THE EFFECTS OF THE TRANSCENDENTAL MEDITATION TECHNIQUE ON A MEASURE OF SELF-ACTUALIZATION.

LELA AMES. JOSCELYN

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THE EFFECTS OF THE
TRANSCENDENTAL MEDITATION TECHNIQUE
ON A MEASURE OF
SELF-ACTUALIZATION

BY

LELA AMES JOSCELYN

M.A. UNIVERSITY OF WINDSOR, 1968

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ABSTRACT

Among the many benefits claimed to result from the practice of the Transcendental Meditation (TM) technique have been personality changes that suggested that self-actualization or increased psychological health and fulfillment of potential was a tendency of its practitioners. Methodological difficulties found in previous studies of the influence of the TM technique on measures of self-actualization were controlled, namely, subjects' set and the experimenter effect. The general hypothesis of the present research was that a group that practiced the TM technique would improve significantly more on a measure of self-actualization than a group which took comparable training and a group that practiced no self-improvement technique. The specific hypotheses were that that improvement would be found on the time competence, inner-directedness, self-actualizing value, feeling reactivity, spontaneity, self-regard, and capacity for intimate contact scales of the Personal Orientation Inventory (POI) and on internal locus of control (Rotter's Internal-External (I-E) Scale). The tendency to respond in a socially desirable way (Marlowe-Crowne Social Desirability Scale, MCSD) was also measured.

The experimental (TM) group was 24 working adults who took instruction in the TM technique, 11 men and 13 women, averaging 32.25 years of age. The treatment control (TC) group was 18 working adults, 8 men and 11 women who participated in a human relations workshop, average age 30.17 years. The control (C) group was 10 working adults, 1 man and 9 women, who averaged
28.3 years of age. All the subjects were tested on the POI, the I-E Scale, and the MCSD Scale before and 2 months after beginning their self-improvement training. All groups were tested by their trainers or a person from their organization, not the experimenter. Regularity of practice of the TM technique was also assessed.

One-way analyses of variance of the pretest, posttest, and posttest-pretest differences among the groups on each scale revealed only a pretest difference between the groups on the capacity for intimate contact scale on the POI. The treatment control group scored significantly higher than the other groups. One-tailed t-tests of the pretest-posttest differences within the groups on each scale showed the TM group to have improved significantly on eight of the POI scales and on internality (I-E Scale). The TC group improved significantly on four of the POI scales. The C group improved significantly on one POI scale. Pearson correlations with groups collapsed were done. Several significant correlations were found. Analyses of variance by sex with groups collapsed on each scale revealed a sex difference on the feeling reactivity scale of the POI. Men increased more than women in that scale. A significance level of .05 was used throughout.

The hypotheses were not found to have been confirmed. The importance of the controls used and their necessity in all self-improvement research was discussed. Variability was discussed as a factor and suggestions to diminish its effects were made; larger groups, a longer pretest-posttest interval, and control of regularity of practice of the TM technique.
ACKNOWLEDGEMENTS

This is the place where I can record my heartfelt thanks to those who have encouraged, guided, and supported me in completing this task: Sam and Paul, who lived through it with me; Bob Fehr, who once again said yes and smoothed the way; Meyer Starr, who gave me his expertise and friendship, easily; Al Malone, who helped me think about new ideas and familiar ideas carefully; Fergus Hughes, who was ready, as always, to give his time, and care, and objectivity to a friend; Debbie Lisch, who typed for me, accurately, tirelessly, and with good humor; Tom Hogan and Norio Sugano, who willingly shared their facility with statistics and computers; Winnie Pazdera Eichof, who gave me her efficient and competent assistance, yet another sign of her loving friendship; Jim Rentmeester, who gave of his organizational and group leading skills at a crucial time; Burt and Bruce, teachers of the TM Program, who readily gave their time and support; June Kriviskey, who was for me, as for others, a superb model of becoming what one wants to be; Shelley Laux, who was always a real friend; Ruth Hartley, who showed me that hard work pays off and that play is important to us all; Phyllis Chicorel, who gave me important and substantial means to realize my abilities; Steve Hall, who persisted in sharing TM with me; Maharishi, who brought Guru Dev's teachings out of the North of India; and Lela L. Joscelyn, who gave me life and dreams larger than my world.
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CHAPTER I

INTRODUCTION

The Transcendental Meditation (TM) technique, which is taught by instructors of the International Meditation Society, has become well known on all the continents of the world. Both physiological and psychological benefits are claimed to result from the practice of "turning the attention inwards towards the subtler levels of a thought until the mind transcends the experience of the thought and arrives at the source of thought" (Maharishi, 1969, p. 470). The meditative technique involves mentally repeating a mantra, which Bloomfield and Kory have defined as "an instrument of thought" or a "mental device" (1976, p. 52). The practice is normally performed twice a day, morning and evening, sitting comfortably with one's eyes closed, for 15 to 20 minutes depending on one's instructions. The TM technique has been described as

a simple, natural, effortless procedure which gives deep physical and psychological rest. It is easy to learn.... is a basis for dynamic, successful activity, and no alteration in life style or belief is necessary to obtain the full benefit from the practice. The Transcendental Meditation program is logical, systematic, open to scientific verification, and the benefits are available to everyone. (May, 1976)

Carrington (1977) has noted that while the TM technique is not entirely open to scientific study (the mantras, for example, are kept secret), it is "taught in a standardized manner--this insures that wherever it is taught and whoever the particular teacher might be, the method is exactly the same" (p. 45).
Among the many effects claimed for the TM technique have been changes in psychological measures that, taken together, could be seen as a syndrome of healthy adult personality development. In particular, the focus of the present research, the concept of self-actualization, seemed to apply to certain of the personality changes that had been found. Maslow (1954/1970) defined self-actualization in people to be acting in accord with their most positive potential, making full use and exploitation of talents, capabilities... fulfilling themselves and... doing the best that they are capable of doing... developing to the full stature of which they are capable. (1970, p. 150)

On the theoretical as well as the empirical level, the TM technique would seem to influence positively the development of self-actualization as measured by various personality inventories. While research has indicated that this may indeed be the case (see Orme-Johnson and Farrow, 1977, for a collection of such studies) several problems have been inherent in that research that must be explored before such a conclusion could be drawn. The purpose of the present study was, then, to control some of those research difficulties in an attempt to more clearly answer the question of whether the TM technique does, indeed, foster or enhance the development of measured self-actualization.

Some of the research design difficulties in the studies on the TM technique and self-actualization are related to the subjects' "set" or expectations. In 1939, Roethlisberger and Dickson conducted a research project at the Hawthorne plant of the Western Electric Company. The purpose of the research was to discover changes which could be made which would increase the productivity of the workers. To control the variables under study, certain groups of workers were used throughout
the duration of the study. The researchers found that any change, short of dimming the lights to the extent that the workers could not see, increased productivity. The critical variable seemed to be simply paying attention to the group, and that variable often causes changes which are called the "Hawthorne effect." When research on the TM technique has not involved a control group receiving a treatment of its own, attention given to the TM group may have caused some or all of the resulting changes. While the studies have been carried out, the TM groups had the attention of a personal teacher for instruction, some continued attention after instruction (as much, in fact, as the meditator was deemed to need to insure proper meditation), and some information on the benefits of the TM technique.

The latter suggests another problem of the subjects' set, namely, the "placebo effect." The individual who expects that a treatment of some kind is going to cause some change for the better (or worse) has often been found to change in that way regardless of the "real" effectiveness of the treatment (Shapiro, 1971). In fact, Weil (1972) has stated that set or expectation is of overwhelming importance in the experience even of persons who have taken drugs which have demonstrable physiological effects. It is possible, then, that the expectation of results has caused changes in meditators. This would be more likely to be a problem in psychological than physiological studies (though it could exist there also). Control of the "placebo effect" would also be necessary in research on the effect of the TM technique on measures of self-actualization.
Smith (1975) has mentioned a third problem related to subjects' set, that people who start the TM technique may often do so in conjunction with a decision to improve themselves. Possibly having arrived at such a decision precedes more rapid change than would be found in a person who has not made such a decision. Such a possibly contaminating factor would have to be controlled in TM research when self-actualization is a variable under scrutiny.

Another kind of difficulty actually could apply to most TM research as well as studies on self-actualization and the TM technique. It is that the experimenters may often be meditators themselves, even when this fact is not stated in the research. Control for the "experimenter effect" (Rosenthal, 1966) would be important. Rosenthal found that the experimenter's hypotheses or expectations often influence the outcome of the study by having some effect on the subjects' behavior and/or in unintentional computational errors in the statistical analysis of the results. The investment in time alone that meditating requires would suggest that meditating experimenters would do well to attend to the "experimenter effect" in their TM research designs.

The control of a "before and after" testing of meditating and control subjects would also be important. Without it, studies on the TM technique and self-actualization are open to the criticism that self-actualizing people might be more likely to start the TM technique and thus be overrepresented in a group of meditators compared to the general population. A related criticism that could be leveled at studies that involve long-term meditators is that self-actualizing people may be more likely to continue to meditate than people who are
not self-actualizing. Thus, self-actualizers may be overrepresented in a group of long-term meditators as a result of self-selection rather than the TM technique per se. A longitudinal study with appropriate control groups would answer this question. Lastly, a study involving "before and after" testing, but no control group, would be open to criticism. Such a design leaves unanswered the question of whether comparable persons who just grow older for the same length of time might also change on the measure used.

The present research was designed in an attempt to avoid the difficulties mentioned above. It was felt that if adequate controls were used, a good test of the TM technique's influence on a measure of self-actualization would be provided. Specifically, the purpose of the present research was to examine the influence of the TM technique on a measure of self-actualization using a "before and after" design on a group that began meditating and a control group that took a similar kind of training with the expectation of positive change. In addition, a control group that took no self-improvement training was employed to examine whether the time passing alone was a significant factor in the change measured. The experimenter, being a meditator, did not give the groups either their training or their testings to control the "experimenter effect." Under the conditions specified above, it was felt that the influence of the TM technique on a measure of self-actualization could be accurately assessed. In addition, such a design also allowed assessment of the effects of the control treatment on measured self-actualization. Indeed, the design of the present study would seem appropriate for examining the effects of any self-improvement
technique on measures of self-actualization as it provided controls that would apply generally in such research.

The Concept of Self-Actualization

The problem...is how to achieve the maximum utilization by homo sapiens of those amazing cerebral hemispheres of his. He has wit enough to make for himself a happy sojourn on this planet and to realize gradually more of his creative powers. He has wit enough to study, to understand and control the predatory impulses of his kind, and to enrich and magnify the impulse to tenderness and goodwill. Yet he foams and frets, exHORTs and moralizes. A visitor observing the Empire of Alexander and returning to earth today might note that intelligence, as the capacity to adapt the environment to one's needs, has been only very ambiguously advanced. (Murphy, 1958/1975, p. 113)

As the above quote from Murphy has suggested, a very basic question in psychology concerns the capacity of a person to be more than one is ordinarily. If that capacity exists, how can a person grow closer to his/her potential? A corollary question would be if a method for such growth exists, is it one which anyone can use or is it so difficult or esoteric that only a few could or would pursue it?

Martin (1972) further enlarged upon the type of concern that Murphy voiced. He discussed a relatively recent phenomenon of interest in Western culture: the prospect of increasing amounts of leisure time caused by a number of factors, such as increasing average lifespan, automation, and the prospect of a maintenance economy replacing a growth economy. He expressed concern for the ability of large numbers of individuals to adapt to or even tolerate that free time. Sandor Ferenczi's concept of the "Sunday Neurosis" was used to describe the problem; namely, that some people reported a feeling ranging from listlessness to panic during times when they had nothing particular to do. Such a
feeling was particularly observed in persons "who were 'not their own masters'" (p. 128). This suggests that not everyone is equally susceptible to Sunday Neurosis. Those such as Riesman's (1950) "other-directed" people who rely on others for a sense of direction in life and work would seem to have difficulty with free time. Martin clearly indicated that some form of self-reliance was prerequisite to a smooth transition into leisure time.

In his theoretical article, Martin reported that he was gathering data which indicated "that maladaptation to free time does not result from an inherent lack of inborn adaptive resources" (p. 128). He did not say how such data would be gathered, however. He speculated that people have certain inner resources that could make free time more satisfying, viz., an innate capacity for effort and an innate capacity for relaxation. He noted that these capacities would naturally exist in a rhythmic cycle, alternating in a complementary relationship, so that effort is followed by relaxation and vice versa. He stated that the Sunday Neurosis is found in a variety of cultures all of which have a rigidly structured work pattern which is encouraged in adult life. He speculated that such a pattern can and does subvert the postulated natural rhythm of work and play, activity and rest. Implicit in his argument is the notion that an enforced work pattern either encourages or aggravates other-directedness. He contended if work could be reorganized to be consistent with the natural rhythm, then more people would use leisure time for self-realization, for the betterment of themselves and society.
Martin's theme that there exists in people an innate capacity for structuring time is reflective of the Zeitgeist in psychology. This view is characteristic of the Third Force, humanistic or human potential movement, which has its roots in the early history of psychology. (The first two "forces" are psychoanalytic and behavioristic psychology.) For example, Alfred Adler's "creative self" certainly presaged an interest in positive, growth-oriented forces in the human personality.

Since the pioneering work of Maslow, who first published Motivation and Personality in 1954, and Murphy in the above-mentioned reference (1958), many psychologists have attempted to define the concept of the "healthy personality" as distinct from "normal," which often connotes that one is not deviant or "sick." While generalizations from the many theories on the nature of healthy personality development can be made, Maslow's theory and research have been a standard in the field.

Maslow chose to develop his theory of motivation as a critical distinction between his view of personality and those based on psychopathology and "the analytic-dissecting-atomistic Newtonian approach of the behaviorisms and of Freudian psychoanalysis" (1970a, p. ix). He postulated a hierarchy of human needs in which the lower needs are regarded as being stronger, more basic (in terms of phylogeny and ontogeny), and more limited in the scope of their application than the higher needs. The lowest needs are physiological in nature (e.g., hunger, thirst) and they operate in a homeostatic manner. When the individual is hungry, for example, s/he is motivated to seek satisfaction of that need. Once satisfied, motivation returns to its ground state and the organism rests. Maslow's point was that this rest does not persist.
When physiological needs are met regularly and reliably, the individual seeks to satisfy a higher need which arises at that time. The second set of needs in the hierarchy is for safety, "security, stability, dependency, protection, freedom from fear, from anxiety and chaos; need for structure, order, law, limits; strength in the protector" (p. 39).

The third needs in Maslow's hierarchy are for belongingness and love. When these needs arise the individual reaches out to others, not just for protectors, but for caring individuals. Maslow emphasized that love needs include giving as well as receiving love. Related to that distinction was Maslow's further elaboration of characteristics of the hierarchy. Some needs were called deficiency-needs, or D-needs, and others were called B-needs or self-actualizing needs. Physiological and safety needs were generally classified as D-needs. Love was classified as a D-need in its self-centered form and as a B-need in its more open and giving form (Maslow, 1968, 1970a). The remaining higher needs were generally characterized as B-needs.

The needs which arise directly after belongingness and love needs are satisfied are for self-esteem and for the esteem of others. Maslow (1970a) emphasized that these needs occur first in the form of a desire for mastery or competence and later in the form of a need for prestige or reputation related to that mastery. He recognized that not all ostensible esteem needs are D-needs but he indicated that such needs occur as a result of the thwarting of growth. He felt that they are based more on the opinions of others than on an inner sense of competence and mastery and that they may actually be disguised D-love needs. In a process similar to Freud's (1955) concept of fixation, Maslow seemed
to postulate that when one is not allowed to develop or express higher needs, the lower, in this case, D-need becomes more elaborate rather than being satisfied.

The highest need is for self-actualization.

Even if all these needs are satisfied, we may still often (if not always) expect that a new discontent and restlessness will soon develop, unless the individual is doing what he, individually is fitted for. A musician must make music, an artist must paint, a poet must write, if he is to be ultimately at peace with himself. What a man can be, he must be. He must be true to his own nature. This need we call self-actualization. (Maslow, 1970a, p.46)

In his research on adults he regarded as self-actualized, Maslow (1970a) found several characteristics of such people which form a personality profile, of sorts. (He acknowledged the methodological shortcomings of his study, but he felt the results were heuristic and therefore important.) The self-actualized person was found to (a) have a "more efficient perception of reality and more comfortable relations with it" (p. 153); (b) be accepting of self, others, and nature; (c) be spontaneous, simple, and natural; (d) be problem-centered rather than self-centered; (e) have a quality of detachment and a need for privacy; (f) be autonomous, independent of culture and surroundings, and active rather than passive; (g) enjoy freshness of appreciation; (h) have a feeling of sympathy for and identification with humanity; (i) "have deeper and more profound interpersonal relations" (p. 165) with a few close friends; (j) have a democratic character; (k) clearly distinguish between means and ends, good and evil; (l) have a philosophical sense of humor without hostility; and (m) be creative.
He found that the self-actualizing people studied had "peak experiences."

feelings of limitless horizons opening up to the vision, the feeling of being simultaneously more powerful and also more helpless than one ever was before, the feeling of great ecstasy and wonder and awe, the loss of placing in time and space with, finally, the conviction that something extremely important and valuable had happened, so that the subject is to some extent transformed and strengthened even in his daily life by such experiences. (p. 164)

A question which follows logically from the notion of self-actualization concerns the means of developing that level of personality functioning. Is there any process by which one can hasten the development of self-actualization, or must such development occur naturally as a result of living and experiencing? Maslow did comment on the questions just mentioned

I would now like to add to the peak experience material a greater consideration...the "plateau experience." This is serene and calm, rather than a poignantly emotional, climatic, autonomic response to the miraculous, the awesome, the sacralized, the Unitive, the B-values. So far as I can tell now, the high plateau experience always has a noetic and cognitive element, which is not always true for peak-experiences, which can be purely and exclusively emotional. It is far more voluntary than peak experiences are. One can learn to see in this Unitive way almost at will. It then becomes a witnessing, an appreciating, what one might call a serene, cognitive blissfulness which can, however, have a quality of casualness and of lounging about....Very important today in a topical sense is the realization that plateau-experiencing can be achieved, learned, earned by long hard work. It can be meaningfully aspired to. But I don't know of any way of bypassing the necessary maturing, experiencing, living, learning....The "spiritual disciplines," both the classical ones and the new ones that keep on being discovered these days, all take time, work, discipline, study, commitment....All I wish to do here with this brief mention is to correct the tendency of some to identify experiences of transcendence as only dramatic, orgasmic, transient, "peaky," like a moment on the top of Mount Everest. There is also the high plateau, where one can stay "turned on." (1970b/1964, pp. xiv-xvi)
As was mentioned above, Maslow's has not been the only attempt to delineate the qualities of an optimally functioning adult personality. To gain a fuller picture of that endeavor, one would do well to examine the work of other thinkers. The views presented here are not intended to be exhaustive, but rather have been selected as representative of the field. Self-actualization can then be seen, in perspective, as a major concept in the study of personality development.

Allport's (1957) description of the healthy personality was drawn from his own and his students' extractions from various lists of mature adult characteristics. His compilation included ego-extension, the extension of self into larger purposes; self-objectification, the ability to see oneself in perspective; unifying philosophy of life, which lends life's events consistency and meaning; warm relating of oneself to others; realistic perceptions, skills, and abilities; and "a compassionate regard for all living creatures" (p. 8).

While Rogers (1961) extracted his notion of the "fully functioning" person from his clients, he believed that the direction of their development was toward healthy, optimal functioning. Three characteristics have been emphasized in his description: open to experiences, living in an existential way, and trusting oneself. To be open to experiences is to have accurate, realistic perceptions and accept change as an opportunity to expand one's experience and adaptability. By "living existentially," he meant that a person can experience life as a "becoming" process, or a constant series of active choices. Trusting oneself means that a person can become able to do what feels right and will find that his/her feelings are a trustworthy source of information.
Of the three descriptions of healthy personality functioning, Maslow's, Allport's, and Rogers', Maslow's seems to be the most comprehensive. Certainly, his list of the characteristics of a self-actualizing person is the longest. It can be argued that the dimensions mentioned by Rogers and Allport can be subsumed by Maslow's list. For example, Allport's ego-extension concept would seem to relate to Maslow's acceptance of others, problem-centeredness, and identification with humanity. Of course, the length of such a list is not the only criterion of its value or usefulness. Much can be said for parsimony or simplicity also.

On the other hand, the attempt to subject Maslow's conception of the qualities of a self-actualizing person to the development of an empirical measure has stimulated research interest in the topic. Shostrom's (1966/1974) Personal Orientation Inventory (POI) which will be discussed in detail later, was designed to enable psychologists to assess a person's level of functioning on various aspects of self-actualization and on other measures of healthy adult personality functioning. For example, Oiczak and Goldman (1975) compared the performance of 155 undergraduate college students on the POI and the Inventory of Psychosocial Development (IPD), a measure of Erikson's levels of psychosocial maturity. The major scales of both measures were found to be significantly correlated. The major scales of each inventory also correlated significantly with most of the subscales of the other instrument. The authors were able to conclude that "the operational measurements of these two constructs show a degree of relationship with each other" (p. 418).
The Transcendental Meditation Technique and Its Influence on Personality

Naranjo (1972) called attention to another phenomenon which seems to be related to the questions raised by Murphy, Martin, and Maslow concerning means to develop to one's full potential. He described a change in orientation in the West which he said he was reluctant to term a revolution. He preferred instead to discuss it as a new direction rather than a reaction against old forms. The phenomenon he referred to was a growing deemphasis of familiar "cultural forms, institutions, and sources of authority" (p. 3) in favor of new solutions either through answers gleaned from other cultures, e.g., Zen, Sufism, or from such developments as so-called mind-altering chemicals, encounter groups, and sensory deprivation.

Our silent evolution today is...one of withdrawal or inwardness in which we forsake our visible cares in order to turn to those of our roots. From the form we turn to the formlessness of that which seeks to be born or expressed...But what is it that takes place in that inwardness into which we retire? It can be formulated as a concern with issues of personal growth, self-perfecting, or personality change. (pp. 5-6)

Naranjo discussed several methods of achieving a goal he referred to as "salvation," "enlightenment," or "self-actualization" depending on one's point of view.

An implication of Naranjo's discussion of the evolution toward inwardness these days is that that tendency may be related to the malaise some people are experiencing (see the earlier discussion of Martin, 1972). Whether the heightened interest in personal growth is a negative reaction to time which has been freed by automation and technological advances or a positive response to that freedom is not
clear. Either way, however, it would seem important to remember that evolution has a context. There is a possible conflict between withdrawal and an outgoing economic demand for activity in Westerners. Some of the methods Naranjo explored can be seen to be consistent with that economic demand, others are not. A factor, then, that might influence one's choice of a technique for personal growth or self-actualization is whether that technique is compatible with the level of activity which characterizes Western life.

The TM technique, which was introduced by Maharishi Mahesh Yogi, is claimed to be such a method; it is supposed to be an easy and universal (as opposed to difficult and esoteric) technique and it is not supposed to require or lead to a withdrawal from activity beyond the time used to practice the technique. Maharishi has stated that

The practice of transcendental deep meditation is a pleasant practice for the mind. Whatever the state of evolution of the aspirant, whether or not he is emotionally developed or intellectually advanced, his mind...finds its way to transcend the subtlest state of thinking and arrive at... Being" (1963, pp. 49-50).

Far from advocating withdrawal from activity, he has stated that the TM technique is an excellent preparation for activity and that activity (being awake) alternated with rest (including both sleep and the TM technique) is the quickest way to realize one's full potential (1963, 1969).

A recent publication of selected research (Orme-Johnson & Farrow, 1977) included over 100 articles on both the physiological and psychological effects of the TM technique. The physiological effects of the TM technique led Wallace (1970) to suggest the existence of a hypometabolic state during the practice which was qualitatively
different from the physiology of a person in the waking, dreaming, or sleeping states of consciousness. Wallace has referred to this as a fourth major state of consciousness which he characterized as "restful alertness."

In their study of 36 subjects, Wallace and Benson (1972) found a sharp drop in oxygen consumption and carbon dioxide elimination during meditation, while the ratio of O$_2$ consumption to CO$_2$ elimination remained constant. Respiration rate decreased as did the volume of air breathed. Blood pressure was found to be below normal in the subjects, all of who were meditators, throughout the test period, both when awake and when meditating. Blood lactate (a result of anaerobic metabolism) dropped dramatically during the practice of the TM technique, remaining low after meditation. An increased rate of blood flow to certain skeletal muscles led the authors to speculate that the TM technique reduces the activity of the sympathetic nervous system. Skin resistance increased, heart rate slowed, and EEG recordings showed a "marked intensification of alpha waves in all subjects" (p. 80). The authors observed that the physiological changes they had reported closely paralleled those found in practitioners of yoga and Zen monks of 15 to 20 years experience in meditation. The ease of attaining the physiological changes was felt to be an advantage of the TM technique over the other practices.

Many other studies on various physiological parameters and the TM technique have been performed (Orme-Johnson & Farrow, 1977), some of which have called into question Wallace's suggested hypometabolic state. Both Younger and his associates (1975) and Pagano and his associates (1976) found some of their meditating subjects to be sleeping
during much of the meditating sessions. Carrington (1977) reviewed 
this research and commented that a more frequently observed pattern 
has been "brief periods of light sleep alternating with a drowsy but 
awake state" (p. 47). She considered this to be a characteristic 
pattern in meditation not a pattern found in napping. She encouraged 
careful research on the TM technique and on relaxation techniques 
generally. "The results of the widening scope of meditation research is 
that some of the original findings have become more firmly established, 
while others are being disproved" (p. 60).

Since the TM technique seemed to have effects on the physiology 
and on EEG patterns, a number of researchers began to study the TM 
technique's effect on behavior (Orme-Johnson & Farrow, 1977). Several 
behavioral results (e.g., perpetual-motor and sensory-motor changes) 
could be related to the physiological and neurological effects of the 
TM technique. Along with behavioral research came studies of personality 
change, which, it was thought, might also occur if other aspects of 
physiological and psychological functioning had been affected by the 
practice.

One form of personality change can be found in psychotherapy. 
Stewart (1974) noted that "the basic purpose of all types of psychotherapy... 
must ultimately be the maximization of human happiness" (p. 126). He 
further stated that human realization (positive personality change or growth) 
is, then, the goal of therapy and other systems of self-development, such 
as the TM technique. Stewart's view is consistent with the speculation of 
Goleman (1971) who hypothesized that changes in behavior found in those 
practicing the TM technique would be consistent with certain changes 
brought about in psychotherapy. He termed meditation a "meta-therapy."
Carrington and Ephron (1975) investigated the usefulness of the TM technique as an adjunct to psychotherapy. Their observations were based on extensive clinical experience. They found that the TM technique contributed to tension reduction without the dulling effect of drugs. They noted that meditation seemed to increase the energy and productivity, both at work and in the personal lives, of certain of their patients. Reduced anxiety and increasing self-acceptance both contributed to therapeutic movement. Some reduction in marijuana and alcohol use was observed. They found a sharp increase in their patients' ability to distinguish between their own needs and the demands of their environments, to be inner-directed. This last effect was not always found to be pleasant and the authors emphasized the need for the TM technique to be used as an adjunct to, not a replacement for, therapy. Their patients were found to have better access to their own feelings and creativity. While many of their patients experienced mood elevation, acutely depressive patients either refused to learn the TM technique or, having learned, discontinued the practice. In one case the patient commented that "she did not want to learn TM because it might make me feel better and in a way that I do not really want to feel better" (p. 282). Another patient stopped meditating explaining that "she had become 'angry' at the meditation because it was 'making me cope' and also because 'it made me feel calm so that I could no longer cry or feel sorry for myself'" (p. 283). Some of the miscellaneous effects claimed included a lessening of paranoid tendencies and projections, decreased obsessive-compulsive behavior, and increasing spontaneity, self-confidence, and risk-taking. The authors concluded that the TM technique
could "offer valuable assistance in the psychotherapeutic process" (p. 288). They also commented that, in addition, "many well-integrated persons can benefit from TM in terms of optimizing their personality growth" (p. 287).

Dick (1974) studied the effect of the TM technique on the experience of well-being in university counseling clients. She compared the performances of three groups of students on the Adult Nowicki and Strickland Internal-External Locus of Control Scale and the time competence and inner directed scales of the Personal Orientation Inventory (POI; see Appendix A for descriptions of the POI scales). Her randomly assigned experimental group of counseling clients began the TM technique; another group, self-selected and not clients, also began meditating; and her control group (also randomly assigned) was instructed to rest for the same length of time as the other groups meditated. She found no significant changes in locus of control (inner control). Both meditating groups became significantly more time competent (living in the present as opposed to the past or future) and inner directed (self-supporting) as measured by the POI. She concluded that the practice of the TM technique improved the personality functioning of counseling clients. While she did control for the Hawthorne and placebo effects by giving her control clients the instruction to rest, she did not control for expectation to improve or the experimenter effect. Thus her study is suggestive, not conclusive. Her subjects may have changed as a result of her bias or their own expectations of change.
Glueck and Stroebel's (1975) study of the treatment of psychiatric patients provided a direct comparison of biofeedback used to produce alpha wave activity by operant conditioning and the TM technique which was previously found to produce alpha functioning. As Glueck and Stroebel noted, when alpha activity is produced "most subjects report positive kinds of feelings, such as relaxed, floating, peaceful, very pleasant, and free from anxiety as the main subjective awareness" (p. 304). They expected to find that one or both of these methods would help patients to relax who otherwise tended to be tense, ready for flight or fight, at inappropriate times. The researchers had previously found that the ability to produce increased densities of alpha functioning with biofeedback varied inversely with the degree of psychopathology (measured by self-report, MMPI results and psychiatric evaluation). Patients were assigned to three matched groups: the first group was taught the TM technique, the second group was given biofeedback training to increase alpha wave output at will, the third group was taught the form of general relaxation used by Wolpe and Lazarus. Each group was instructed to practice its technique for the same amount of time each day. Otherwise, they were to participate in therapy as usual. Each group received the attention of a teacher. The experiment continued for 16 weeks with evaluations performed at monthly intervals during that time. Psychiatric evaluations, MMPI scores, and discharges from the hospital were used as criteria of improvement. The results of the study indicated that the TM technique was the one most easily learned by the patients and that it held their interest much longer than the biofeedback of the relaxation procedures. Some of the patients in the biofeedback condition reported
an increase in anxiety and tension and a few experienced lightheadedness or dizziness after the training sessions. The relaxation group experienced boredom; after four weeks, all patients in this group had asked to stop. On the other hand, the TM technique was found to "add a significant positive therapeutic dimension to the overall hospital treatment program" (p. 320).

With the possible exception of experimenter bias, the design of Glueck and Stroebel's study seems to control for extraneous effects in evaluating the influences of the techniques involved. Of course, personality change in a psychiatric hospital setting is not sufficient to demonstrate the effect of any of the techniques on the "normal" population. Also, the additional effect of therapy was present. Interaction between therapy and the TM technique was not evaluated. The authors' research suggests that the TM technique may influence personality positively, but further study of that matter on other populations would be necessary to strengthen such a conclusion.

Tjoa (1977) studied the effect of the TM technique on neuroticism. The Amsterdamse Biografische Vragenlijst which measures neuroticism, somatic neurotic instability, extraversion, and social desirability (trying to fake a "good" response) was used. The results showed a significant decrease on the neuroticism scales for the regular meditators as compared to the irregular meditators. Social desirability did not change in either group; extraversion did not change appreciably. Penner and his associates (1973) used the Omnibus Personality Inventory to compare a group of 100 Edmonton public school students that took a course on TM, with a normative group that had been tested previously
on the inventory. The course lasted 22 days and included instruction in the TM technique. The testing was done before and after the course. They found that the meditating students were more relaxed than the norm group before beginning the TM technique and more so after. The TM group had more of a tendency to "act out" feelings and was more social and liberal with regard to religion before beginning the technique; after the technique they were more like the norm group on those dimensions. The TM group was more imaginative, free talking, intellectually oriented, self-determining, considerate, and feminine than the norm group both before and after beginning the technique. The TM group was similar to the norm group in thinking introversion, personal integration, and response bias (a "fake good" scale indicating a tendency to try to do well on the test) before beginning the technique; after the course they scored higher on those dimensions. To summarize, the effect of the TM course found in Penner et al.'s study was increased relaxation, thinking introversion, personal integration, and response bias, and decreased "acting out," sociability, and religious liberality. The Hawthorne and placebo effects, experimenter bias, and expectation of improvement were not controlled by the authors.

Curtin (1973) examined the influence of the TM technique on adaptive regression, "the ability of the ego to suspend defenses which ordinarily preclude access to the preconscious and unconscious content of the mind" (p. 1969-A). He stated that adaptive regression is an important factor in "mental health." It is regarded as a process of experiencing with minimal use of defense mechanisms in psychoanalytic terminology. He studied 100 college students who were prepared to begin
the TM technique. Half of the students were randomly selected as the control group. They were tested on the Fitzgerald Experience Inquiry the day before instruction in meditation. The other 50 Ss were tested the day after instruction. The group tested after instruction was found to evidence significantly more ability to regress adaptively. While the attempt to assess such a mental health effect of the TM technique is interesting, Curtin's study is methodologically poor. The results could have been caused by Hawthorne, placebo, or expectation, or experimenter effects.

Williams, Francis, and Durham (1976) used Eysenck's PEN (psychoticism, extraversion, and neuroticism) inventory in a study of one hundred self-selected prospective meditators who were tested before beginning the TM technique, 1 week after, and six months after. Regularity of the practice was also ascertained. The results of the testings were compared with norm groups of similar age. Therefore, no control group was used. Pretest scores showed the males to score significantly above the norm on neuroticism and below the norm on extraversion. The females scored significantly above the norm on psychoticism. Both scored below the norm on the lie scale. No significant changes were found between the first and second testings. The 6-month testing showed regular meditators to be significantly lower on psychoticism than irregular meditators. Between the first and third testing regular meditators dropped significantly in neuroticism, irregular meditators did not. This study does not permit causal analysis since no control group was used. The inclusion of regularity, as a factor in the longitudinal design is of interest, but again, cause and effect are obscured due to self-selection.
Domino (1977) compared score changes of four groups on measures of creativity. The groups were a control group which received no treatment, no group that learned the TM technique, a relaxation-response group, and a group that took a psychology of creativity course and practiced several creativity-enhancing techniques. Testing was done before and 6 months after treatment. Only the creativity class significantly improved in creativity as measured by the Remote Associates Test, the Adjective Check List Creativity Scale, the Barron-Welsh Revised Art Scale, the Franck Drawing Completion Test, and the Similes Test. Due to the self-selected nature of all groups, Domino did not conclude that the creativity class was the cause of the increase in measured creativity in that group. He did conclude that the TM technique does not enhance creativity in its practitioners. That conclusion is of interest because the practice of TM has been claimed to increase creativity.

In his research on creativity and the TM technique, Shecter (1977) studied high school students. He concerned himself with changes in creativity scores (the Match Problem Test), intellectual performance (the Raven-Progressive Matrices), anxiety (the Attitudes Towards Specific Situations test), and such personality variables as complexity (comfort with abstract and complex situations), conformity, energy level, innovation, self-esteem and tolerance (the Jackson Personality Inventory, JPI). The 80 subjects were divided into four groups, Group 1 began the TM technique, Group 2 learned the technique and took a 14-week class on the Science of Creative Intelligence (SCI), a course on the philosophy that underlies the practice of the TM technique, Group 3 took the SCI course without learning to meditate, and Group 4 took neither the TM technique nor the SCI. Groups 1, 2, and 3 were randomly assigned students who
were interested in the TM technique. None of them would volunteer for the study if the possibility of assignment to Group 4 existed. Group 4 was comprised of students who volunteered without knowing about TM. An advantage of Shecter's design was that it attempted to distinguish between the effects of meditation and the philosophy (and, coincidentally, the expectations) associated with it. The findings indicated that the TM technique, with or without SCI, had the major effect on the variables studied. On every measure the significant effect was found to have occurred to both of the meditating groups (1 and 2) and neither of the non-meditating groups (3 and 4). The meditating groups increased on creativity as measured by the Match Problem Test, intellectual performance (Raven Progressive Matrices), complexity scores (JPI), energy level scores (JPI), innovation scores (JPI), self-esteem scores (JPI), and tolerance scores (JPI). The meditating groups decreased on conformity scores (JPI) and anxiety scores (Attitudes Towards Specific Situations). Shecter's study lacks control of the placebo and experimenter effects. Partial control of subjects' expectations is provided by comparing the TM group with the TM group that also took SCI. No difference between those groups was found. It is difficult to know how Shecter found an improvement in creativity score in his meditating groups when Domino failed to do so. Perhaps the Match Problem Test is more (or less) appropriate. Perhaps the experimenter bias factor was responsible.

Taken together, the studies of personality and the TM technique reviewed thus far indicate that TM may be a positive force in the personality development of adults and young adults. While the results on creativity are ambiguous, some reduction of negative traits such as
psychoticism, neuroticism, anxiety, conformity, and so-called "acting out" and improvement on "complexity," energy level, innovation, self-esteem, and tolerance have been found. However, none of the studies reviewed have controlled for expectation, the Hawthorne effect, the placebo effect, and the experimenter effect simultaneously. As a result the studies must be regarded as suggestive only and further research on all of the variables would seem to be important unless one or more of the controls mentioned above were found to be unnecessary when the TM technique is involved.

The Transcendental Meditation Technique and Its Relationship to Self-Actualization and Its Measures

The self-actualizing person as described by Maslow and others represents a high level of personality functioning. Does the TM technique aid in such development?

First, is there any theoretical similarity in Maslow's model and Maharishi's view of the process and goal of the TM technique in terms of the personality? Second, does the empirical evidence support such a claim?

While Maharishi (1963, 1969) did not describe all of the expected behavior of an "enlightened" person (the goal of the TM technique) he did indicate that such a person would have heightened perception, be active and successful in his/her actions, be a warm and beneficial influence for others, and would be truly him- or herself. The last characteristic has been stated to mean that the "enlightened" individual would choose to do that kind of activity, including work, which is most congenial to his/her "nature." Maslow has used similar concepts in
describing self-actualization (see discussion of the self-actualized person above).

Goleman (1971) also recognized the similarity between Maharishi's ideas and those of Maslow. He developed a series of hypotheses regarding the effects of the TM technique and the effects of reaching the "fifth state" of consciousness, which has been characterized as experiencing "transcendence" or the fourth state of consciousness (see discussion of Wallace, 1970 above) while being awake, dreaming, and sleeping. Maharishi has called this fifth state of consciousness "enlightenment" or "cosmic consciousness." Goleman hypothesized that the TM technique would cause deep personality changes leading to mental health after "several years." He further stated that persons in the fifth state may be found to be without psychopathology and without what Maslow called metapathology, that they may be on the level of metaneeds or B-needs and have B-cognition, in short, that they will be self-actualized. Presumably, in the time between the TM technique and becoming "enlightened," self-actualization would be developing.

To give substance to the theoretical similarities between TM and self-actualizing, several studies can be mentioned. It is important, however, to give close attention to the designs of these studies as some questions must be raised regarding their adequacy.

Seeman, Nidich, and Banta (1972) used the POI to measure self-actualization. The study involved two groups of college students. The experimental group (eight males and ten females) learned the TM technique; the control group (ten males and ten females) did not. The groups were tested at the same times, before the experimental group learned to
meditate and again two months later. The mean differences in the subscale scores of the two testings for the two groups were compared. The TM group increased significantly on inner-directedness, self-regard, acceptance of aggression, and spontaneity. The control group did not change significantly on any subscale. Nidich, Seeman, and Dreskin (1973) replicated the 1972 study using nine subjects per group and retesting after 18 weeks instead of 2 months. Otherwise, the procedures were identical. The results showed the TM group to have increased significantly on the POI subscales of inner-directedness, time competence, feeling reactivity, self-acceptance, capacity for intimate contact, self-actualizing value, and spontaneity. Again, there was no change in the control group. No significant differences were found between the groups before beginning the TM technique in either study. Both studies have important methodological shortcomings. Subjects' expectations, the Hawthorne, placebo, and experimenter effects were not controlled. Therefore, the only substantial result was the lack of difference between the groups initially.

Stek and Bass (1973) specifically addressed the question of whether meditators have differed significantly from others before beginning the TM technique. They compared the performances of four groups of college students on the POI and Rotter's Internal-External Locus of Control Scale. The groups were 17 self-selected students who began the TM technique, 34 self-selected students who attended one or two introductory lectures on the technique and did not take instruction in it, 27 introductory psychology students who were not interested in the lectures, and 30 randomly selected introductory psychology students who provided
baserate data. No significant differences were found among the groups. Indeed, the scores of all groups were found to be similar. The findings of Stek and Bass, Seeman et al. (1972) and Nidich et al. (1973) consistently suggest that prospective meditators do not differ from the general population in self-actualization measure scores at least when the subjects are college students.

In his research on the TM technique and psychological health, Hjelle (1974) used the POI, the Bendig modification of the Taylor Manifest Anxiety Scale, and Rotter's Internal-External Locus of Control Scale. He tested two groups once, one group (seven males, eight females) of regular meditators (average 22.63 months meditating), and the other group (eleven males and ten females) of people who began meditating one week after the testing. The meditating group was told the tests were being used to assess the personality profiles of "people who have practiced Transcendental Meditation for some time" (p. 625). The pre-meditation group was told the same except that the testing was of "people who are about to engage in the practice of Transcendental Meditation" (p. 265). Both groups were asked to respond honestly and openly. Hjelle stated that he chose this design, "known criterion groups," to minimize the demand characteristics in the research. The results of the study indicated that the meditating group (compared to the pre-meditating group) exhibited significantly more internal control on the Rotter Scale, less anxiety on the Bendig Scale, and more immediatededness, time competence, self-actualizing value, feeling reactivity, spontaneity, self-regard, and capacity for intimate contact on the POI. However, Hjelle failed to control the Hawthorne and placebo
effects and subjects' expectations. His control for demand characteristics was not adequate to obviate the criticism that the experimenter effect might be operating in his results.

Shapiro (1975) explored the relationship of the TM technique and measures of anxiety (the State-Trait Anxiety Inventory, STAI), some negative personality dimensions (depression, neuroticism, and aggression) and self-actualization (the Northridge Development Scale, NDS). He tested 118 subjects before and 17 weeks after they began the TM technique, using the NDS, the STAI, and a preliminary expectations questionnaire (which was given during the pretest only). The results indicated significantly improvement on self-actualization, reduced aggression, depression, neuroticism, and anxiety. No correlation of preliminary expectations and the other measures was found. A significant correlation between the self-actualization measure of the NDS and regularity of meditation was found. Since he did not even use a control group, Shapiro's results on the NDS and STAI score must be questioned. His use of a preliminary expectations questionnaire is an interesting attempt to assess the influence of subjects' expectations. That he found no correlation between that measure and the NDS and STAI scores suggests that expectations alone may not be responsible for the measured personality changes found when the TM technique is practiced.

In his research on self-actualization and the TM technique, Russie (1976) used matched groups, 26 subjects who began the TM technique and 26 control subjects. Both groups were tested before the experimental group began to meditate and again 5 months later. The instruments used were the P0I and measures of preliminary expectations, rigidity, and self-control. The TM group improved significantly more than the control
group on the POI scales of time competence, inner-directedness, self-actualizing value, feeling reactivity, spontaneity, self-regard, self-acceptance, and capacity for intimate contact. Contrary to Shapiro's (1975) finding, expectation was found to correlate with improvement on six of the POI scales for the TM group. No significant change in rigidity or self-control was found. Several criticisms can be made of Russie's design. The Hawthorne, placebo, and experimenter effects were not controlled. Therefore, once again, the TM technique cannot be credited as the critical factor in the score changes.

In another study of psychological (personality) health and the TM technique, Fehr, Nerstheimer, and Torber (1977) used the Freiburger Personality Inventory (FPI). The FPI includes nine independent factors, nervousness, aggression, depression, irritability, sociability, self-assuredness, tendency to dominate, inhibition, and openness (also a "lie scale"). In addition, three scales which are not independent of the others, extraversion-introversion, emotional stability-instability, and self-reliance-dependency, are yielded. The research was a pilot study using 49 teachers of the TM technique (comparable standard groups from the FPI were used as controls). The teachers were told the study concerned the effects of the TM technique on personal development.

Compared to the normative groups, the TM group was found to be significantly less nervous (reduced psychosomatic disease), less depressed (increased contentment), less irritable (increased tolerance of frustration), more sociable (increased liveliness, friendliness), more self-assured (increased self-confidence, sense of humor), less likely to show a tendency to dominate (increased respect for others, cordiality), less inhibited (increased freedom), more emotionally stable, more self-reliant.
Dividing the teachers into two groups according to length of time meditating (less than 4 years, average 2.9 years, and 4 years or more, average 7.1 years) and comparing the groups with the appropriate normative groups showed that the results were greater the longer the group had been meditating. Two scales, irritability and tendency to dominate, were significantly improved (compared to the control groups) for the group that had been meditating less than four years. All the scales mentioned above for the total group were significantly improved for the group that had been meditating for the longer time. The lack of any kind of control group and the failure to control for the experimenter effect are two serious shortcomings in Fehr et al.'s cross-sectional study. While the Hawthorne and placebo effects might be expected to diminish over a long time, teachers of the TM technique are particularly exposed to information which might heighten expectations of personality growth. These results must also be questioned.

Ferguson and Gowan (1976) used the Northridge Developmental Scale (NDS), the Cattell Anxiety Scale, and the Spielberger State-Trait Anxiety Inventory (STAI). The NDS was developed by Gowan to measure "emotional maturity and psychological soundness" (p. 53). It has a scale which the authors indicated resembles the self-actualizing value scale of the POI. It also was reported to have two validating scales and scales for aggression, depression, and neuroticism. Only the scale of the STAI which measures "nontransitory anxiety" was used. The test battery was administered twice to two groups. The experimental group (N = 31) was tested before learning the TM technique and again .65 weeks later. The control group (N = 19) was tested at the same two times but
participated in "an encounter group type of classroom environment" (p. 54) instead of practicing the TM technique. A second experimental group comprised of 16 long-term meditators (average 43.1 months) was tested once. All groups were matched for age and sex. The first testing of the short-term meditators and the controls indicated no significant differences between the groups, except that the pre-TM group was significantly more anxious on the Cattell Scale and more neurotic on the NDS. After 6 weeks, the short-term TM group was significantly less anxious on the STAI and on the Cattell Scale, and more self-actualized, less depressed, and less neurotic on the NDS. The long-term meditators were significantly less anxious (STAI and Cattell Scale) and more self-actualized, less depressed, and less neurotic (NDS) than the short-term meditators.

Ferguson and Gowan's research is a significant improvement over those discussed previously. They used a control group that received a treatment which possibly created expectations of personality growth. The Hawthorne and placebo effects were, therefore, controlled. Subjects' expectations and "decision to improve" were controlled. No attempt to control the experimenter effect was made and the long-term meditators had no control group. It would seem that if the experimenter effect had been controlled, the results of the study would be rather convincing. The experimenter effect as a possible variable in Ferguson and Gowan's study must be taken seriously, however, because the first author is deeply involved in the TM organization.

Ferguson and Gowan's results are also interesting in their failure to find increasing self-actualization in the classroom encounter group.
Bieniewski (1973) taught 89 students about self-actualization in a course on personal development. She tested them with the POI before and after the course and compared the results with 91 students tested at the same two times who did not take the course. She failed to find any significant effect of the course on the POI scores. On the other hand, both Foulds (1971) and Walton (1974) pre- and posttested college students on the POI who were involved in growth group experiences and compared their scores to controls. Both researchers found significant POI changes after the group experiences. (Walton's study included a classroom situation similar to Bieniewski's.) These inconsistent results suggest that either growth group experiences were not consistent in their effects on measured self-actualization or that these were not equivalent growth groups. Either conclusion renders growth groups risky means to self-actualization.

Finally, Orme-Johnson and Duck (1977) tested 210 entering MIU (Maharishi International University) students (all meditators) on the POI and compared their scores with the POI scores of the normative group of college students and of the normative group of people judged to be self-actualizing. The results indicated that the MIU students scored significantly higher (comparing mean standard scores) than the nonmeditating college student group on all the POI subscales except existentiality, feeling reactivity, self-acceptance, and acceptance of aggression. The MIU students scored closer to the self-actualized group than the nonmeditating college group on time competence, inward-directedness, self-actualizing value, feeling reactivity, spontaneity, self-regard, nature of man (constructive), and capacity for intimate contact. The MIU group scored significantly lower than the self-
actualized group on inner-directedness, existentiality, self-acceptance, acceptance of aggression, and capacity for intimate contact. These results must also be questioned due to the lack of control of the Hawthorne, placebo, and experimenter-effects. Also, meditators who would attend MIU might be especially susceptible to expectations for personality growth.

An adequate study of the influence of the TM technique on a measure of self-actualization remains to be done. Before proceeding to the design and hypotheses of the present study, examination of the measure of self-actualization would be in order.

The Personal Orientation Inventory

The POI was developed by Shostrom (1966, 1974) specifically to measure various qualities of the self-actualizing person as suggested by Maslow's theory. Shostrom's definition of the self-actualizing person,

- a person who is more fully functioning and lives a more enriched life than does the average person. Such an individual is seen as developing and utilizing all of his unique capabilities, or potentialities, free of the inhibitions and emotional turmoil of those less self-actualizing. (1974, p. 4)

is very close to Maslow's and reflects Shostrom's orientation in designing the POI.

The inventory is comprised of 150 two-choice items involving behavior and value judgements. Each item is scored twice, once for the two major scales, inner-directed support (127 items) and time competence (23 items), and again for the ten subscales which represent
various aspects of a self-actualizing personality (see Appendix A for a list of the scales).

As was mentioned above, the development of the POI has generated considerable research enhancing self-actualization as a heuristic theory of personality. Maslow, himself (1971), commented on this process:

In studying healthy people, self-actualizing people, etc., there has been a steady move from the openly normative and the frankly personal, step by step, toward more and more descriptive, objective words, to the point where there is today a standardized test of self-actualization. Self-actualization can now be defined quite operationally, as intelligence used to be defined, i.e., self-actualization is what the test tests. It correlates well with external variables of various kinds, and keeps on accumulating additional correlational meanings. As a result, I feel heuristically justified in starting with my "determined naivete." Most of what I was able to see intuitively, directly, personally, is being confirmed now with numbers and tables and curves. (p. 28)

Shostrom (1974) reported the test-retest reliability of the POI scales of inner-directedness as .71, time competence, .77, and the subscales as ranging from .52 to .82. He concluded that the POI's reliability is consistent with other personality inventories.

In discussing the validity of the POI, Shostrom mentioned an important measure of concurrent validity, namely, the inventory's ability to discriminate self-actualizing from non-self-actualizing persons. The self-actualizing group were 29 people who had been nominated by "practicing, certified clinical psychologists" (p. 23). The 34 non-self-actualizing people were selected in the same manner, i.e., by clinical psychologists. The results of testing these two groups with the POI yielded significant differences with the "self-actualized" group scoring higher on all but the "nature of man" subscale: (The mean on the subscale was .1 raw score point below the norm. The normative data was based on the scores
of 2,607 entering college freshmen.) The non-self-actualizing group was below normal on all the scales. Shostrom concluded that the POI does indeed yield profiles which discriminate self-actualizing persons from those who are not self-actualizing.

In his review of the POI, Buros (1972) commented that "in general, the content validity of the scales of the POI is good" (p. 121). Research evidence for the construct validity of the inventory has also been found. The Olczak and Goldman (1975) study on the POI and the Inventory of Psychosocial Development is one example. In another test of construct validity, Goldman and Olczak (1975) studied the inner-directedness of their subjects both on the inventory and in their behavior. A group of 53 undergraduates in an introductory psychology course were asked by the instructor to participate in a lengthy research project. No benefit or penalty was contingent on participation. Those who volunteered were found to be significantly lower than those who did not on the POI scales of time competence, inner-directedness, self-actualizing values, existentiality, and self-regard. These results were consistent with the authors' hypothesis that yielding to the demand characteristics of such a situation would be more typical of a less self-actualizing group.

An issue that is particularly relevant to the present research concerns the susceptibility of the POI to faking a higher self-actualization score. This concern touches on the matter of subjects' "set" and their possible desire to make the TM technique "look good." If the POI is an instrument which can be "faked good," its usefulness in TM research would be questionable.
Foulds and Warehime (1971) gave the results of a college student sample (N = 95) who were asked to respond to the POI as if they wanted to make a good impression in applying for a job. The students scored lower than normal on all but two subscales, self-regard and nature of man.

Warehime and Foulds (1973) compared the performances of 95 undergraduates on the POI, the Edwards Social Desirability Scale (EDS), and the Marlowe-Crowne Social Desirability Scale (MCSD). They found that high scorers on the MCSD did not score high on the ROI. They predicted and found some significant correlations between the POI subscales and the EDS which was drawn from the MMPI and seems to measure either denial of psychopathology or actual adjustment and absence of psychopathology. They concluded that the POI resists faking.

Abbott and Harris (1973) found that social desirability was less of a factor in the POI than in the MMPI, though it was more of a factor than it has been found to be in tests designed to avoid social desirability (e.g., the Jackson Personality Inventory). They mentioned that the constructs involved in self-actualization do not seem to represent common social values which may explain the test's resistance to faking.

Warehime, Routh, and Foulds (1974) gave three groups of female college students information on self-actualization, social adjustment, or no information. When students who had received self-actualization information were asked to increase their POI scores, they were able to do so. When they were asked to respond honestly, knowledge of self-actualization was not found to affect their POI scores. In another
study, the authors did find a "modest" influence of such knowledge on POI scores, but in none of the studies were high MCSD scores related to POI scores.

In the study mentioned above, Bieniewski (1973) found that knowledge of self-actualization did not increase POI scores. Comparing the students in the class with students who were not in the class she also found that persons who decide to take such a course do not score higher on the POI.

To examine the effects of response set and psychological knowledge on the POI, Ecker and Watkins (1975) compared the performances of three groups of college students. The groups were 20 students from introductory psychology classes (no information on "good mental health"), 20 students from upper division psychology courses (no humanistic or personality psychology background), and 20 students who were psychology majors and had had humanistic and/or personality psychology courses. All subjects were tested twice, once with the normal instructions and no additional information on the inventory, the second time with instructions to give the "best possible answers" (p. 276) and the information that the POI measures positive mental health. The results showed that initial differences in the groups were significant. The change scores were not found to be significant. The trend of the results did indicate that naive subjects who try to raise their score may indeed lower it instead. The latter finding is consistent with that of Foulds and Warehime (1971).

Lastly, the pretest differences between groups showed the most sophisticated group scoring differently from the other groups in a random fashion. The authors conclude that knowledge of mental health
concepts and self-actualization will not elevate the POI scores consistently unless specific information as to what the inventory measures is given.

Goldman and Olczak (1976) studied the susceptibility of the POI to faking bad and faking good and the effect of knowledge about self-actualization. All subjects were able to lower their scores upon instructions to do so. Naive subjects were not found to be able to raise their scores; sophisticated subjects were. While no initial differences in the two groups were found, the sophisticated group did show a slight increase in scores on the second testing when the instructions were to respond honestly.

Ferguson and Gowan (1976) pointed out that if their results had been caused by nothing more than faking due to an eagerness for the TM technique to look good, then the 43.1 month meditators would not have been significantly more self-actualized than the 6½ week meditators. It seems reasonable to conclude that dissimulation was probably not the cause of the results of the studies on the TM technique and self-actualization as measured by the POI.

Reviews of the POI (Buros, 1972; Robinson & Shaver, 1973) have generally indicated that the inventory is the most appropriate measure of "self-actualization" available. Buros has warned that persons who score well on the inner support scale are "not necessarily utilizing all of their capabilities in a way consistent with complete self-actualization" (p. 292). Both reviews include concern that the subscales were not independent. Robinson and Shaver commented that overinterpretation can result from such a structure. Still, they have termed the POI, "the measure of self-actualization in the current literature" (p. 148).
Buros (1972) and Robinson and Shaver (1973) have noted that inner-directedness is a major feature of the POI. Some of the studies reviewed above have used Rotter's Internal-External (I-E) Locus of Control Scale in conjunction with the POI as an independent measure of the inner-directed quality. In the TM research only Hjelle (1974) used the I-E Scale. He found significant gains in internality on it. It was thought that using the I-E Scale with the POI in the present research would be useful, both as another measure of inner-directedness and to further test the TM technique's influence on that scale under tighter controls.

Robinson and Shaver (1973) have criticized both the POI and I-E Scale for contamination by social desirability. While the criticism has not been substantiated by the research reviewed above, it also has not been clearly refuted. The Marlowe-Crowne Social Desirability (MCSD) Scale was chosen to assess that factor in the present study.

The Control Groups

It was felt that, the college student bias of psychological research in general and of the POI norms in particular, notwithstanding, an appropriate population for adult personality development is adults. The orientation in the present study was to utilize a control group that obviated some of the difficulties of subject "set" that have plagued the TM and self-actualization research to date. Thus, the task was to find a group of adults who, like members of a TM group, did something for themselves, were "treated" by a teacher or trainer in the process of learning to do it, and who tended to believe that the practice(s) learned would be beneficial.
Smith (1975) has pointed out that a control treatment which the person giving that treatment knows to be "a control" might not be effective. Therefore, it was believed that the control group in the present study should have a teacher who also tends to believe in the effectiveness of what s/he is teaching. It was also thought that it would be helpful, though not necessary, if that practice and its effects concerned the development of the individual so that self-actualization might be expected to develop in its practitioners.

Several kinds of experiences could be mentioned which fit the criteria listed. One such is human relations training. Indeed, Shostrom (1974) cites a study on a human relations training program among the validation research for the POI. The study was done by Banmen and Cappelle (1972) using the POI to measure the effectiveness of such a program for 32 high school teachers. The teachers were found to have increased significantly on the inner-directed, existentiaility, feeling reactivity, self-acceptance, acceptance of aggression, and capacity for intimate contact scales. Three months later, the subjects were retested and found to have maintained the same significant gains and to have grown significantly on the spontaneity scale as well.

Connolly (1975) explored the effects of human relations training on disabled clients in a vocational rehabilitation agency. He divided his subjects into three groups, two had the training, one did not. He used the POI, the FIRO-B scale, the Tennessee Self-Concept Scale, and Rotter's Internal-External Locus of Control Scale. The study was a Posttest-Only Control Group design with testing done on the last day of training. The groups were found to differ significantly on the time-
competence, inner-directedness, self-actualizing value, feeling reactivity, spontaneity, and acceptance of aggression scales of the POI. Zealand (1976) studied the effects of human relations training (pretest, posttest) on 111 college students. He used the POI and FIRO-B Scale and found significant increases on the inner-directedness, existentially, feeling reactivity, self-regard, self-acceptance, nature of man, and capacity for intimate contact scales of the POI. It seemed, then, that human relations training could be expected to enhance self-actualization as measured by the POI. It is a treatment that is taken by persons hoping for self-improvement and is taught by a trainer who almost necessary "cares" for the trainees. Human relations training seemed to fit the need for a treatment control group experience to compare with the course in the TM technique.

Again, it was thought important in a study of adult development to have adult subjects. The non-treatment control group as well as the experimental and treatment control groups were working adults for that reason. A non-treatment control group was used for baseline data.

**Hypotheses**

The previous research on the effects of the TM technique on measures of self-actualization has yielded positive results indicating that the practice may influence the development of "self-actualization." However, as has been discussed above, every study on the topic suffers some major methodological flaws. The purpose of the present study was to examine the effect of the TM technique on self-actualization as measured by the POI and I-E Scale when more adequate controls were
imposed. By using a group that learned and practiced human relations
skills as well as a control group that learned no self-improvement
technique, the Hawthorne and placebo effects and subjects' expectations
and possible decision to change were controlled. Only one of the
"self-actualization" studies employed this design (Ferguson & Gowan,
1976). By testing both before and at a moderate interval after the
treatments, possible pretest differences in the groups could be assessed.
By having the person who trained or had contact with each group do the
test administrations for that group, the experimenter effect was
minimized. None of the previous research had controlled the experimenter
bias variable. The general hypothesis of the present study is that a
group of adults that begins and practices the TM technique will increase
significantly in self-actualization, as measured by the POI, when compared
to a group that learns and practices human relations skills and a group
that does not begin a self-improvement technique and when experimenter
bias is controlled.

The specific hypotheses were developed based on the previous
research results. Five studies (Sheeman et al. (1972), Nidich et al. (1973),
Hjelle (1974), Russie (1976), and Orme-Johnson & Duck (1977)) on the
influence of the TM technique on self-actualization as measured by the
POI have been done. Of those five studies, four showed significant
increases on the "time competence" scale, five on "inner-directedness,"
four on "self-actualizing value," none on "existentiality," four on
"feeling reactivity," five on "spontaneity," four on "synergy," one on
"acceptance of aggression," and four on "capacity for intimate contact."

Specifically, then, using four out of five previous significant
results as a criterion, the hypotheses of the present study were that
when the above-mentioned controls are imposed, the TM group will be found to increase its scores significantly more than the control groups on the time competence, inner-directedness, self-actualizing value, feeling reactivity, spontaneity, self-regard and capacity for intimate contact scales of the POI. A significant gain on internality on the Rotter I-E Scale was also expected.
CHAPTER II

METHOD

Subjects.

The experimental (TM) group consisted of 24 working adults, 11 men and 13 women who chose to begin the TM technique in response to a cooperative program offered by their Green Bay, Wisconsin company and the Green Bay World Plan Center, which is the office of the teachers of the TM program in that city and its surrounding area. The age range of the TM group was from 18 to 58 years (mean = 32.25 years).

The treatment control (TC) group was 18 working adults, 8 men and 10 women, who chose to participate in a two-weekend (consecutive weekends) "human relations workshop" which was offered cooperatively by the State of Wisconsin Division of Family Services (through the state office in Green Bay) and the subjects' employers (social service agencies). The workshop was chosen, in part, because of the enthusiasm of the trainer about the effectiveness of the workshop. That enthusiasm seemed to parallel the TM teachers' and was felt to be important to balance both treatment effectiveness and testing (experimenter) bias. The age range of the treatment control group was from 22 to 53 years (mean = 30.17).

The control (C) group was 10 working adults, 1 man and 9 women, who agreed to participate in a "study of adult personality development" when they were approached, as a group, by the personnel director at their
place of employment, a Green Bay business firm. The age range of the C group was from 18 to 44 years (mean = 28.3 years).

All subjects were volunteers. Since the TM group was self-selected (one must be willing to practice the technique), it was felt that the best control possible for that self-selection would be to have all of the groups be similarly self-selected.

Tests

POI. The POI was developed by Shostrom (1974) to assess self-actualization. The two major scales of the POI are time competence (T; living in the present) and inner-directedness (I; inner support). The subscales are self-actualizing value (SAV; accepting values held by self-actualizing people), existentiality (Ex; flexibility in applying values), feeling reactivity (Fr; sensitivity to one's own needs), spontaneity (S; free expression of feelings), self-regard (Sr; self-esteem), self-acceptance (Sa; accepting oneself with weaknesses), nature of man, constructive (Nc; seeing people as essentially good); synergy (Sy; seeing opposites in life as meaningfully related); acceptance of aggression (A; accepting feelings of anger), and capacity for intimate contact (C; having warm interpersonal relationships). See Appendix A for further descriptions of the POI scales.

Rotter's Internal-External (I-E) Locus of Control Scale. The I-E Scale was developed by Rotter (1966) and was designed to measure the extent to which a person thinks his/her actions are responsible for events that may be contingent upon those actions. A highly internal orientation involves taking responsibility for most events in one's life.
While the I-E Scale does not measure inner-directedness (Rotter, 1975), it does measure a related belief. The belief would not necessarily dictate one's actions. A person could believe in self-responsibility and still rely on others for direction.

Marlowe-Crowne Social Desirability Scale (MCSD). Crowne and Marlowe (1964) developed the MCSD to assess individuals' tendency to present themselves in socially desirable terms. The MCSD is useful in detecting when subjects are trying to fake a good (i.e., socially desirable) response in a testing situation. An example would be when a prospective employee who is being tested tries to present him-/herself better than s/he actually is.

**Procedure**

The subjects in each group were solicited, "treated," and tested by an appropriate contact person: for the TM group, a TM teacher; the TC group, a human relations trainer; the C group, their personnel director. None of these contact people knew of the other groups in the study; each was told that their group was to be evaluated and would be part of a larger study on adult personality development. This was done to avoid any sense of competition or of one's group being "only" a control. The contact approached his/her potential subject group with the request that they participate in a "study of adult personality development." The groups were informed that participation would involve two sessions of no more than one hour each and that that time would be spent filling out three questionnaires. They were told that the first session would occur immediately following their agreement to be a part of the research and
the second would occur about two months later; for the treatment groups, the treatment would follow the pretest. The potential subjects were also told that they would be informed of their individual results. Those who agreed to participate were then given a "subject questionnaire" (see Appendix B) and the three tests, which are all self-administered.

The TM subjects took the pretest on the day before their instruction in the TM technique. They then took the instruction which entails six 1-hr-hour sessions, two introductory lectures (which occurred before testing), the instruction, and three follow-up lectures during the 3 days after instruction.

The TC subjects took the pretest on the opening day of the human relations workshop, which was divided between 2 consecutive weekends. The C group took the pretest after a staff meeting in which participation in the experiment was discussed. That discussion consisted of the personnel director mentioning the opportunity that had been made available for employees to participate in the research and to have feedback on their individual results on the measures of personality development.

The posttest was given to all groups about 2 months after the pretest. The TM subjects were also given a questionnaire regarding the regularity of their practice of the TM technique (see Appendix C). All of the subjects were asked if they had begun any self-improvement program during the time of the study (see also Appendix D for the follow-up questionnaire for the TC and C groups). The latter question was asked to check for confounding practices.

All subjects were given their individual results after all the testing was completed. This was done by the experimenter. Questions
by subjects about the nature and results of the research were answered at that time.

Analytic Procedures

The data were to be analyzed in three ways. First, the general hypothesis that the groups would differ significantly in their changes on the POI and I-E scales, both the TM group improving more than the other groups, would be assessed by performing a one-way analysis of variance on the change scores across groups on each scale of the POI and the I-E scale. This analysis would also test the specific hypotheses that those changes would occur on the POI Tc, I, SAV, Fr, S, Sr, and C scales and the I-E scale. One-way analysis of variance of pretest scores on the POI and I-E scales across groups would be performed to assess initial differences among the groups. One-way analysis of variance of posttest scores on the POI and I-E scales across groups would be performed to assess final differences among the groups. Inclusion of MCSD scores in the analysis would permit assessment of the relevance of social desirability to the POI, I-E scale, and group differences. T-tests of the differences within the groups on each scale would be performed if necessary to further assess changes in the groups.

Secondly, correlations of the scales used would be performed to further explore relationships among the scales. The influence of regularity of the TM group's practice of the technique will also be correlated with the scale scores. Thirdly, subsidiary analyses as deemed relevant to clarify the relationship in the data would be performed.
CHAPTER III

RESULTS

The general hypothesis of the present research is that the TM group will increase significantly more than the TC and C groups on POI and I-E scale scores. The specific hypotheses are that significant change will occur on the POI, TC, I, SAV, Fr, S, Sr, and C scale scores and the I-E scale scores with the TM group increasing more than the TC and C groups. The results of the analyses of the data will be presented in three parts: first, the analyses of variance of the pretest, posttest, and change scores of the groups on the POI, I-E, and MCSD scales and t-tests of the change scores on each scale within groups will be presented; second, correlations between the POI, I-E, and MCSD scale scores and regularity of the practice of the TM technique will be presented; and third, the subsidiary analysis(es) will be presented.

Analyses of Variance and T-tests

The means, standard deviations, and one-way analyses of variance between the TM, TC and C groups for the pretest, posttest, and difference (posttest-pretest) scores on the POI scales, I-E scale and MCSD scale are shown in Table 1. One can note that the only significant \( p < .05 \) difference found was on the pretest scores for capacity for intimate contact scale of the POI. The TC group scored significantly higher
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<td>7.33 0.91</td>
<td>0.06 1.06</td>
<td>-0.22</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>6.90   1.10</td>
<td>7.10 1.45</td>
<td>0.20 1.23</td>
<td>+0.51</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>0.88</td>
<td>0.45</td>
<td>0.43</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>TM</td>
<td>14.75 2.88</td>
<td>16.33 2.33</td>
<td>1.58 2.73</td>
<td>+2.64*</td>
</tr>
<tr>
<td></td>
<td>TC</td>
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<td>15.77 3.75</td>
<td>0.06 3.10</td>
<td>+0.08</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>17.10 2.18</td>
<td>17.10 2.92</td>
<td>0.00 2.83</td>
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<td>2.17</td>
<td>0.69</td>
<td>1.48</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>TM</td>
<td>16.79 3.12</td>
<td>18.58 2.98</td>
<td>1.79 2.38</td>
<td>+3.69*</td>
</tr>
<tr>
<td></td>
<td>TC</td>
<td>19.50 3.13</td>
<td>20.56 3.29</td>
<td>1.06 2.96</td>
<td>+1.51</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>18.60 3.37</td>
<td>18.20 2.62</td>
<td>-0.40 3.63</td>
<td>-0.35</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>3.92*</td>
<td>2.84</td>
<td>1.08</td>
<td></td>
</tr>
<tr>
<td>I-E</td>
<td>TM</td>
<td>9.54   4.22</td>
<td>8.08 4.64</td>
<td>-1.46 3.74</td>
<td>-1.91*</td>
</tr>
<tr>
<td></td>
<td>TC</td>
<td>10.67 4.24</td>
<td>9.61 3.87</td>
<td>-1.06 2.90</td>
<td>-1.54</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>7.10   4.41</td>
<td>6.90 3.67</td>
<td>-0.20 2.82</td>
<td>-0.22</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>2.26</td>
<td>1.44</td>
<td>0.82</td>
<td></td>
</tr>
<tr>
<td>MCSD</td>
<td>TM</td>
<td>13.46 5.92</td>
<td>13.79 5.91</td>
<td>0.33 5.84</td>
<td>+0.28</td>
</tr>
<tr>
<td></td>
<td>TC</td>
<td>11.83 5.07</td>
<td>11.72 5.58</td>
<td>-0.11 5.39</td>
<td>-0.09</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>13.70 3.40</td>
<td>13.20 7.16</td>
<td>-0.50 2.42</td>
<td>-0.65</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>0.56</td>
<td>0.61</td>
<td>0.99</td>
<td></td>
</tr>
</tbody>
</table>

Note. F-test df = 2.49; t-test one-tailed [df = 23 (TM), 17 (TC), 9 (C)]; see Appendix A for ranges of POI scale raw scores; higher I-E score is more external (raw score range = 0.23); higher MCSD is more social desirability (raw score range = 0-33).

*p < .05
than the TM and C groups on that scale in the pretest. No differences in posttest or difference scores were found.

In an attempt to discern whether the data of the present study bore any resemblance to those of previous research on the TM technique and on human relations training, one-tailed t-tests of the differences (posttest-pretest) on the POI, I-E, and MCSD Scales were performed separately for the TM, TC and C groups. Table 1 shows the results of the t-tests.

Significant \( p < .05 \) increases were found for the TM group on the POI scales of inner-directedness, feeling-reactivity, spontaneity, self-regard, self-acceptance, synergy, acceptance of aggression, capacity for intimate contact, and on the I-E Scale, internality. The TC group was found to have increased significantly on the POI scales of inner-directedness, existentiality, self-regard, and nature of man (constructive). The C group increased significantly on the POI nature of man scale, also.

Correlations

Several correlations (Pearson Product-Moment correlations) were done in an attempt to discover what relationships did exist in the data. The Marlowe-Crowne Social Desirability Scale (MCSD), the Rotter Internal-External (I-E) Locus of Control Scale (since a high score on the I-E Scale represents high externality, a negative characteristic in the rationale of the test, correlations involving the I-E Scale have been reversed), and regularity of the TM group's practice of the TM technique were correlated with the scales of the Personal Orientation Inventory (POI).
with groups collapsed. The groups were collapsed because differences between them had not been found in the main analysis (analysis of variance). The significant results of the first two sets of correlations are shown in Tables 2 and 3.

Correlations between the MCSD and the other scales over all groups yielded some significant results. Pretest scores on the MCSD correlated significantly and positively with the pretest scores on the time competence scale \((r = .28)\) and the I-E Scale \((r = .31)\). Thus high initial social desirability correlated with high initial time competence and high initial internality. The MCSD pretest scores correlated significantly and negatively with the final level of existentiality \((r = -.33)\) and positively with the final level of internality (I-E Scale) \((r = .29)\). The pretest scores on the MCSD also correlated significantly and negatively with the pretest - posttest difference (post-pretest) in inner-directedness \((r = -.24)\), existentiality \((r = -.38)\) and capacity for intimate contact \((r = -.39)\). The higher the initial social desirability score, the less improvement was shown on inner existentiality and capacity for intimate contact on the POI.

The posttest or final level on the MCSD correlated significantly and positively with initial time competence \((r = .23)\) and negatively with initial synergy \((r = -.24)\). The final social desirability scores correlated positively and significantly with final I-E scores \((r = .28)\). Thus the final social desirability level was correlated with the final level of internality. The final MCSD scores also correlated negatively and significantly with the pretest - posttest difference in existentiality \((r = -.25)\), feeling reactivity \((r = -.26)\), and capacity for intimate contact \((r = -.26)\). The difference between pretest and posttest scores
TABLE 2

Significant Correlations between the Crowne-Marlowe Social Desirability Scale and the Personal Orientation Inventory and the Rotter Internal-External Locus of Control Scales, Groups Collapsed

<table>
<thead>
<tr>
<th>Scales</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Difference (Post-Pre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>Tc</td>
<td>28</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Sy</td>
<td></td>
<td>-24</td>
</tr>
<tr>
<td></td>
<td>I-E</td>
<td>31</td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>Ex</td>
<td>-33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I-E</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>Difference (Post-Pre)</td>
<td>I</td>
<td>-24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ex</td>
<td>-38</td>
<td>-25</td>
</tr>
<tr>
<td></td>
<td>Fr</td>
<td>-25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>-39</td>
<td>-26</td>
</tr>
</tbody>
</table>

Note. All correlations significant at p < .05. Signs of correlations adjusted so high I-E score reflects high internality. All correlations are a percent of one, decimals have been omitted.
<table>
<thead>
<tr>
<th>Scales</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Difference (Post-Pre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>MCSD</td>
<td>31</td>
<td>29</td>
</tr>
<tr>
<td>Posttest</td>
<td>Tc</td>
<td></td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>S</td>
<td></td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Sr</td>
<td>37</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>MCSD</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Difference</td>
<td>S</td>
<td>31</td>
<td>-30</td>
</tr>
<tr>
<td>(Post-Pre)</td>
<td>Nc</td>
<td></td>
<td>-25</td>
</tr>
</tbody>
</table>

Note. All correlations significant at \( p < .05 \). Signs of correlations adjusted so that a high I-E score reflects high internality. All correlations are a percent of one; decimals have been omitted.
on the MCSD yielded no significant correlations with any other scale scores.

Correlations between the I-E Scale and the other scales over all groups revealed several significant results. Pretest scores on the I-E Scale correlated significantly and positively with the MCSD pretest ($r = .31$) and the self-regard scale posttest ($r = .37$). Again, a high I-E score is interpreted here to indicate high internality and a high MCSD score indicates high social desirability. Thus high initial internality correlated with high initial social desirability and with high final self-regard.

The posttest or final level of internality (I-E Scale) correlated significantly and positively with the MCSD pretest ($r = .29$). High final internality was correlated with high final social desirability.

The final I-E scores correlated significantly and positively with the final level of time competence ($r = .27$), spontaneity ($r = .31$), self-regard ($r = .32$), and MCSD scores ($r = .28$). Thus high final internality was correlated with high final time competence, spontaneity, self-regard, and social desirability. Final I-E scores also correlated significantly and positively with the difference in spontaneity ($r = .31$). High final internality correlated with an increase in spontaneity.

The difference between pretest and posttest I-E scores yielded two significant results. Increased internality was significantly correlated with increased spontaneity ($r = .30$) and decreased belief in the constructive nature of man ($r = -.25$).

The range of regularity of the practice of the TM technique by the TM group was from 1 ("missed no meditations") to 6 ("missed more than..."
60 meditations"). (Since a high score on regularity represents low regularity, the signs of the correlations involving that factor have been reversed.) The mean regularity was 3.79; the standard deviation was 1.19. (See Appendix C for the list of regularity categories.)

Regularity correlated significantly and positively with the initial level of social desirability \(r = .40\), the final level of acceptance of aggression \(r = .39\), and the difference (or increase) in self-actualizing value \(r = .45\). The correlation of regularity with the final level of social desirability was positive, though not significant \(r = .21\), and with the difference in social desirability was negative, though insignificant \(r = -.20\). Thus, regularity correlated with a decrease in social desirability, but not significantly.

In general, it can be noted from the correlations that when the MCSD correlated with POI scales, the correlation was negative. The only exception was the positive correlation between the posttest MCSD and pretest TC scores. When the I-E scale correlated with the POI scales, the correlations were positive. The only exception to that was the negative correlation between the I-E difference scores and the Nc difference scores. Finally, all of the significant correlations of regularity in the TM group and the POI and MCSD scores were positive.

**Subsidiary Analysis**

Analysis of variance by sex, groups collapsed, was performed to explore possible sex differences and it yielded a significant difference in the pretest, posttest differences scores on feeling reactivity. Table 4 shows the means and standard deviations of these scores. Table 5 summarizes
TABLE 4

Means and Standard Deviations of Male and Female Scores on the POI Feeling Reactivity Scale.

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Posttest</th>
<th>Difference (Post-Pre)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>S</td>
<td>X</td>
</tr>
<tr>
<td>Males</td>
<td>15.20</td>
<td>2.55</td>
<td>117.15</td>
</tr>
<tr>
<td>Females</td>
<td>16.31</td>
<td>3.22</td>
<td>15.59</td>
</tr>
</tbody>
</table>

TABLE 5

Analysis of Variance of Male and Female Differences (Posttest - Pretest) on the POI Feeling Reactivity Scale.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>1</td>
<td>34.27</td>
<td>34.27</td>
<td>4.29*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>50</td>
<td>399.42</td>
<td>7.99</td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05
the analysis of variance of the male and female differences. Men increased more than women in feeling reactivity in the present study, regardless of group.
CHAPTER IV

DISCUSSION

The purpose of the present research was to examine the effect of the TM technique on measures of self-actualization (the POI and I-E Scale) when several relevant controls were employed. The controls, which had not been employed together in any previous study on the topic, including using a treatment control (TC) group that learned and practiced a self-improvement skill (human relations training) in addition to a control group that did not practice a self-improvement skill, "before and after" testing, and a naive tester for each group who was familiar with the group and its treatment, but not with the overall design of the research. These controls were employed to minimize the Hawthorne, placebo, and experimenter effects and to permit assessment of pretest group differences. The general hypothesis was that the TM group would increase significantly more than the TC and C groups on the POI and I-E scales. The specific hypotheses were that the TM group would improve significantly more than the TC and C groups on the time competence, inner-directedness, self-actualizing value, feeling reactivity, spontaneity, self-regard, and capacity for intimate contact scales of the POI and on internality on the I-E Scale.

Interpretations of Group Comparisons

The general hypothesis of the present research was not supported.
by the one-way analyses of variance comparing the groups on either the posttest scores or the difference scores on each POI scale and on the I-E Scale. Those analyses also failed to confirm any of the specific hypotheses. The TM group was not found to have increased its scores more than the TC and C groups on the time-competence, inner-directedness, self-actualizing value, feeling reactivity, spontaneity, self-regard, or capacity for intimate contact scales of the POI. Nor did those analyses reveal a significant gain in internality on the I-E Scale for the TM group as was predicted based on previous research.

The analyses of variance on pretest scores did reveal one significant difference among the groups. The TC group scored significantly higher than the TM and C groups on initial "capacity for intimate regard" (POI). That difference probably reflects a unique aspect of the TC group. As social workers and paraprofessionals in helping relationships, the group was initially selected for employment (and was even self-selected) for social interest. More than the TM and C groups, the TC group has been trained in the elements of intimate contact, viz., sensitivity, risk taking, and communication skills.

One conclusion that could be drawn from the lack of positive results on the analyses of variance among the groups is that the groups were not, in fact, different from one another after the treatments.

Considering the positive findings of the previous research on the TM technique's influence on self-actualization as measured by the POI (Seeman et al., 1972; Nidich et al., 1973; Hjelle, 1974; and Orme-Johnson & Duck, 1977), such a conclusion would have to imply that the controls of the present research were necessary to eliminate misleading factors in the treatments of the groups.
Since a previous study (Ferguson and Gowan, 1976) on the influence of the TM technique on a measure of self-actualization (part of the NDS) had employed a treatment control group which participated in an encounter group class, the present research was not the first to employ a control for the Hawthorne and placebo effects. Whether the treatment control group used in the Ferguson and Gowan study had made a comparable "decision to improve" to the human relations (TC) group of the present study is not clear. However, the positive findings of the Ferguson and Gowan study suggest that the Hawthorne and placebo effects alone do not account for the lack of positive findings in the present research.

On the other hand, no previous research on the topic involved the use of any kind of blind testing to control for the experimenter effect. Also, no previous study employed a combination of controls such as were used in the present study. This suggests that either experimenter bias or some combination of experimenter bias and the Hawthorne and placebo effects may have been responsible for the previous positive findings (Seeman et al., 1972; Nidich et al., 1973; Hjelle, 1974; Shapiro, 1975; Fehr et al., 1977; and Orme-Johnson & Duck, 1977).

Another interesting aspect of the present findings was the failure of the human relations (TC) group to have gained significantly on the measures employed. Since the previous studies on human relations training and the POI yielded positive results even when the trained group was compared with a control group (Connolly, 1975), the present results would cast doubt not only on the TM research, but also on the human relations studies. The use of a treatment control group and blind testers in research on human relations groups may also be necessary to
control unwanted biasing factors. Indeed, one could generalize that such controls might be crucial in research on the effects of any self-improvement technique on measures of self-actualization and, possibly, on other measures as well.

Of course, the confidence one could place in conclusions drawn from the present study would depend on the adequacy of its design and execution. For example, before drawing the conclusion that the TM and TC groups were not different from the C group after the treatments, the present results should be examined for their generalizability and relationship to other related research.

The t-tests of the changes within the groups on the scales did show the TM group to have increased significantly on five of the seven predicted POI scales, and on the I-E Scale as predicted. In addition, significant changes on three other POI scales, self-acceptance, synergy, and acceptance of aggression were found for the TM group. The predicted gain for the TM group in internality was also confirmed in this analysis. The TC group was found to have changed significantly on four of the POI scales. This result was consistent with previous findings. The C group changed significantly on only one POI scale.

Clearly, the t-tests of the changes in the groups gave results more consistent with the previous studies. However, such an analysis bypasses a major control feature of the present research, namely, direct comparisons of the experimental and control groups. As a consequence, conclusions drawn from the t-tests alone would be as weak as those from the least controlled TM studies. On the other hand, the differences found between the groups do suggest that there may be a differential
influence of the treatments and that closer examination of factors that might have suppressed significance in the analyses of variance between the groups would be warranted. For example, examination of the mean differences between the groups reveals that high variability may have eliminated the possibility of significance when the groups were compared on each scale.

Variability in a study such as the present one is related, in part at least, to the measures used. While the reliability of the POI is acceptable for a personality measure, a larger sample size, e.g., 40 to 50 persons per group, would help to minimize the effect of the variance that is an integral component of the instrument itself.

Another possible explanation for the failure of the TM group to improve significantly on the POI and I-E Scale, when compared to the TC and C groups using analysis of variance, is low regularity in the practice of the TM technique. The mean regularity was "no more than 30 meditations" missed (about 1/4 of the possible meditations in two months). The correlations of regularity with acceptance of aggression and an increase in self-actualizing value is suggestive of some influence of the practice on measured self-actualization. Also, the trend with increased regularity toward less presentation of self in terms of social desirability suggests that the practice of the TM technique may be of value in personality development. That more scales did not correlate significantly with regularity suggests that, once again, variability may have suppressed significance. If regularity were controlled, either by using a sample of people who chose to meditate without an incentive from their place of employment (as occurred in the present research)
or, again, to use a larger sample, variability in the TM group might be
reduced as a factor in the results.

This last suggestion, controlling TM regularity, could also be
combined with an even more analogous TC group, where the treatment in
that group would be some kind of practice that requires at least a
minimal discipline to acquire the expected results, e.g. a personal
growth group that incorporates "home work" as happens in many assertiveness
training groups. Then regularity could be controlled in that group as
well, enabling the researcher to analyze the discipline factor separate
from the TM practice.

Still another possible improvement on the present design would
involve giving the tests after a longer time interval or even at several
intervals. Two months may not be long enough for group differences to
develop. Also, a multi-interval design would allow the researcher to
evaluate whether changes develop more strongly when a longer time is
given or whether any reduction of effects occurs over time. Placebo
effects, for example, might fade over time. Testing at intervals over
a longer period of time (even over a year or more) could reveal a pattern
of change (if any exists), whatever it might be.

Interpretations of Correlations Between Measures

The results of the correlations offer some additional insights.
The correlations of initial social desirability with depression in
improvement on the POI scales of inner-directedness, existentiality, and
capacity for intimate contact, and of final social desirability with
depression in improvement in existentiality, feeling reactivity, and
capacity for intimate contact, are of some interest. Since the TM group tended to score high on social desirability as a group throughout the study, lack of improvement on at least some POI scales for that group may be related to that factor. Again, the degree of generality of these results, namely, the TM, social desirability connection, is of interest. Is a tendency to want to present oneself in an unrealistically "good" way typical of TM groups or was the present TM group unique in its high and increasing social desirability? If social desirability is associated with the TM technique and if that tendency contaminates POI and/or I-E scale performance, then it would have to be regarded as a factor in such research.

Tjøa (1977) included a social desirability measure in his TM study. He found no correlation of social desirability with regularity of the practice of TM. Also, no initial difference in social desirability between the TM and control groups was mentioned. Williams et al. (1976) reported that their group of meditators scored below the norm on the lie scale of Eysenck's PEN inventory before beginning the TM technique. No changes were reported either 1 week or 6 months after the group began to meditate. Penner and his associates (1973) found no initial difference between his TM and norm group on a measure of response bias. After the practice of the TM technique was begun, the TM group increased significantly in that dimension. The present research finding showing the TM group not to be significantly different than the control groups in initial social desirability level (see Table 1) is consistent with both Tjøa's and Penner et al.'s results. Tjøa's finding of no correlation of regularity with social desirability is also consistent with the present results when correlation with regularity is examined.
There (in the present results) a tendency to decrease in social desirability with regularity was found. Again, controlling for regularity of practice of the TM technique looms as an important factor in further understanding the influence of social desirability and its relation to the effects of the TM technique on personality change.

The correlation that was found between social desirability and an internal locus of control orientation (I-E Scale) together with the present TM group's tendency to score high on the MCSD is possibly responsible for the lack of significant change on the I-E Scale for the TM group. Two explanations could be made for this correlation. One is suggested by Robinson and Shaver's (1973) criticism that the I-E Scale is susceptible to influence by social desirability. Another explanation concerns the nature of the MCSD Scale itself. It is designed to measure a socially desirable response set by asking respondents to agree or disagree with statements that are extreme. A person's score is high if the person tries to present himself well in terms of being conscientious ("Before voting I thoroughly investigate the qualifications of all the candidates"), consistent ("I am always courteous, even to people who are disagreeable"), and in control of his/her emotions ("I sometimes try to get even, rather than forgive and forget"). While it seems clear that agreement with all of the statements of the MCSD would be highly unlikely with honest responses, a person who is, indeed, moving toward self-actualization or enlightenment might be developing some of the qualities the scale measures. The I-E scale also presents rather extreme choices in some of its items. A highly internal respondent might be either presenting him- or herself in a dishonest light, or that
same person might be developing a strong sense of self-responsibility. If a respondent is, indeed, moving closer to his/her ideal self, then it would seem a high score on internality and social desirability could possibly result from the nature of the items on the instruments used to measure those qualities. This issue whether some so-called social desirability is actually consistent with internal support, could be explored in further research on the MCSD and I-E Scales.

The correlations of the I-E Scale with the POI scales also yielded an interesting result. Nowhere did the I-E Scale correlate with the inner-directedness scale of the POI. At least in the present study, the two scales would seem to be independent of one another. As was noted in the method section of the present study, the concepts of inner-directedness and inner-control are not identical. The present results strengthen that argument.

Interpretation of Subsidiary Analysis and General Conclusions

The sex difference in increase of feeling reactivity found in the analyses of variance of sex differences on the scales seems to reflect the fact that men had such a low initial score. They had further to go. Why they increased is not clear. Two of the groups were involved in so-called growth experiences, so the difference may reflect some influence of those experiences on men. However, no group-by-sex differences were significant.

In conclusion, the results of the present study suggest that the control of variables such as subject set and experimenter bias are certainly worth consideration in future research on the effects of the
TM technique or any self-improvement program on adult personality change. Merely measuring subjects' expectations as Shapiro (1975) and Russie (1975) have done is not enough to enable the researcher to sort out the effects of the technique from the subjects' enthusiasm for it. Only such controlled research will clearly reveal the influence of the TM technique on the development of self-actualization, if any exists. The present research could be improved by increased sample size, controlled regularity of the practice of the TM technique and, possibly, of the TC group's practice, and testing at intervals over a longer time. In the meantime, however, research on the TM technique must be scrutinized carefully for adequate controls. Likewise, research on other self-improvement techniques should be examined for control of extraneous sources of change. Subject and experimenter enthusiasm cannot be discounted as a variable in such techniques.
APPENDIX A

PERSONAL ORIENTATION INVENTORY

The POI measures 12 bipolar aspects of personality:

1. Time Competence (Tc), living in the present versus living in the past or future (range* = 0.23);

2. Inner Directedness (I), independent versus dependent dependent (range = 0.127);

Valuing --
3. Self-Actualizing Value (SAV), accepting or rejecting values held by self-actualizing people (range = 0.26), and

4. Existentiality (Ex), flexible or rigid in application of values (range = 0.32);

Feeling --
5. Feeling Reactivity (Fr), sensitive or insensitive to one's own needs and feelings (range = 0.23), and

6. Spontaneity (S), freely expressing or fearful of expressing feelings behaviorally (range = 0.18);

Self-Perception --
7. Self-Regard (Sr), high or low self-esteem (range = 0.16), and

8. Self-Acceptance (Sa), able or unable to accept self with weaknesses (range = 0.26);

Synergistic Awareness --
9. Nature of Man, Constructive (Nc), sees people as being essentially good or evil (range = 0.16), and

10. Synergy (Sy), sees opposites of life as meaningful related or antagonistic (range = 0.9);

Interpersonal Sensitivity --
11. Acceptance of Aggression (A), accepts or denies feelings of anger and aggression (range = 0.25), and

12. Capacity for Intimate Contact (C), has or has difficulty with warm interpersonal relationships (range = 0.28).

*All ranges reported in raw scores.
APPENDIX B

SUBJECT QUESTIONNAIRE, FIRST TESTING

Thank you for participating in this research. All the information you give and the results of the tests you take will be used only as part of an analysis of group results. Your identity and information connected with you will be kept strictly confidential. Your name is taken solely for purposes of matching the various materials you complete now and later.

1. Name (please print) ________________________________

2. Address _______________________________________

3. Phone ____________________


7. Years of education? _____ Highest degree earned? __________

8. Occupation? _______________________________________

9. Present state of health? __________________________________

10. Any history of prolonged heart or respiratory trouble? Explain briefly. ____________________________________________

11. Have you ever participated in any self-improvement program? What?
APPENDIX C

TM SUBJECT QUESTIONNAIRE, SECOND TESTING

1. Name

2. Address

3. Phone

4. How regular has your practice of the TM technique been? (check one)

   (Scoring Key)

   (1) _____ missed no meditations
   (2) _____ missed no more than 3 meditations
   (3) _____ missed no more than 10 meditations
   (4) _____ missed no more than 30 meditations
   (5) _____ missed no more than 60 meditations
   (6) _____ missed more than 60 meditations

5. Have you begun any self-improvement program in the last two months? What?

   ___________________________________________________________

   ___________________________________________________________
APPENDIX D

TREATMENT CONTROL AND CONTROL SUBJECT QUESTIONNAIRE, SECOND TESTING

1. Name ___________________________

2. Address ___________________________

3. Phone ___________________________

4. Have you begun any self-improvement program in the last two months? What?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
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.VITA AUCTORIS

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