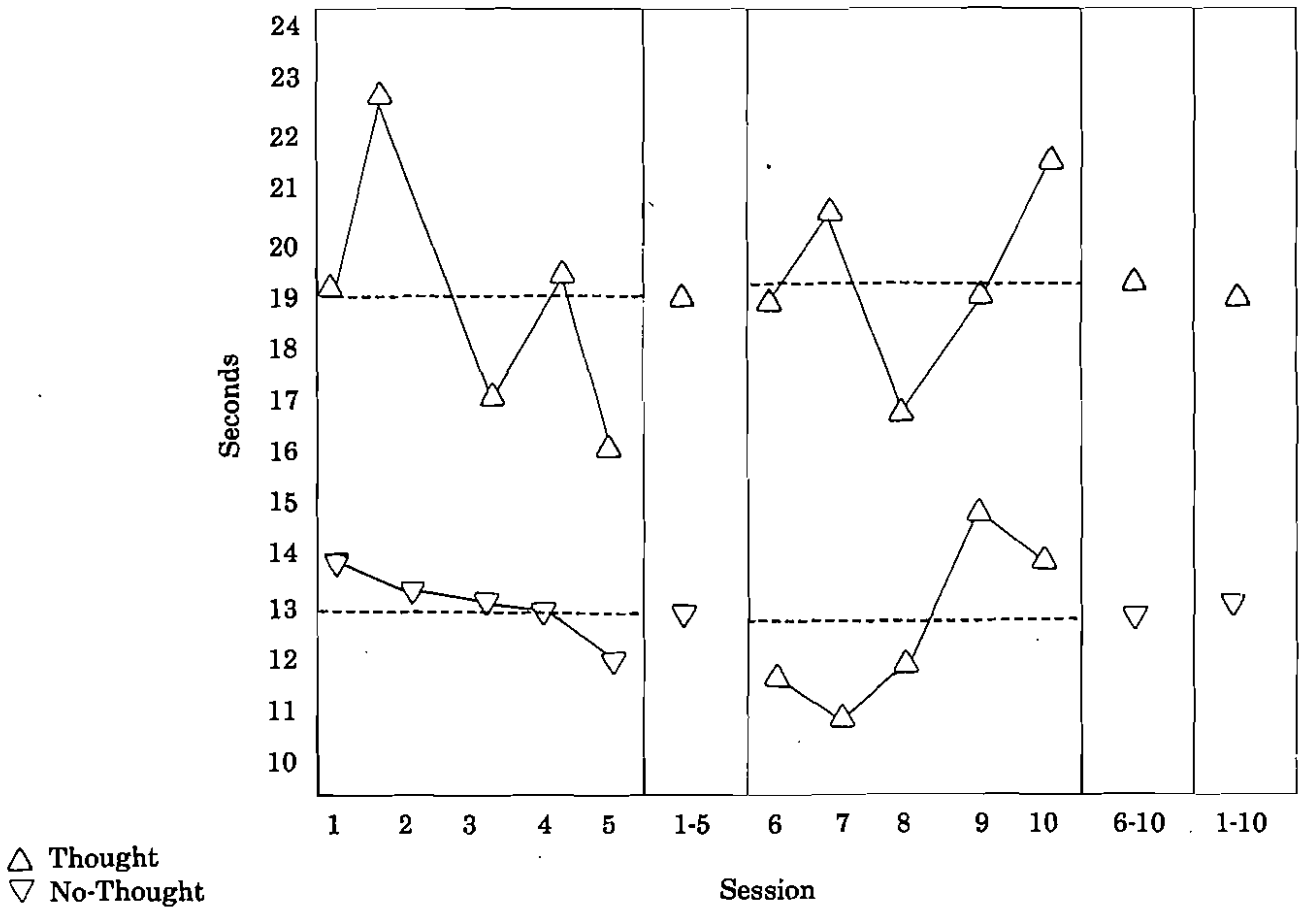

FIGURE 3.2

Mean Time of Breaths in Thought and Non-Thought Blocks/Session

TABLE 3.3

Mean Time of Breaths in Thought and Non-Thought Blocks/Session

		Session												
		1	2	3	4	5	1-5	6	7	8	9	10	6-10	1-10
$\bar{x}$	△	18.7	22.3	16.9	19	15.6	18.5	18.5	20.1	16.7	18.8	20.7	19	18.8
	▽	13.8	13.3	13	12.8	11.7	12.9	11.7	11	12	14.7	13.5	12.6	12.7
s.d.	△	6.5	9.2	10.2	5.3	4.4	7.4	7.2	6.7	7.1	3.5	14.9	7.9	7.7
	▽	2.7	3.1	3	2.1	3	2.9	2.5	1.4	1.8	2.1	2.9	2.1	2.5
	τ	5.8	8.4	4.1	5.6	6.4	6.1	8.5	12.5	5.9	1.6	3	6.3	6.2
	δ	.01	.01	.01	.01	.01	.01	.01	.01	.01	—	.01	.01	.01

~ — Insignificant

τ —Test for difference between thought and no-thought breath time

δ —Significance level of the above t-test

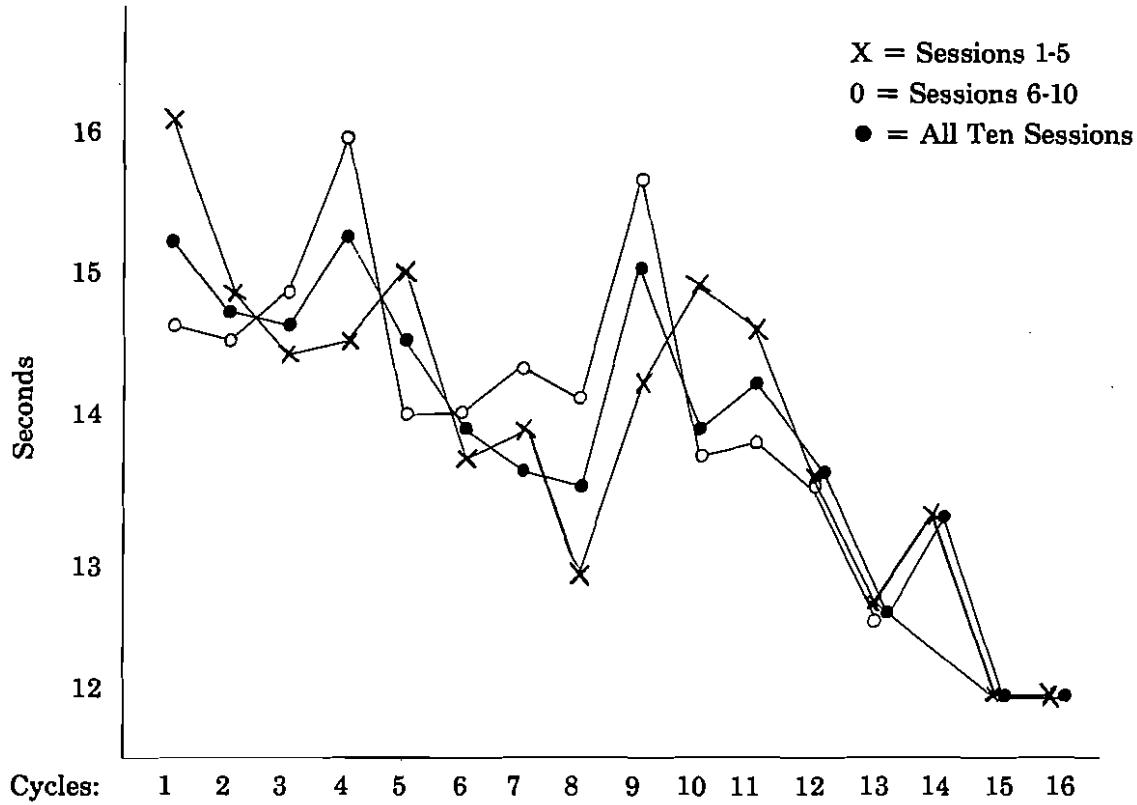

FIGURE 3.3

Mean Time of Breaths, In Seconds:
Comparison of Cycles Within Session

TABLE 3.4

Mean Time of Breaths in Seconds: Comparison of Cycles, within Session

Session

Cycle	1	2	3	4	5	1-5	6	7	8	9	10	6-10	1-10
1	18.7	13.4		18	14.2	16.1	13.2	17.1	13.7	15.9	13.9	14.7	15.3
2	14.6	15.4	12.7		17	14.9	11.2	13.3	13.8	16.9	18	14.6	14.8
3	19.8	14.4	12	12.8	13.3	14.5	16.3	13.8	14.6	16.6	13	14.9	14.7
4	17.7	13.3	13.8	14.2	14.1	14.6	15.9	16.3	18.1	16.4	13.5	16	15.3
5	16.8	13.4	16	15.3	14.1	15.1	12.5	13.5	13.8	14.5	15.7	14.1	14.6
6	14.5	13.7	14.9	12.4	13.7	13.8	14.7	12.8	14.6	13.4	15.2	14.1	14
7	18.5	15.3	14.1	11.1	11	14	13.6	15.6	12.9	15.5		14.4	12.7
8	14.4	14.2	13.1		11.6	13	16.2	10.6	15.7			14.2	13.6
9	16	16.1	13.3		11.6	14.3	18.1	16.2	12.7			15.7	15.1
10	12.6	20.3	15.8		11.4	15	12.4	14.9	14.1			13.8	14
11	14.2	16	16		12.5	14.7	13.7	15.1	12.9			13.9	14.3
12	14.1	15.5	14.5		10.7	13.7	12	15.9	12.8			13.6	13.7
13			15.3		10.1	12.7	11.7	13.9	12.9			12.8	12.8
14			14.4		12.5	13.4							13.4
15					12.2	12.2							12.2
16					12.2	12.2							12.2

one. This was as predicted, given the experience of the subject (see the preface to hypotheses a and b).

HYPOTHESES TWO AND THREE: TRENDS IN BREATHS AND NUMBER OF THOUGHTS

Each meditation session was divided into periods of ten breaths, and within-session comparisons were made to determine if meditation became "deeper,"—characterized by fewer breaths of longer duration (hypothesis two) and fewer thought blocks (hypothesis three), as a session progressed. Table 3.4 and Figure 3.3 suggest that breathing did not become deeper as a session progressed. In fact, there is a steady tendency for the mean length of a breath cycle to drop over cycles for the average of all sessions. Typically, breathing becomes slightly more shallow as each session progresses. Therefore, hypothesis number two is rejected. No noticeable differences appear between one through ten counting in sessions one through five and one, one, one, counting in sessions six through ten.

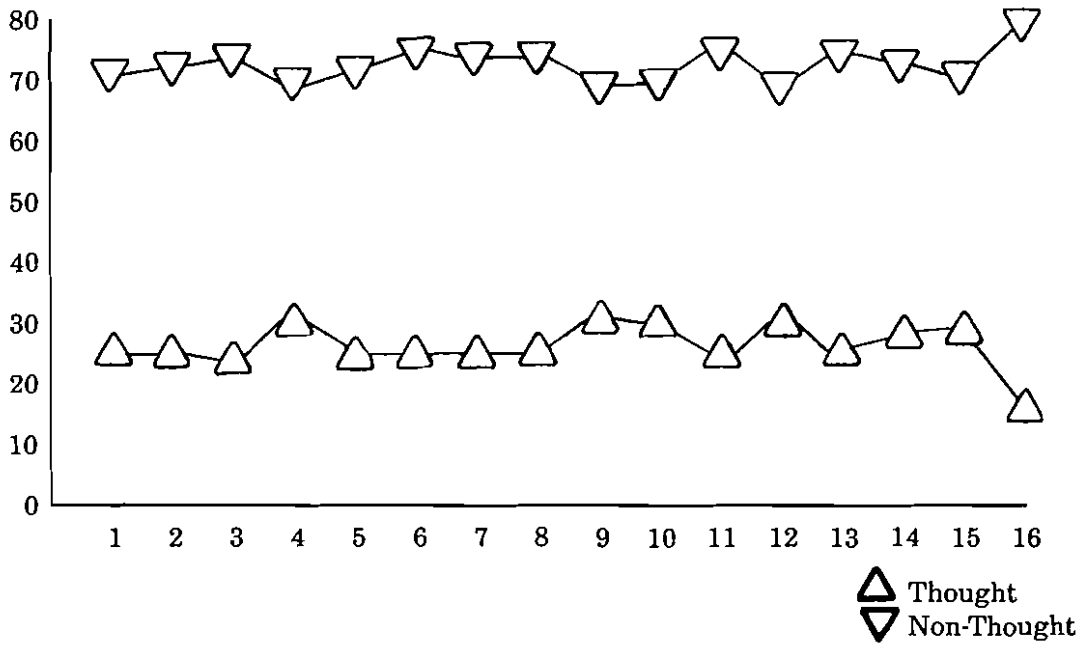

FIGURE 3.4

Percentage of Thought and Non-thought Blocks/Cycle: Mean Across All Ten Sessions

TABLE 3.5

Thought and Non-Thought Blocks per Cycle

Cycle		Session 1	2	3	4	5	6	7	8	9	10	Frequency Across 1-10	% Across 1-10
1	△	3	1		3	3	4	3	4	2	1	24	.27
	▽	7	9		6	7	6	7	6	8	9	65	.73
2	△	4	3	1		7	1	3	3	3	2	21	.25
	▽	6	7	9		3	9	7	7	7	8	63	.75
3	△	4	1	1	1	4	4	3	3	1	0	22	.22
	▽	6	9	9	9	5	6	7	7	9	10	77	.78
4	△	4	3	1	3	2	4	5	4	2	2	30	.30
	▽	6	7	9	7	8	6	5	6	8	8	70	.70
5	△	3	2	2	1	4	3	3	3	2	4	27	.27
	▽	7	8	7	9	6	7	7	7	8	6	72	.73
6	△	1	3	3	1	2	3	2	4	2	0	21	.23
	▽	9	6	7	9	8	7	8	6	8	1	69	.77
7	△	1	3	1	2	2	4	2	3	1		19	.22
	▽	9	7	8	8	8	6	8	7	7		68	.78

8	△	2	2	1	4	3	2	4	18	.26
	▽	8	7	9	6	7	8	6	51	.74
9	△	5	3	1	3	5	5	0	22	.31
	▽	5	7	9	7	5	5	10	48	.69
10	△	2	3	2	2	4	4	4	21	.30
	▽	8	7	6	8	6	6	6	47	.70
11	△	2	2	2	2	4	4	2	18	.26
	▽	8	8	7	8	6	6	8	51	.74
12	△	3	3	2	4	2	6	2	22	.31
	▽	7	8	8	6	8	4	8	49	.69
13	△			4	2	1	1	2	10	.25
	▽			5	8	5	4	8	30	.75
14	△			1	3				4	.27
	▽			4	7				11	.73
15	△				2				2	.29
	▽				5				5	.71
16	△				1				5	.14
	▽				6				6	.86

The maximum number of thought blocks in one complete cycle (i.e. ten breaths) of any given session was six, cycle twelve, session seven; the minimum, zero, session eight, cycle nine. Conversely, the maximum number of non-thought blocks in one complete cycle of one session was ten, session eight, cycle nine; the minimum, four, session seven, cycle twelve. Visual inspection of Figure 3.4 shows that there is no discernable trend in the percentage of thought versus non-thought blocks over cycles. Therefore, hypothesis three is rejected.

TYPES OF THOUGHT — GENERAL INFORMATION

An effort was then made to determine more precise information about the nature of the thoughts. Thoughts were coded for all ten sessions, as per the temporal coding categories and were given an affective rating of positive (+), neutral (0), or negative (−). Across all ten sessions there was a total of two hundred and eighty-six thoughts. Visual inspection of Figure 3.5 and Table 3.6 and 3.7 shows that across all ten sessions, the S's attention was most occupied with neutral thoughts (N = 159.5* thoughts, 56%), second with negative thoughts (N = 61.5 thoughts $\bar{x}$ = 22%), and least with positive thoughts (N = 45.5 thoughts, $\bar{x}$ = 16%).

As can be seen from Table 3.7, most of the subject's thoughts were either focused on the task at hand (Category II, 117 thoughts = 41%) or current situations or events (Category IV, 82.5 thoughts = 29%). There were more future thoughts (Category III, 47.5 thoughts = 16%) than general, philosophical (Category I, 17 thoughts = 6%) or past (Category V, 3 thoughts = 1%).

Among categories, the highest frequency of positive thoughts occurred in Category II, task at hand, and the highest frequency of negative thoughts occurred in Category IV, current events.

In Category II where a more precise coding of thoughts was made, (see Table 3.8) the largest amount of thoughts was in

*The .5 (½ thought) results from the coding system. If two different thoughts (e.g., a positive and a negative one) came up within the same "thought block," each thought was coded in the appropriate category as ½ thought.

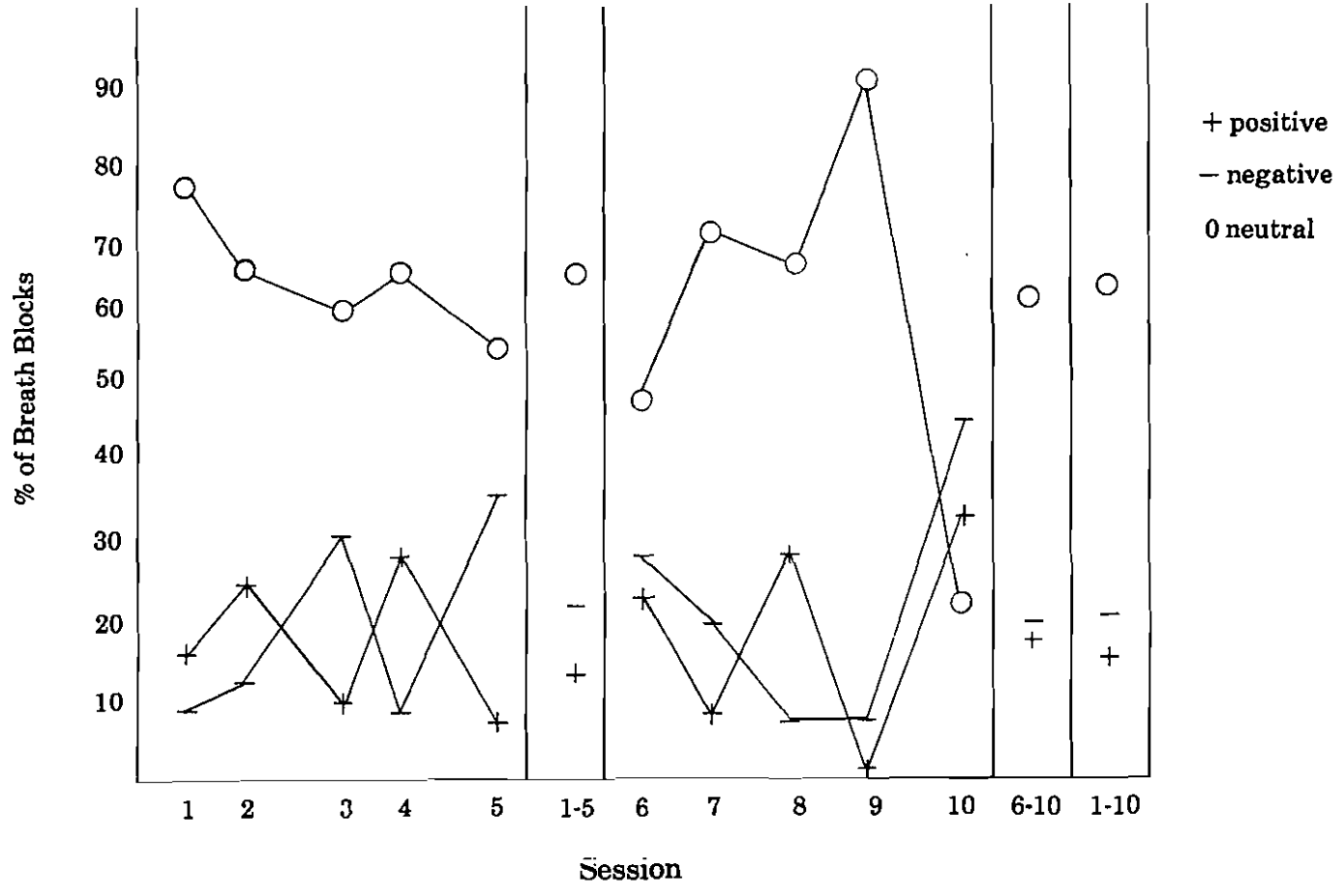

FIGURE 3.5

Percent of Breath Blocks/Session of Positive, Negative, and Neutral Thoughts

TABLE 3.6 *Percent of Breath Blocks/Session of Positive, Negative, and Neutral Thoughts*

+	14.7	24	9.6	27	6	14	22.6	9.3	26.3	0	33.3	18.3	16	45.5	
−	9	12	30.7	9	36.6	22	28.6	19.8	7.9	7.7	44.4	19.7	21	59	%
0	76.4	63.8	59.6	63.6	57.3	64.2	48.8	71	65.8	92.3	22.2	62.1	63	159.5	
	1	2	3	4	5	1-5	6	7	8	9	10	6-10	1-10 %	No. for Sessions 1-10	
							Session								

TABLE 3.7 *Number of Thoughts (and Percentage) Across Ten Sessions, Per Coding Category*

	No. Thoughts	*Percentage*	*Positive*		*Neutral*		*Negative*	
			Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Category I (General, Philosophical)	17	6%	3	1%	13	5%	1	<1%
Category II (Task at Hand)	117	41%	27.5	10%	81	28%	8.5	3%
Category III (Future)	47.5	16%	5	2%	30	11%	12	4%
Category IV (Current)	82.5	29%	9	3%	35.5	12%	38	13%
Category V (Past)	3	1%	1	<1%			2	1%
Category VI (Uncodable)	17	7%						
Total Number	286	100%	45.5	~16%	159.5	56%	61.5	~22%

Category 2.4, miscellaneous thoughts: (55.5 thoughts = 47%), all generally analytical and related to the task at hand. (For instance: "Does this type of talking magnify the thought and actually cause it—verbalizing what may otherwise disappear?" "The last thought could be called a persona-type thought," etc.) The majority of these were neutral (82%). The "looking-at time," or "writing-down-notes" instrusions (Category 2.5) occured sixteen times (1.6 times per session); all were neutral.

The remaining instrusions (45) were a combination of body sensations, images and self-statements. Of these, self-statements (Category 2.2) were the most frequent, 25 thoughts = 21%, followed by kinesthetic (body sensations) (Category 2.1) 11 = 9%, and images (Category 2.3) 9 = 8%. Of these three categories, the highest percentage of positive instrusions occured with images (66%) and self-statements (58%). Examples of the former include both internal and external visual images (windchimes, green plants, wind swaying the trees, myself peacefully meditating in my mind's eye); examples of the latter include, "feeling peaceful and relaxed, getting deeper, nice calm breath, more centered." Positive body sensations were sexual, erotic feelings. Examples of neutral intrusions for body, self-statements, and images respectively were: "right side sweaty" (2.1 0); "remain centered" (2.2 0); and "focusing on my nose" (2.3 0).

Negative examples for the three include: "strong pain in my feet" (2.1−); "amazed at my inability to stop thinking" (2.2−); "imagining someone watching me meditate, makes me feel self-conscious" (2.3−).

HYPOTHESIS FOUR: AFFECTIVE TRENDS WITHIN SESSION

To support hypothesis four, each session was again divided into "cycles" of ten breaths to determine whether the percentage of negative thoughts decreased and the percentage of positive and neutral thoughts increased from the beginning to the end of the meditation session. Although hypothesis three—fewer thoughts at end of a session than at the beginning—was rejected, it would still be possible for the affective nature of these thoughts to change, to become less negative, and more positive and/or neutral.

TABLE 3.8

More detailed breakdown of Category II: "Thoughts Related to Task at Hand"

	No. Thoughts	*Percentage*	Positive		Neutral		Negative	
			Number	*%*	*Number*	*%*	*Number*	*%*
Body Sensations (2.1)	11	9%	2	18%	8.5	77%	5	4+%
Self-Statements (2.2)	25	21%	14.5	58%	9.5	38%	1	4%
Images (2.3)	9	8%	6	66%	1	11%	2	22%
Miscellaneous (2.4)	55.5	47%	5	9%	45.5	82%	5	9%
Time looking and Idea writing (2.5)	16	14%	0		16.2	100%	0	

TABLE 3.9 *Percent of Positive, Negative, and Neutral Thoughts in Each Cycle*

Affect	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
+	21	20	14	16	17	14	24	13	18	25	6	23	23	0	0	0
−	52	65	76	60	67	59	56	38	61	35	76	63	64	100	33	0
0	26	15	10	24	17	27	21	50	21	40	19	15	14	0	66	0

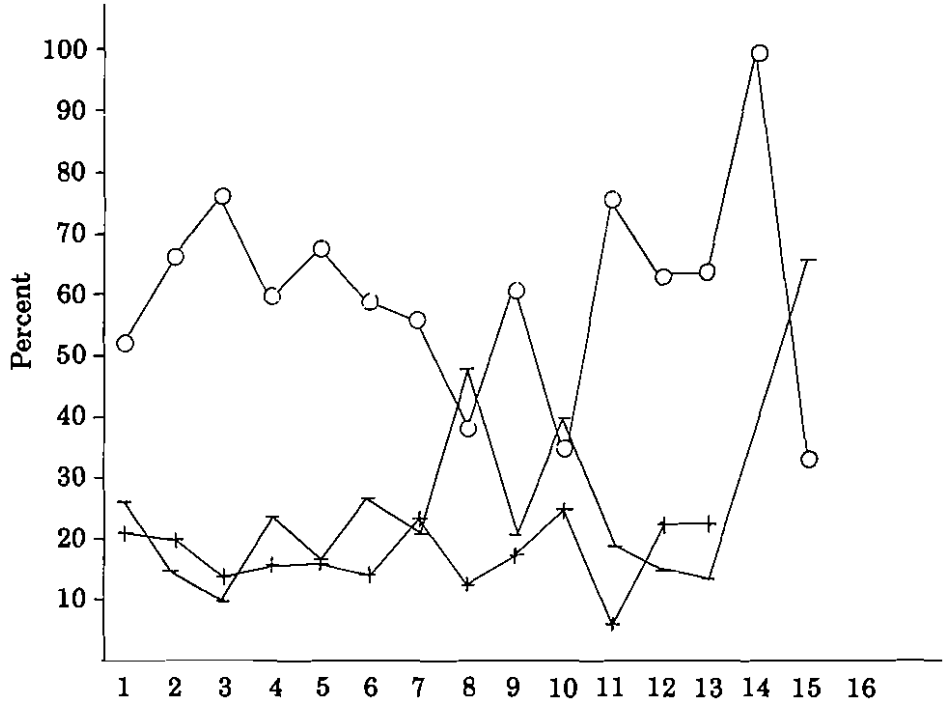

FIGURE 3.6 *Percent of Positive, Negative, and Neutral Thoughts in Each Cycle*

A summation of thoughts for all ten sessions, by cycles, was calculated and divided into positive, neutral and negative thoughts. Visual inspection of Table 3.9 and Figure 3.6 show that no significant trends appear, and therefore hypothesis four is rejected.

3.7 Discussion

INTERESTINGLY this study led to the complete rejection of all four hypotheses. My years of meditation practice, familiarity with the traditions, and training in "scientific observation," made me expect my hypotheses to be right on target. It was a humbling experience to miss in every case. Let me offer one example of the learning that occurred from this.

For example, hypothesis one predicted that breath-time during thought-time would be shallower and shorter than during non-thought time. The data showed a totally different picture. Neither the experimenter nor the subject really believed this. However, the next time the subject meditated after reviewing the data, he noticed that when he was thinking during meditation, he braced slightly and held his breath. This would account for the longer time interval during "thought-times." In non-thought times he reported his breathing as smoother and more regular. The subject also noticed that when he could keep his breathing regular during a thought, it substantially lessened the "affective" charge of the thought. In this case, the data were like a feedback machine, showing the subject an error in his practice of which he was not aware. This particular finding, as did the others, surprised me, and stressed the importance of "data" as a check on our belief systems and our behavior. The subject *knew intellectually* he should keep breathing slowly and easily during intrusions, and was not even aware of bracing.

As noted in Table 3.7, when a thought occurred about the meditation task (Category II), there was the highest probability, relative to any other category, that the thought would be positive. When a thought about the subject's current life situation occurred, (Category III) there was the highest probability, relative to any other category, that the thought would be negative. Extrapolating from this, meditation seemed to serve as a decompression chamber for this subject. His thoughts from

current-life situations, which were generally of negative affect, "spilled" into the meditation session. Some of these were "diffused" during the course of the session. Although not statistically illustrated by the quantifiable data (hypothesis four), the subject noted that often there was a change in the valence of a given thought within a meditation session. For example, in one session he noted he was struggling with an issue. Initially, each time it came up, he had a negative charge. However, by the end of the session, he said he could view the issue with equanimity—it had become "neutral." Another example he noted was:

> An image occurred this session which helped me to dissolve (counter-condition) a problem I was having with one of the students where I work. I had an image of that person coming at me with a huge, bloated, angry, attacking face, arms flailing and fists clenched. I became, in the scene, an atom, and that person just passed right through me—between my electrons and my nucleus. I felt the issue took on a perspective—and that rather than rising to confront the attack, or backing away from it, I could just be there, calm and centered—without having to respond angrily or with annoyance, or without having to feel put down or unjustifiably slandered. I felt calm, delicately embracing and caring. The attack no longer threatened me.

Thus, meditation seemed to help the subject diffuse negative affect "spilling" into the session from current events. The task of meditation itself, when reflected upon, provided an opportunity for competence, harmony, relaxation; and thoughts associated with the task were generally positive. From informal "conversations" with the subject, this experimenter would suggest that this may be one of the primary reasons why the subject often felt slightly "out of balance" if he went too many days without meditating.

Regarding the coding instrument, "positive self-statements" were divided into two types, reflecting an experimenter bias that needs to be made explicit. While meditating, all positive thoughts were, in fact, perceived by the subject as positive and later coded as such, 2.2+. However, given the value system of the experimenter, these thoughts were divided into competitive, ego-oriented, positive thoughts (e.g., Dr. X used to ignore me and now I am getting more famous) coded as 2.2+a; and other non-competitive positive ego thoughts (e.g., I like the gentleness I

am sensing more and more in myself) as 2.2+b. Theoretically, given the values and demand characteristics of the meditation tradition, ego-oriented self-aggrandizing thoughts eventually decrease. However, for this subject, at that time, these thoughts still occurred and still gave him a positive and powerful feeling.

In a different vein, the subject, upon reviewing the data, noted the difference between the "quantifiable" data and his subjective experiences. For example, during the ten sessions, he reported having many experiences in which he reported "contacting my center." During these experiences "I felt a harmony with myself, 'pure,' in touch with my place in the world." On the data sheet, these came out as positive self-statements (2.2+), e.g., "I am my house"; "feeling the windchimes"; or a positive image (2.3+): e.g., "light filtering through trees"; "shadows and visions of my body at peace."

The subject also noted that meditation seemed to make things more "true" for him. As he recounts,

> "When I am talking to someone, I'll say, 'Well, this came up for me more while I was meditating,' " implying that that must be *really, really* real. Or before I begin to meditate, I am implicitly saying, "Let's see what's really going on with me." Now, this may be true. Meditation may in fact be allowing the most salient thoughts to occur. However, I am also aware of this as a strategy, implicitly saying to the other person: "How can you argue with my meditation experience — it would be like blasphemy!"

The subject also expressed interest at the specific breakdown of the thoughts in Category Two (Table 3.8). He reported that these data provided a confirmation of his own observations, that his primary representational system was verbal/cognitive; followed by kinesthetic and then visual. Of the forty-five thoughts in these three categories (2.1, 2.2, and 2.3), 25 intrusions were cognitive self-statements (55%); 11 intrusions were kinesthetic (24%), and nine were images (20%).

This subject, in retrospect, seemed to be an excellent candidate for meditation. He was a highly motivated individual who wanted to channel his energy, which had heretofore been directed toward competitive, upwardly mobile tasks, into his own growth and quest for personal meaning. This subject also had high control needs, and yet had to face that, in reality, there are a great many situations and events one cannot control. Meditation

provided him with a vehicle by which he could learn to accept what he could not control. It fit into his world view, therefore, in that through cognitive restructuring, he could feel that he was in fact controlling reality at least in terms of his ability to react acceptingly.

Some comments need to be addressed to the role of the teacher (or lack thereof) for this subject. This subject did not have the qualities of a very good long-term pupil.

By his own admission, he is in many ways a loner by temperament and an independent person without too much respect for formal rules and regulations. As he noted, "I found the Zen monastery in Japan, with its rules and procedures and bowing, too rigid for me. On the one hand, I've had to learn over the last ten years a willingness to surrender and bow to 'oneness.' On the other hand, although I am often attracted to individuals as models of how I would like to live, I haven't ever found one whom I feel has arrived sufficiently to totally instruct me. So, I am skeptical of living teachers. I use the image of idealized teachers—Gandhi, Hesse's Siddhartha; I ask advice from, confide in, share with people I admire; that feedback is critical to me. But having a long-term teacher has not yet worked for me. It may be adolescent rebellion or fear of surrender. Both, I'm sure, are partly true. But, (of course!) I also feel it is a healthy skepticism for me. Ultimately, as Buddha said, it is our own task to find the path."

There are some methodological and interpretive problems which need to be mentioned. First, there may be problems with the reactive effect of the observation. Initially, the subject noted that having to state a thought aloud was a hindrance and caused a greater dwelling upon thoughts per se, as well as thoughts such as, "I wonder how intrusive this has been," or "What a pain this is to have to say this aloud." Also there were thoughts about who was going to transcribe this, should he be totally honest, etc. Second, the meditation literature suggests that there is a slowing of thoughts during the later phases of meditation (e.g., Brown, 1977). If that is so, are periods of "blankness" merely an absence of accurate discrimination of thoughts and a result of lowered awareness? Further, the objective of mindfulness meditation is to be "choicelessly aware," so fewer intrusions do not necessarily mean a more "effective" meditation. In addition, there is an assumption that when an intrusion

occurred, he was mindful of it. The subject believed he was generally "mindful." The only concurrent evidence comes from the taped record of the counting 1...2...up to 10. I reviewed the tape to determine how many times the subject skipped a number, e.g., (1...2...4) or repeated (1...2...2) a number without being aware of it. Of 594 numbers counted in sessions one through five, there were thirteen times he either skipped or repeated a number. Therefore, 97.9% of the time the subject counted accurately without losing track or being distracted.

In terms of the process of meditation, the subject noted that "I initially take in my surroundings in a broad sweeping awareness. Soon, I reach a homeostasis with the environment, and remain relatively quiet and empty-minded until a new thought arises." The specific interpretation of the blankness must, of course, take into account the subject's experience of it, level of practice and attentional focusing skills. The subject also noted:

> My body feels like a tight looseness: tight in that my mind and parts of my body posture are in a good way firm and rooted. Looseness in that my stomach and breathing feel spontaneous and nice. I am aware that I need quiet space. I enjoy the visual feedback of myself in a mirror, that I am together in one piece. I enjoy best meditating at sunrise or sunset, feeling a natural movement of the earth.
>
> Sometimes I noticed that I had high affect over trivia. It was as if there was a "pool" of high affect in me, and it was looking for something to attach itself to, to rationalize itself. If there was an important issue then the high affect made it a *very* important issue. If it was an unimportant issue the high affect *made* it an important issue.

"I also noticed that in the last five meditation sessions in which I counted one, one, one, that it felt like there were more thoughts, yet also I had more positive feelings of deep relaxation and peace. As usual, counting one, staying more in the moment, was both more difficult for me, but, when it worked, more enjoyable."

There are several different areas future research could profitably pursue. First, it would be important to determine whether the types of thoughts that occur during a meditation or quiet

period of time are different than the thoughts that occur during a random section of the day. Second, it would be useful to refine the role of counting a "number": does it become a cue to remember; to be mindful; a thought in itself; a cue to center; a distraction; a labeling of breathing? Does breathing out and stating a number become a discriminative cue for noticing whether intrusions have occurred, are occurring? A signal for stopping that talk? A signal for returning to the task at hand?

An additional consideration concerns the multi-step process involved in reacting to intrusions. For example, the subject noted that many times there were "rumblings" which were not always conceptualizable. "This research task made me bring these thoughts into awareness, recognize them, label them, discriminate them. If I had just been meditating, I may have let these go as unsalient." Thus, the first step was recognizing and verbalizing the intrusion. The next step, via the coding instrument, was to determine whether the intrusion was of a positive, negative, or neutral affect. A third step would be to determine whether the subject was able to discriminate positive, negative, neutral and *still* maintain equanimity. In other words, how did the subject respond to intrusions.

Regarding additional research, to reduce the intrusiveness of "outloud talk," future studies might have the individual cite specific words (rather than sentences, as in the present study; cf. the Vipassana tradition). Further, it would be interesting to compare the cognitive experiences of beginning and very advanced meditators in the dimensions of this study. Finally, the experience of individuals practicing different self-regulation therapies, as well as different spiritual practices, should be compared for the nature, type and frequency of the "internal behaviors."