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COGNITIVE FOCUSING AS AN ATTENTIONAL SELF-REGULATION STRATEGY IN THE TREATMENT OF SUBSTANCE ABUSE

The Ohio State University Ph.D. 1986

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COGNITIVE FOCUSING AS AN ATTENTIONAL SELF-REGULATION STRATEGY IN THE TREATMENT OF SUBSTANCE ABUSE

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

by

David Allen Towers, B.A., M.A.

The Ohio State University
1986

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I would like to take this opportunity to thank several people who have been instrumental in helping to shape, guide and facilitate the completed product — my dissertation and my education. I would like to thank Dr. Ross Mooney for nurturing the deeper understanding in me, always with a light, humorous and warm touch, always reaching all the way to the core. My deep appreciation is extended to Dr. Joseph Quaranta for always being there when I needed him, and for providing the opportunities and means for making much of my growth in the last several years possible. My thanks to Dr. James Wigtil and Dr. Marlin Languis for helping in many ways along the way.

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VITA

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CHAPTER ONE

INTRODUCTION

Human beings seeking to understand themselves, and the universe they live in, have been making efforts to do so at least since the beginnings of self-consciousness. Through the centuries mythology, religion, philosophy and, most recently, psychology have represented some of the more organized efforts to obtain these understandings and experiences. One of the fundamental methods for achieving such understandings has been through the use of some form of introspection or looking within. One of the earliest forms of this practice is known as meditation (Deikman, 1966; Marlatt and Marques, 1977; Naranjo and Ornstein, 1971; Needleman, 1978; Walsh, 1983).

During the beginnings of scientific psychology, in the mid-1800's, the topic of consciousness was of particular interest and was pursued in terms of experimental studies concerning the mind/body relationship as is evidenced by the work generated out of Wundt's laboratory in Leipzig. The chief tool utilized in these investigations was the technique of introspection. With the advent of Behaviorism in the United States early in the century, introspection fell into disrepute due to its perceived lack as being a
methodologically sound means for the objective verification of the phenomena of mind or behavior. Thereafter, the study of mind and consciousness was replaced by the study of behavior with the predominance of the Behaviorist school of thought (Hothera11, 1984).

It was over fifty years before methodologies were devised, generated primarily out of information theory and research in learning and memory, which seriously challenged Behavioristic assumptions and conceptualizations and which provided sound means for objectively studying and replicating observations of covert cognitive events. Simultaneously, developments in existential, humanistic and transpersonal philosophies and psychologies, and a variety of socio-cultural, ecological, political and economic issues profoundly influenced many thinkers as well as a whole generation. The Human Potential Movement was born, and with it an explosion of interest in internal technologies and states of consciousness (Ferguson, 1980).

A classic book which emerged in the sixties by Charles Tart (1969) *Altered States of Consciousness*, was the first in-depth, serious attempt to examine the subject of human consciousness since the advent of Behaviorism. A variety of sources presented a survey of ideas and relevant research in the areas of sleep, dreams, meditation, hypnosis, drugs and biofeedback. In his book Tart claimed that the two meditation research articles contained therein comprised two-thirds of the English language literature in existence on the topic of meditation. However, there now exists in the neighborhood of about 800 scientific articles on the topic of meditation, including psychological-behavioral studies, phenomenological studies, as well as
physiological investigations (Murphy and Donovan, 1983).

Psychologists interested in cognition and consciousness have concerned themselves with the applicability of the psycho-technologies developed in the areas of hypnosis, biofeedback, relaxation, visualization and meditation, and have combined these technologies with existing counseling and therapy techniques generated particularly out of cognitive and behavioral approaches to psychological problems as well as personal growth. This body of techniques is referred to as self-control, self-regulation, or self-management strategies. Meditation is viewed as a self-regulation strategy and has been employed therapeutically for a broad range of psychological problems (Shapiro and Giber, 1978). Walsh (1983) has suggested that the application of meditation as a self-regulation strategy can best be viewed in terms of levels of psychological intervention. He has proposed, in agreement with Wilber (1977), that there are three levels of intervention to which meditation can be applied: (1) the therapeutic — aimed at reducing clinical pathologies; (2) existential — confronting the inevitable events of life; and (3) the soteriological — whose goal is liberation or enlightenment.

The current body of research suggests that meditation, like other self-regulation strategies such as relaxation, appears to provide effective intervention for psychological, somatic and psychosomatic disorders, as well as facilitating psychological well-being on a variety of dimensions. It has proved effective in the treatment of clinical concerns such as stress, substance abuse, fears, phobias, psychosomatic disorders, treatment of neuroses and
depression, effective in facilitating self-actualization, congruence, development of personal meaning, acceptance of responsibility, increased internal locus of control, an increase in positive self-statements, and feelings of creativity. To summarize, meditation appears to have considerable potential for providing for psychological well-being. However, research has not been remiss, researchers have actively sought out those individuals for whom meditation might be contraindicated. There is some evidence that meditation might be contraindicated for individuals suffering from schizophrenia unless there is very careful monitoring (reviewed in Shapiro and Giber, 1978; Shapiro, 1980, 1982; Walsh, 1979,1982,1983).

As previously indicated, meditation has been applied to the area of substance abuse as a treatment strategy. This research has focused on both the psychological and the physiological benefits derived from the practice of meditation by the substance abuser. Early surveys (Benson and Wallace, 1972; Winquist, 1969) were very hopeful regarding the therapeutic effects of Transcendental Meditation (TM) upon the abuser, as substantial decreases in substance abuse were found to be associated with the practice of TM. There were several criticisms regarding the methodologies and conclusions of these surveys (Marcus, 1974). However, within the next few years attempts were made to redress these shortcomings in studies employing more sophisticated survey methodologies (Orme-Johnson and Farrow, eds., 1977; Brautigam, 1971; Shafii, 1974,1975).

Over the next several years a broad range of independent and dependent variables were examined across a wide range of substances.
Studies examining personality variables, physiological effects, and comparisons with other self-regulation strategies have been conducted. A review of the literature confirms that there is ample support for considering meditation self-regulation as providing substantial therapeutic effects for substance abusers (Walsh et al., 1978; Walsh, 1979, 1982, 1983; Shapiro and Giber, 1978; Shapiro, 1980).

In many studies and position papers the primary variable identified as being the fundamental element in meditation is attention. "Meditation refers to a family of techniques which have in common a conscious attempt to focus attention in a nonanalytical way and an attempt not to dwell on discursive, ruminating thought" (Shapiro, 1982). Similarly, Walsh (1983) defines meditation as "a family of practices that train attention in order to heighten awareness and bring mental processes under greater voluntary control." These definitions are congruent with the Eastern literature on meditation. Although attention has been identified as being fundamental to meditation, only a few studies have been done to ferret out the types of attentional focusing and their effects when manipulated (Anand et al., 1961; Brown, 1977; Davidson et al., 1976; Kasamatsu and Hirai, 1966; Kubose, 1976; Leung, 1973; Linden, 1973; Maupin, 1965; Pelletier, 1974; Stroebel and Gleuck, 1977; Tellegen and Atkinson, 1974; Vahia et al., 1973; Van Nuys, 1973; West, 1979).

The literature delineates several ways in which an individual can regulate or control his/her attention. A person can intentionally focus attention internally or externally; focus in a selective, concentrative, pinpointed, restrictive fashion; focus in a broadened,
or divided manner; or one can shift attention alternately back and forth from a more restrictive to a broader focus. The focus may also be directed in a more passive mode, or in a more active one -- directed by stimuli or events outside intentionality, or willfully directing attention by felt needs or defined goals (Carver and Scheier, 1981; Delkman, 1971; Posner and Boies, 1971; Posner, 1980; Shapiro, 1980). However, Shapiro (1980) states, "there has been almost no research comparing the clinical effectiveness of different types of cognitive focusing". He has, thus, suggested that "future research also needs to look at whether the pinpointed attentional focus ... is as effective in producing successful clinical outcome as discursive thinking...And both need to be compared with opening-up (mindful) meditations." (Shapiro, 1980). Little attention is given in the literature to dimensions of attention, or types of attention in their totality, or to the reason and rationale for attention operating within the parameters that it apparently does.

**Statement of the Problem**

The purpose of this study was to examine the effects upon substance abusers of training in attentional focusing as used in the self-regulation strategies of meditation. The specific effects examined include: (1) anxiety levels, (2) awareness of emotions, (3) interpersonal functioning and (4) negative affectivity. These effects were examined for the purpose of delineating the effects of manipulating attentional focusing, and determining the therapeutic benefits to alcohol abusers. This study employed different attentional
focusing strategies to examine these effects — a pinpointed, restrictive focus of attention is compared with a broadened focus and a discursive focus.

1) It was hypothesized that both the restrictive focusing (GP1) as well as the broadened focus (GP2) experimental groups would show equivalent clinical improvement, but significantly greater improvement than that shown by control Ss (GP3) — the discursive focusers, in anxiety reduction as measured by the State-Trait Anxiety Inventory (Spielberger et al., 1970).

2) It was hypothesized that the experimental groups (GP1 and GP2) would exhibit equivalent clinical improvement, significantly greater than that exhibited by controls (GP3), in awareness of and acceptance of one's emotions as determined by decreases in the self-reported frequency of, and intensity of, negative emotions as measured by Izard's Differential Emotions Scale, (Izard et al., 1971).

3) It was hypothesized that the experimental groups would exhibit equivalent clinical improvement, significantly greater than that exhibited by controls, in enhanced interpersonal relationships as determined by ratings of the subjects on the Palo Alto Group Psychotherapy Scale, (Finney, no date).

4) It was hypothesized that the experimental groups would demonstrate equivalent clinical improvement through decreases in negative affectivity, significantly greater than that which controls would exhibit, on the Negative Affectivity scales of the Multidimensional Personality Questionnaire (Tellegen, 1982).
Definition of Terms

For the purposes of this study the following definitions apply:

Anxiety -- The concept of anxiety shall refer to a particular affective state whose chief characteristic is discomfort, and which is usually accompanied by unpleasant bodily sensations. Anxiety is usually considered to be the result of an unresolved fight/flight response to a perceived threat (Freud, 1924). For the purposes of this study anxiety was operationally defined by the scores obtained from the State-Trait Anxiety Inventory and by the Negative Affectivity scales of the Multidimensional Personality Questionnaire.

Attention -- The concept of attention employed in this study assumes, along with Charles Tart (1975): (1) the presence in human beings of some kind of basic awareness along with some ability to direct this awareness; (2) that this attentional component can be both conceptualized and experienced as separate from the contents of this awareness; (3) that structures of the mind and stimuli attract this attention; (4) and that attention is a form of energy. Of most relevance to this study is the concept that attention can be directed. As mentioned earlier, attention can be directed in a variety of ways - restrictive, broadly, or shifting. For the purposes of this study attention was made operational through the specific meditations that individuals were instructed to perform. Four process measures were utilized to monitor whether or not, and how subjects followed instructions.
Cognitive Focusing -- In this study cognitive focusing refers to training attention to focus according to the following definitions:

Restrictive Focus. With the restrictive focusing technique individuals are instructed to direct their attention so that their awareness is focused on a single object or event. The restrictive focus was operationalized in this study by instructing the subjects in a form of Zen meditation which focuses upon breathing and counting. See specific instructions in methodology section.

Broad Focus. With the broad focusing technique individuals are instructed to direct their attention in such a way that the object of attention will continuously seek to include all the ideas, objects and events that enter awareness, while attempting not to focus on any individual object or event exclusively. For the purposes of this study the broad focusing condition was operationalized by instructing subjects in a form of meditation referred to in the literature as a mindful type of meditation. See methodology section for specific instructions.

Shifting Focus. With the shifting focus technique individuals are instructed to direct their attention in such a way that, for a given period of time, attention will be focused on a single object and, then, for another period of time, attention will be focused as comprehensively and inclusively as possible. The shifting focus was not operationalized for this study.

Discursive/Ruminant Focus. Discursive/Ruminant focusing refers to the types of focusing that people do while reading, daydreaming, thinking, problem solving, and planning. It is
characterized by an incessant flow, or rumination, of thought or fantasy. Discursive/Ruminant focusing is learned from activities in life which do not require attention to awareness while performing behavioral, cognitive, and/or affective tasks. In this study the discursive focus was operationalized by instructing subjects in bibliotherapy. See methods section for specifics.

Meditation — Meditation, also referred to as cognitive focusing can be characterized as applicable to three levels of intervention — pathology, coping with daily life, and personal growth. For the purposes of this study, meditation is viewed as a self-regulation strategy used primarily for the therapeutic purposes of intervention in pathology, and the enhancement of coping mechanisms. Meditation techniques have been grouped into three divisions — the concentrative or absorptive techniques utilizing restrictive attention; the inclusive/mindful techniques utilizing a broadened focus of attention; and shifting techniques, alternating between restrictive and broadened focus (Naranjo and Ornstein, 1971; Shapiro, 1984). Meditation has been operationalized in this study by instructing subjects in various attentional focusing techniques, and providing practice opportunities. The following definitions will define its parameters in this study.

1) Meditation has been defined by Shapiro (1980) in the following way: "Meditation refers to family of techniques which have in common a conscious attempt to focus attention in a nonanalytical way and an attempt not to dwell on discursive, ruminating thought."
2) Meditation has also been defined by Walsh (1983) as "a family of practices that train attention in order to heighten awareness and bring mental processes under greater voluntary control."

3) Concentrative and broadened focus techniques of meditation were utilized in this study, and are defined above under attention.

Self-Regulation — Self-regulation techniques are a group of strategies that have been generated primarily out of the cognitive and behavioral approaches. The self-regulation strategies are oriented toward empowering the client and promoting self-efficacy, unlike some psychotherapeutic strategies that are counselor-centered, and in which the counselor is the expert and has the power of promoting behavioral change. The self-regulation psychotechnologies of hypnosis, biofeedback, meditation, imagery, relaxation techniques, or other strategies are often found being used in conjunction with more traditional therapies. Meditation was operationalized in this study as a self-regulation technique with the objective of operating in conjunction with the on-going alcohol/drug treatment program for the purposes of facilitating increased relaxation in the subjects.

1) Self-regulation has been defined by Shapiro (1980) in the following ways:

"A self-control or self-regulation technique, therefore, is a cognitive or behavioral activity generated by an organism and maintained over time in order to facilitate the attainment of certain goals that the organism has defined as desirable."
Substance Abuse — Substance abuse is a generic term that has been utilized in this study to be inclusive of a broad range of individuals affected by the abuse, and particularly dependence, upon mood altering substances such as alcohol and other drugs — depressants, stimulants, hallucinogens. This term has been employed in the study to include all those individuals involved in the research whose problems with substances has included the abuse or dependence upon alcohol only, the abuse or dependence upon one or another mood altering drug, or any combination thereof. This term has also been employed to be inclusive of those individuals whose chemical usage has spanned the spectrum of abuse and dependency for only a brief period of time, as few as several months, with possibly only one major life disruption due to that abuse, to those individuals whose abuse has been across many years, and whose difficulties have been many and significant.

Rationale for the Study

The purpose of this study was to determine the effects of attentional focusing upon substance abusers’ clinical improvement, i.e., reduction of self-reported anxiety and negative affect. Van Nuys (1971) has described meditation as offering an ideal laboratory for the study of attention as meditation aims at control of attentional processes and employs a variety of focusing techniques in order to obtain the sought after control. Although there now exists a substantial body of research on meditation, much of this research has focused either upon the physiological or the behavioral effects of meditation. Reviews of the literature have suggested that there is a
need for research that attempts to delineate the active and inert components of attention, especially as those components effect particular clinical populations (Shapiro, 1980; Shapiro and Walsh, 1984). It has also been pointed out that "there has been almost no research comparing the clinical effectiveness of different types of cognitive focusing" (Shapiro, 1980).

The choice of an alcoholic population was made in response to the need for more information regarding the effects of attentional focusing strategies upon particular clinical populations. The choice of the clinical measures employed with this subject sample is due to research suggesting that the consumption of alcohol increases in response to stress, especially social stressors (Higgins and Marlatt, 1975; Miller, Hersen, Eisler and Hilsman, 1974; Steffen, Nathan and Taylor, 1974). Anxiety, due to social stressors, is frequently associated with alcohol and drug abusers (Baekeland, Lundwall, Shanahan and Kissen, 1974; Overall, 1973; Pollmer, 1965; Ross, 1973; Ravensborg, 1973). Further, meditation has been shown through research to be an effective strategy with anxiety problems, (Beiman et al., 1984; Boswell and Murray, 1979; Goldman et al., 1979; Kirsh and Henry, 1979; Marlatt et al., 1976; Parker et al., 1978; Smith, 1975; Sururt et al., 1978; Thomas and Abbas, 1978; Woolfolk et al., 1976; Zuroff and Schwartz, 1978). And meditation has been applied successfully to the treatment of alcoholism (Benson, 1975; Marlatt et al., 1976; Pitts, 1969; Wallace and Benson, 1972; Wallace, Renom and Wilson, 1971). Therefore, meditation is being examined as a method that may result in decreases in stress, negative affect, and increases
in emotional awareness, thus resulting in changes in response to social stressors as reflected in the chosen clinical measures. Also, meditation might then serve as a replacement for the coping mechanism of substance consumption. It may lead to a generalized state of lowered arousal, thus facilitating prevention of the recurrence of previously relied upon methods of coping, — the abuse of chemical substances. (Parker et al., 1978)

Frequently, the rationale for studies employing meditation as a treatment strategy with alcoholic populations has been the therapeutic gain associated with the resulting relaxation. For the purposes of this study, this same rationale applies with the additional expectations that the relaxation may lead to a generalized state of lowered arousal. It may contribute to subjects being more likely to benefit from group counseling, which contains many of the same social stressors as found in daily life. Subjects may also benefit from the program-generated information, being better able to concentrate, being more aware of feelings, less frightened of them and less defensive. This lowered state of arousal is seen as beneficial to the subject’s physical well-being, as mediating emotional well-being by facilitating greater awareness of and comfort with feelings, and increasing levels of concentration by making more energy available, thereby facilitating more efficient cognitive processing of information. In this study, attentional, or cognitive focusing was viewed as the active agent producing relaxation due to habituation resulting from prolonged focus to a restricted field of stimuli. Therefore, attention is being studied as the variable responsible for
the effects of the treatment. In addition, delineating the differential effects of various attentional focusing strategies may contribute to an ability to tailor focusing strategies prescriptively to this specific population.

In 1977 the American Psychiatric Association called for a critical examination of the clinical benefits of meditation, as meditation like other self-regulation strategies, had found its way into clinical practice in a broad variety of settings and a full array of theoretical positions. Specifically, the association called for research comparing "...the various forms of meditation with one another..." as there had been only a few studies done comparing meditation techniques with one another. As stated earlier, almost no studies have compared the various cognitive focusing strategies applied in different meditation techniques with one another. This present investigation seeks to fill that void.

A variety of mediating mechanisms have been suggested as causing the effects associated with meditation -- relaxation, desensitization, heightened awareness, habituation, attention, a need for altered states of consciousness, counterconditioning, cognitive processing, expectations, demand factors, deautomatization, insight, disidentification, regression in service of the ego, and self-regulation. It behooves researchers to test and retest these hypotheses to mutual benefit. This investigation focused upon attention as a self-regulating control mechanism, available and manipulable through awareness, that influences the cognitive processing of information, and, therefore, the perception, physiology,
affective state, and behavior of individuals. Self-observation disrupts the programming of the cognitive system, thus allowing the system to be reprogrammed with new conscious goals and skills. Some would also argue that this dishabituation also allows influences deeper in the unconscious to rise to awareness providing richer and more integrated patterns to model conscious goals upon. The particular conscious goals or intent, directed by attention, serve as the channel selector that tunes to, or explores, information available in the field of the existent and the possible in order to reduce discrepancies between them.

As implied above, this investigation may contribute to the knowledge in the field by providing data on the topics of meditation, attention, cognitive focusing as a self-regulation strategy, and the clinical applicability of meditational cognitive focusing with substance abusing populations. This data would contribute to the understanding of the inert and active components in attentional focusing, and shall provide some knowledge regarding the differences between methods of focusing attention upon a specific clinical population.

**Limitations of the Study**

There are limitations to be found in several areas of this study. They include the researcher’s orientation, the subject’s expectations, the researcher’s relationship with the subjects, the characteristics of the population, the behavioral sciences paradigms, and the assumptions made in the treatment design, procedures and
In the present investigation the researcher's orientation, or theoretical perspective was primarily influenced by the humanistic approach in that human nature was viewed as having a basic internal tendency toward actualization, maintenance and enhancement of the organism. Likewise, the therapeutic goals lead toward autonomy and self-direction encouraged in a warm, accepting climate. It is also existentialist in that the researcher believes that people are motivated, in terms of their tendency toward self-actualization, by a desire for meaningfulness obtained through responsible activity. Also, the cognitive perspective provides a method for understanding the processes of the internal operations within the individual, and provides a means of objectively operationalizing covert cognitive behavior for application in service of the individual's goals and felt needs. This perspective would incorporate psychoanalytically oriented concepts of personality dynamics such as defense mechanisms, which would be translated as cognitive structures in which attention/awareness operates toward fulfillment of the individual's goals both on the conscious and unconscious levels. Finally, transpersonal psychology provides a means of formulating the transcendent goals and meanings of humanity that extend human potentialities beyond the limiting boundaries of egoic self-interests and the socially influenced mental set. These aspects of the researcher's orientation could have influenced demand effects upon the subjects.
Belief in the efficacy of the treatment is important to therapeutic success, as is transmission of that belief, and the subject's belief in the treatment's credibility. The study may be limited in that the efficacy of the treatment provided by the three different treatment conditions may not have appeared as equally effective to the subjects, particularly as they were aware of the differences between the different treatment groups. Therefore, the same rational and proof of credibility was provided for all three conditions by providing the same procedures and lectures to all three groups in an attempt to present the three groups as equal. The only differences between the groups was in the specific variable being manipulated — focused attention.

In terms of the actual time the researcher was in contact with the subjects, the investigator spent approximately 13 to 17 hours with each subject during the 30 day treatment program. The subjects spent approximately nine to 13 of those hours in the Meditation/Relaxation sessions. All three groups were present at these times. The remaining four hours spent with the subjects were incurred during the two hour initial pre-testing and introduction to the study, and the final two hours in the post-testing and debriefing sessions. During these times the subject-investigator contact was kept structured, and social conversation and contact were kept to a minimum.

Adherence to practise of the cognitive focusing procedures was likely to be an important factor influencing outcome. It was likely that clients would adhere to the same instructions differently in that some subjects would probably practise only when in group, whereas
others may practise more than the requested practise time. This factor could account for an inadequate reflection of the possibilities inherent in the treatment. Therefore, the subjects were asked to practise on their own twice a day. It was considered necessary to monitor that practise, and to control for this subjects were provided with a card upon which to record time practiced -- the Daily Meditation Record Sheet.

The researcher adopted a caring attitude regarding the individual welfare of the subjects, and attempted to communicate that attitude through voice and behavior as well as through the content of the didactic presentations. This attitude may have influenced the results of the study in that the subjects may have felt that the researcher was a nice guy, and that they should cooperate and give him what he wanted -- indications of greater relaxation.

The characteristics of the population may effect the outcomes of the study in that the findings of this study may generalize only to similar populations regarding the kinds of substances abused, the length of time substances have been abused, possible brain damage or other cognitive deficits, the socio-economic status, geographic location, age and sex, and the similarity of treatments applied to the population at large. There may also be other factors, such as individual differences, that play a role in the results. For instance, Davidson and Schwartz (1976) have suggested that anxiety may have both a cognitive as well as a somatic component, and that meditation may be more effective with cognitive anxiety than somatic. However, this investigation did control for individual differences by
utilizing self-report measures along with a cognitive technique. Also, statistics were employed to examine the influences of sex and age upon the dependent measures.

The instruments employed to measure the dependent variables in this study may not adequately measure attentional manipulations. However, meditation techniques have proven to be associated with decreases in anxiety on a variety of measures, and the concern of this study was to determine if anxiety would be affected differently by the various strategies of cognitive focusing. The instruments designed to measure anxiety in this study have been subjected to validity and reliability studies, and are highly regarded. The State-Trait Anxiety Inventory (Spielberger, Gorsuch and Lushene, 1970) has shown itself sensitive in prior meditation studies as well (Shapiro, 1980). The design of this study has sought to make attentional variables alone account for the results of the study by controlling extraneous variables.

This study was also limited in that the data were based primarily upon self-report instruments. Projective, objective and behavioral measures might yield different results. Also, the primary focus of this study was upon negative affect. It may be that the cognitive focusing techniques employed impact more directly on other traits or states than those chosen here. It may also be that the instrumentation utilized may not be sensitive enough to detect the variable as it was manipulated in the given situation for the given period of time with the given sample and size of sample.
A further limitation of the study was that the treatment facility, Cannon Hall at Maryhaven, released clients from the inpatient treatment program according to how well they did during the program. This being so, some clients were released as early as 21 days into the program, and so on through to 30 days. Therefore, some clients received as many as three more days of the meditation/relaxation sessions than other subjects. The majority of the subjects, however, left the program between the twenty-fifth and the thirtieth day of their participation. This situation did pose some threats to the study in that not all clients received equal treatment, but for most subjects there was only a one or two session difference in the number of sessions unattended. However, similar discharge policies are common in alcohol/drug treatment facilities.

As the design of this study is a variation of the pretest-posttest control group design, threats to the internal validity of the study were reduced to a minimum. This design controlled threats from maturation, testing, instrumentation, regression, selection, mortality and interaction effects. There was variation due to the staggered-cycle admission and discharge of subjects. History was a possible threat to the internal validity of the study. That is, subjects coming into the program two months after the inception of the meditation sessions may have gotten a slightly different version of the sessions than those subjects initially involved in the sessions. This would have resulted from the researcher's increased comfort level, and increased familiarity with the material and program. This was controlled for by utilizing the same topic outline for each
didactic presentation.

The limitations of this design become more evident when considering threats to external validity or generalization of the results. Interaction of the treatment with testing makes it possible that subject's attitudes were affected by the pretest. Pretesting could have sensitized subjects to issues they may have previously been unaware of. The threat of interaction between the treatment and selection was not considered a very real threat as the particular sample treated and observed was an actual clinical sample, and not very likely to be quite different from the population to be generalized to. However, the results of this study may prove to be descriptive of the present set of subjects only resulting in limited generalizability. Reactive arrangements, or reaction to the artificiality of the experimental setting was also not considered to be a danger as the sample was an actual clinical sample. In general, the all-purpose solution to the weaknesses of this design is the use of randomization.

One of the major limitations of this study was that the subject sample had been diagnosed as chemically dependent. Due to this fact, there are a couple of factors that need to be considered. The first one is that because the subjects were diagnosed as chemically dependent, they were more likely to be suffering from a variety of cognitive deficits and interference with normal cognitive functioning. Though there are limits to the generalizability of the results, many of the same demographic variables characterizing this specific sample are very likely to be descriptive of substance abusers
in the populace or in treatment centers, or else there is all likelihood of considerable overlap or similarity to the treatment sample.

Summary

This introductory chapter presented information regarding the background of the topic area, a statement of the problem, definitions of the terms employed, the rationale for the study, and the limitations of the study. Chapter Two focuses upon reviewing the literature that is relevant to the research. Chapter Three presents the methodology utilized for the study. Chapter Four provides the results of the statistical analyses used upon the collected data. And the fifth chapter provides a discussion of the research and its implications.
CHAPTER TWO

REVIEW OF LITERATURE

This chapter presents a review of the literature relevant to the topic of this study. It is divided into three sections. The first section provides background information on meditation, its theoretical bases, meditation as a psychotherapeutic tool, as treatment for substance abusers, and as treatment for stress and negative affectivity. The second section provides conceptual and theoretical information on attention, the role of attention in psychotherapeutic self-regulation techniques, and the role of attention in meditation. The chapter concludes with a summary.

Meditation

Background

Meditation has been a tool for the study of the mind and the self, as well as a tool for communication with God, or the Universal Intelligence for several thousand years (Walsh, 1983). Meditation, or cognitive focusing, can be found in almost all religions and has taken many forms. Most recently scientific psychology has taken an interest in meditation (Maupin, 1969; Naranjo and Ornstein, 1971; Ornstein, 1973; Shapiro and Walsh 1984; Tart, 1969; Wallace and Fisher, 1983).
Most psychologists utilizing meditation as a therapeutic technique have sought to divorce it from any religious or philosophical connotations. Instead, they have sought its beneficial psychological effects (e.g., increased concentration, personal responsibility, increases in internal locus of control, altered states of consciousness), or its beneficial physiological effects (e.g., reduction of tension, anxiety, blood pressure).

Psychological interest in meditation began in the late 1950's and early 1960's when some psychologists took seriously claims by yogis that they could control their heart rates, even stop their hearts, or stop their breathing for long periods of time (Anand, Chhina and Singh, 1961). However, it was not until Tart (1969) published his now classic text on altered states that scientific research on meditation began to flourish. The early research focused on the psychological and physiological effects of practicing meditation - effects on personality measures such as the Rorschach, attentional effects observed by means of Digit Span scores, and average scores of continuous additions (Maupin, 1965). At the other end of the spectrum, psychologists were interested in measuring EEG activity in the brain resulting from meditative practice (Anand, Chhina and Singh, 1961; Bagchi and Wenger, 1957; Kamiya, 1969; Kasamatsu and Hirai, 1966). Research has continued mostly along similar lines.

Over the last two decades or more, research on meditation has expanded to include nearly 800 scientific studies (Murphy and Donovan, 1983). This chapter focuses on the research relevant to the present
study, that is research is reviewed concerning meditation as a psychotherapeutic tool, meditation as it has been applied to substance abuse, and research regarding attentional components and strategies involved in meditation. Also, theories regarding the efficacy of meditation are addressed with an eye toward laying the foundation for the present research.

Theoretical Bases

There have been several contemporary theories formulated concerning the processes of meditation. Among the best known and most complete are those of Deikman (1966, 1971), Ornstein (1972, 1977), Shapiro (1980, 1984), Tart (1969, 1975), Washburn (1978), Weil (1972), and Wellwood (1977). These theories have a number of things in common, but also a number of differences.

Deikman and Ornstein both approach meditation from the standpoint of the bimodal concept of consciousness. That is, they base their orientations on the structure of the brain's two hemispheres as active and passive structures for processing information. In The Nature of Human Consciousness, Ornstein (1973) presents a variety of thinker's views that substantiate a bimodal rationale, backed by his own and other's psychophysiological experimentation and observations. Deikman, likewise, draws attention to meditation research which suggests different modes of experiencing resulting from more passive modes of paying attention.

Ornstein (1972) views meditation as a set of "techniques designed to cultivate a certain mode of operation of the nervous
He claims that the aim of these techniques is to produce an alteration of consciousness toward a more receptive state of mind. One of the purposes of this shift, he speculates, may be to demonstrate experientially that one's ordinary mode of consciousness is simply a personal/cultural construction. And more importantly, this dishabituation of the usual mode of consciousness allows for the development of alternate modes of operation. This change in mode may lead to more direct perception of reality, free of the normal filtering and tuning processes of ordinary constructed consciousness. This direct or fresh perception enables the individual to tap into greater resources, and to effect the quality of experiencing.

Deikman (1966) suggests that the experiences associated with the practice of meditation are the result of self-initiated interventions through the processes of redirecting one's attention. As a result of this passive processing of information, "means and goal structures" become deautomatized. Cognitive structures, normally operating automatically, once in place, can be undone by a reinvestment of attention. Ornstein (1972) states that this process of deautomatization is the psychological process of dishabituation, and that habituation research substantiates these views. Instead of selective perception, one is allowed, through deautomatization, more direct perception in which individuals may be more aware of their perceptions and experiences from the beginning of processing the information. These processes may account for seeing things as if for the first time. This explanation may account for the relaxation effect as well because the receptive ascendency enables the active
mode to take a brief vacation from the familiar, habitual processing of information, and the concomitant habitual physiological processes (Wallace and Fisher, 1983).

Another theoretical approach, developed by Shapiro (1980), is called the Omnideterministic Model, which is based on general systems theory. It is a clinical interactive model and takes into consideration the therapist’s and client’s personalities, belief systems, the relationship, the clinical issues, the intervention strategy, and the outcome. It is a model that attempts to integrate the broad variety of mechanisms that have been postulated to explain why meditation works. Shapiro suggests that mediating mechanisms such as physiological ones, either in constellation or individually, cognitions, such as expectations, habituation and attention, and information processing, among others, all interact, and that they often occur simultaneously in a multilevel hierarchy. Meditation results from conscious efforts to influence these subsystems through the direction of attentional processes.

Charles Tart (1975) offers a systems theory approach to altered states, including meditation. He suggests that consciousness is a system composed of basic awareness and attention. Awareness is a kind of energy that operates within particular psychological structures. Meditation is considered to be a technique for disrupting the normal psychological structures, or normal discrete state of consciousness — ordinary waking consciousness. Tart states that meditation inhibits thinking about the external environment, which makes energy available for other activities within the system. This
tends to disrupt and destabilize the ordinary state of consciousness, leaving energy available to enervate other, less readily available, subsystems.

Washburn (1978) has proposed a theory based on levels of operation. These include (1) defocalization, (2) reduction in intensity threshold of awareness, and (3) immobilization of psychic operations. In this view, meditation is seen as a process of focused attention resulting in changes in awareness. Meditation practice calms the normal intensity of conscious processes by freezing mental operations, thus freeing attention to reach unconscious levels of awareness.

Weil (1972) published a theory of alternate states of consciousness, including meditation as a technique for achieving them, which was composed of the following factors. First, human beings are born with an innate drive to experience altered states of awareness; as all peoples of all age groups present and experiment with various techniques for altering consciousness. Human beings spend a great deal of daily life in altered states though they may not be aware of doing so. Alternate states of consciousness form a continuous spectrum. Altered states of awareness can be triggered from within or without the individual. Entering alternate states of awareness at will can be valuable as a means of realizing untapped potentials, and can lead to better functioning in daily life.

Finally, Welwood (1977) approaches meditation from the point of view that meditation is a technique that enables human beings to become aware of experiences that are generally unavailable to
awareness. Welwood proposes that there are four levels of awareness. The first level Welwood calls the "situational ground" which is similar to the preconscious. The second level of awareness he calls the "personal ground" which is an individual's conceptualization of his/her environment. The next level of awareness is termed the "transpersonal ground" in which the individual recognizes objects in interaction with their environments. The last level of awareness being that in which an individual is aware of only objects in isolation from the environment. Meditation is seen as a technique which frees awareness to become more cognizant of objects in its environment, especially of objects in the unconscious.

The element that is common to most of the above theories is the role of the receptive mode of consciousness. Deikman's and Ornstein's approaches specify meditation as a technique that initially engages the active mental processes through concentration, and that with continual practice it is replaced with the receptive mode due to habituation. Washburn's and Welwood's approaches, on the other hand, do not focus on the activation of the active mode of processing before yielding to receptive functioning. They see meditation as the response of the receptive mode. The receptive mode, in both views, is identified as being associated with the unconscious. There has been little experimental research supporting these theories. However, there is some support for Deikman and Ornstein's concept of dishabituation as the causal mechanism of meditation's effects (Anand, Chhina and Singh, 1961; Kasmatsu and Hirai, 1966; Sokolov, 1963; Wallace and Fisher, 1983).
Meditation as Psychotherapeutic Self-Regulation

This section of the literature review focuses upon the uses and value of meditation as a psychotherapeutic tool. Meditation has become a tool for therapy in the Western world due to a variety of benefits derived from the practice of meditation techniques, and because it is easy to learn and to do. Among the benefits found from the practice of meditation are the following: the physiological relaxation response (Benson, 1969, 1974a,b; 1975; Benson and Wallace, 1972); effectiveness with clinical concerns such as stress, fear, phobias (Boudreau, 1972; Girodo, 1974; Goleman and Schwartz, 1976; Hjelle, 1974; Lazar, 1975; Linden, 1973; Otis, 1974; Shapiro, 1976; Shapiro and Giber, 1978; Smith, 1976; Vahia et al., 1972, 1973; Woolfolk et al., 1976); substance abuse (Benson, 1969; Benson and Wallace, 1972; Brautigam, 1971; Cohen, 1969; Lazar, 1975; Marcus, 1975; Shafii et al., 1974, 1975; Shapiro and Zifferblatt, 1976); as an aid in treating psychosomatic disorders (Udupua, 1973; Vahia et al., 1973); reduction of neuroticism and depression (Ferguson and Gowan, 1976; Vahia et al., 1973); increases in congruence (Shapiro and Walsh, eds., Bono, 1984), self-actualization (Nidich, Seeman and Dreskin, 1973; Seeman, Nidich and Banta, 1972), personal meaning (Goleman, 1971; Kohr, 1977; Osis et al., 1973), and responsibility (Shapiro, 1978, 1984); increased internal locus of control (Hjelle, 1974), and feelings of creativity and positive self-statements (Shapiro, 1978, 1980). See Shapiro (1980, 1984) for comprehensive, detailed reviews of the literature. In summary, there are a variety of psychological and physiological benefits associated with the practice of meditation
demonstrated by existing research.

Shapiro (1980) notes that practitioners from a variety of therapeutic perspectives have utilized meditation as an aid to psychotherapy and have conceptualized their uses of it in different ways. Some have formulated their ideas for using meditation in terms of a self-regulation strategy (Stroebel and Glueck, 1977; Shapiro and Zifferblatt, 1976; Shapiro, 1978; Woolfolk and Franks, 1984). Humanistically oriented therapists have conceived of it as aiding awareness of one's self-actualizing nature, for developing congruence, and for acceptance of personal responsibility (e.g., Keefe, 1975; Lesh, 1970; Schuster, 1979). Psychodynamically oriented clinicians have conceptualized it as useful for allowing repressed materials to surface to conscious awareness (e.g., Carrington and Ephron, 1975). Transpersonal psychologists have focused upon its usefulness in helping individuals to let go of existing ego boundaries, or thoughts, and developing present centeredness (e.g., Weide, 1973; Shapiro, 1978).

Shapiro (1980) also points out that the main reason for psychology's recent interest in meditation and similarly, until now, more abstruse topics such as hypnosis, imagery, dreams and drug-induced states, is that the physiological research done on meditation was not to be ignored. Psychologists themselves had been dissatisfied with pharmacological solutions to stress related problems. And an increasing interest in positive health and an expanded vision of human potentiality in both the profession and the culture have sparked the boom in current research.
In addition to the benefits associated with the practice of meditation, research has been conducted regarding the possible contraindications associated with its practice. Adverse effects, increases in anxiety and negative affect, and precipitation of psychotic episodes, has been found on occasion in individuals with prior histories of schizophrenia (e.g., Alexander, 1931; French et al., 1975; Lazarus, 1976; Shapiro and Walsh, eds., Otis, 1984). Fortunately, such adverse effects are rarely reported, while there are a considerable number of studies reporting the beneficial effects of meditation. However, it is recommended that clinicians provide careful instructions, training and follow-up observations if meditation is to be employed as an adjunct to therapy (Shapiro, 1980).

The results and benefits associated with meditation and other self-regulation strategies suggest that our normal state of consciousness is not generally sufficient for producing such results. With four to ten weeks of meditation practice, many benefits have consistently been demonstrated (Smith, 1975a). With extensive practice, practitioners are capable of altering physiological responses of the autonomic nervous system (Anand, Chhina and Singh, 1961; Bagchi and Wenger, 1957; Benson, 1975). As this implies, meditation appears to be an effective strategy for psychological change and self-improvement through the application of self-regulation strategies and altered states of consciousness.

Meditation is only one of a variety of self-regulation techniques that have been developed, other strategies include biofeedback, hypnosis, visualization, systematic desensitization and
other relaxation procedures. Many of these procedures were originally developed in the yogas, and other Eastern disciplines that have been practiced for centuries for the purposes of developing self-awareness, consciousness, and the attainment of harmony with the universe. Recently, as a result of progress in biofeedback, meditation and other self-regulation strategies, a new approach to promoting well-being has developed. In it the individual is conceived of as directing and controlling his/her life through inherent self-regulatory processes as well as techniques tailored for specific uses. Self-observation provides the information by which to control behavior toward goals.

Shapiro (1980) has defined self-regulation or self-control techniques as "a cognitive or behavioral activity generated by an organism and maintained over time in order to facilitate the attainment of certain goals that the organism has defined as desirable." These activities necessitate skills in self-observation, decision making, observation of the environment; and skills to carry out the decisions. Self-control has also been defined by Cautela (1969) as the response made by an organization to modify the probability of another response. The term in the literature generally denotes a process in which the individual regulates his own behavior without any apparent or immediate rewards. Kazdin (1974) and Kanfer (1971) emphasize the role of self-awareness and self-observation as necessary for self-control processes to occur.

The earliest formulations of self-control were generated by B. F. Skinner (1953). He saw self-regulation as being based on reward and punishment contingencies. Social learning theorists, influenced
by cognitive psychology, understood self-regulation as being mediated by higher-level cognitive processes (Dollard and Miller, 1950; Bandura, 1969; Kanfer, 1970; Mahoney, 1972; Kazdin, 1974). Self-observation was emphasized in many of these writings.

Homme (1965) lead the way for many behaviorists who were being influenced by findings in cognitive psychology with his theoretical position paper regarding "coverants" - covert mental responses to stimuli. This lead to a great deal of theory and research regarding cognitive behaviors, which eventually lead to the development of the self-regulation strategies.

The attribution theories (Bem, 1967; Heider, 1958; Kelley, 1967) were among the first theoretical positions to be utilized as a means of describing the influence of cognitions on behavior. The attribution theories suggest that individuals assign attributes to themselves as a result of observation of behavior and its context. Festinger's (1957) theory of cognitive dissonance is a variation of the attribution model.

Self-consistency mechanisms were proposed by Korman (1968) based on the earlier works of Lecky (1945). This theory is based on the idea that the individual seeks consistency in every aspect of his life in an attempt to maintain integrity. Festinger's (1957) theory of cognitive dissonance is the most influential of the cognitive consistency theories. He postulates that behavior incongruent with attitudes and beliefs leads to cognitive dissonance. This lack of consistency motivates the individual to shift either behavior or beliefs to maintain integrity. Fundamental to this theory is the
concept of self-evaluation or attribution. Festinger's theory connects self-evaluation needs with the needs to improve self-image.

Bem's (1972) self-perception theory states that individuals become aware of their own internal states, attitudes and beliefs from observation of their own behavior in the contextual environment the behavior occurs in. Bem (1974) suggests that cognitive self-attributes are the dependent variables. Supportive research evidence of Bem's theoretical position can be found in Bandler, Madaras and Bem, 1968; Davison and Valins, 1969; and Kiesler, Nisbett and Zanna, 1969.

Hunt and Dyrud (1968) propose that a sense of self-mastery over behavior contributes to a sense of control over one's feelings. Feelings of security and satisfaction are also due to an individual's sense of mastery (Frank, 1976). Frank also suggests that an individual's success experiences lead to a sense of self-mastery, and that self-regulation techniques provide experiences designed to create a sense of mastery in the individual's assumptive world.

Bandura (1977) developed the self-efficacy theory. Self-efficacy is considered a cognitive attitude that is responsible for feelings of mastery. Self-efficacy exists when an individual generates a cognitive representation of future outcomes, the behavior necessary to achieve those outcomes, and the belief that he can produce the behaviors necessary for achieving those outcomes. Bandura views the self-control strategies as means of supporting the attitude of self-efficacy in the individual.
Strupp (1970) suggests that the fundamental purpose of psychotherapy is the acquisition of self-control, and that inner control can be inferred from behaviors, emotions, and thoughts. Psychotherapy, therefore, aims at fostering self-management. Frank (1976) adds that convincing the client that his/her gains are due to his/her efforts provides a sense of mastery. Evidence has suggested that internal behavior, or cognitions, follow the same principles as external behavior (Bandura, 1969; Bergin, 1969; Mahoney, 1970). Bergin states that maladaptive behavior is due to ineffective conscious self-control.

The above summaries of theories oriented toward self-control suggest that cognitive approaches to behavior have flourished in recent years. Most of these behaviorally oriented theories have sought to explain top-down cognitive processes in terms of learning theories. Others have simply sought whole new explanatory mechanisms.

Theoretically, then, meditation would be viewed as a set of techniques useful in facilitating the acquisition of control, or mastery, over overt and covert behaviors through accessing cognitive processes, particularly self-observation and imagery, for the purposes of reinforcing consistency drives and self-image needs, or for facilitating discrepancy reduction in the attainment of goals considered desirable by the organism (Carver and Scheier, 1981). In terms of psychotherapeutic practise, it is evident from the foregoing that meditation as a self-control strategy has been widely employed and continues to prove itself as a useful method of psychological intervention as well as growth.
Meditation as Treatment with Substance Abusers

The present section of the literature review deals with one of the central concerns in the present study. It focuses on the research related specifically to the application of meditation to the specific clinical population of the study, substance abusers, particularly alcoholics.

The literature evaluating meditation's effectiveness in treating substance abusers falls into two general categories: retrospective survey designs and experimental studies. To the writer's knowledge, there have been only two studies yielding negative results (Anderson, 1977; Zuroff and Schwartz; 1978). In the first study, the point was made that motivation and consistency of practice appeared to be important factors influencing the effects of meditation upon the practitioner. Zuroff and Schwartz (1978) are not supportive of past research indicating changes in locus of control scores, maladjustment, and frequency of substance abuse. However, it did support decreases in anxiety levels. The studies in general, however, provide support for meditation as a self-regulation strategy yielding a number of positive benefits for the substance abuser.

The retrospective survey data indicate substantial decreases in substance abuse due to the regular practice of meditation. The first major survey study (Benson and Wallace, 1972) was based on questionnaire data received from 1,862 individuals who were practitioners of Transcendental Meditation (TM) for a minimum of three months. The majority of subjects demonstrated substantial decreases
in drug and alcohol abuse. The second major survey study (Shafii, Lavely and Jaffe, 1975) sent questionnaires both to TM practitioners and matched controls. TM practitioners with two years of experience claimed significant decreases in alcohol and drug consumption after six months, which the control group did not. Other survey studies support these findings (Benson, 1969; Shafii, Lavely and Jaffe, 1974; Winquist, 1969).

The methodology has been criticized in the retrospective studies (Shapiro, 1980). In these retrospective surveys (Benson, 1969; Benson and Wallace, 1972; Shafii, Lavely and Jaffe, 1974, 1975; Winquist, 1969) self-reports can be questioned because perception and memory may be inaccurate. Also, subjects may be influenced by their desire to please the experimenter -- demand effects and subject's expectations. Sample bias has also been a point of criticism in these studies. The surveys have primarily been given to experienced meditators, rather than to the general population. Therefore, cognitive dissonance alone may account for the responses of the subjects. Finally, no control groups were used in most of the surveys. Only matched controls were employed in the others (Shafii, Lavely and Jaffe, 1974, 1975). However, these control groups do not effectively control for treatment variance due to expectations or motivation.

Despite the methodological problems with the survey studies, the findings were such that further research of a more sophisticated nature was indicated in order to test the effects of meditation upon alcohol abusers in a more controlled way. The research following the
survey studies sought to compensate for the weaknesses of the foregoing studies by employing more sophisticated designs (Brautigam, 1971; Lazar, Farwell and Farrow, 1977; Shapiro and Zifferblatt, 1976a). These studies utilized ongoing daily self-reports to diminish the potentiality for deception or inadvertent inaccurate reporting, and poverty of memory. These studies have employed the effective strategy of concurrent validity measures such as urinalysis checks as well (Shapiro and Zifferblatt, 1976). The Brautigam (1971) and Lazar et al. (1977) studies employed group designs to improve validity and generalizability of results. However, these studies have methodological weaknesses of their own. The Brautigam, and the Lazar et al., studies do not use concurrent validity strategies with self-reports, and do not control for demand, expectation, or motivation effects.

In sum, Shapiro (1980) has suggested that the above studies all suffer from the lack of having clear theoretical rationale between the independent and dependent variables. It is often unclear what the linkage is between what was being studied and how it was being measured, and why. For example, Brautigam (1971) lumped different drugs, with very different effects, possibly used for very different reasons, into the same category. Categorizing drugs in this way clouded the issue of what the dependent variable truly was, and therefore, it created difficulty in determining why use of these drugs was stopped.

One of the best conceived and designed substance abuse studies currently available in the literature employing meditation as a self-
regulation strategy, was done by Marlatt, Pagano, Rose and Marques (1976). Alcohol was conceived of as a reinforcer because it appears to enhance the drinker's perception of control. The rationale for employing meditation was that meditation may serve as an alternative coping mechanism (Averill, 1973; Mandler and Watson, 1966; Marlatt, 1966; Sells, 1970). This study's rationale argued that increased alcohol consumption would result from 1) the degree of perceived situational stress; 2) the availability of adequate coping skills; 3) perceived control; and 4) expectations regarding the effects of alcohol. It was also hypothesized that meditation, as an alternative coping skill, would be increasingly utilized due to the increases in perceived personal control associated with meditation. There were four treatment conditions, including a meditation group, a progressive relaxation group, a placebo-control condition — bibliotherapy, and a no-treatment control. It was hypothesized that the practice of meditation would lead to decreases in alcohol consumption on self-report diaries, a taste-rating task, relaxation records, and personality measures.

The results indicated that the experimental conditions, as well as the attention-placebo condition, lead to significant reductions in alcohol consumption, confirming earlier research results regarding reduction in anxiety, increases in relaxation, and increases in internal locus of control. Despite the well-controlled nature of the design, the data do not determine the causal relationship between the independent and dependent variables, and so, do not determine what the active agents are that engender the study's results.
In one of the most recent studies on the effects of meditation upon substance abusers, the researchers have focused on the relaxation effects (Wong, Brochin and Gendron, 1981), as growing evidence indicates a high correlation of physiological states of lowered arousal, increased skin resistance, and lowered blood lactate levels with the practice of meditation (Benson, 1975; Pitts, 1969; Wallace and Benson, 1972; Wallace, Renom and Wilson, 1971). Because of a variety of flaws in past studies, such as self-selected volunteers in the early survey studies, limited sample selections, contaminating elements such as being required to refrain from drug use prior to instruction in transcendental meditation, studies using dedicated meditators, and the lack of control groups in many studies, this study sought to redress these flaws. The purpose of the study was to investigate the effectiveness of meditation training in a substance abuse rehabilitation facility. Effects indicated a greater ability to relax, a heightened level of awareness, and a tendency toward increased ability to concentrate.

In summary, research continues utilizing increasingly sophisticated methodologies and producing findings confirmatory of earlier studies. Meditation continues to exhibit improvements for participants on a variety of psychological measures. The most consistent findings are those associated with the relaxation response resulting from the practice of meditation. Difficulties continue in regard to determining the exact nature of the active agents of causality. This has been due in part to methodological difficulties, but also due to the limitations of, and possible lack of sensitivity
of, the psychological measures employed (Shapiro and Walsh, eds., Marlatt et al., 1984; Van Nuys, 1971, 1973).

**Meditation as Treatment for Stress**

This section of the review of literature is one that is central to the topic of the present study, as stress and negative affectivity are the dependent variables in the study. This section will focus on the research that pertains directly to the question of meditation's influence upon stress and negative affectivity.

The concept of anxiety underlies many psychological theories. Anxiety is commonly viewed as the primary source of ineffective coping and functioning (Hall and Lindzey, 1957; Horney, 1945; Selye, 1956). The psychological literature on alcoholism and substance dependence is as varied in its explanations of addiction as there are counseling perspectives. Recent attempts to explain substance abuse have concluded that addiction is a complex phenomena. However, there is considerable research evidencing the existence of anxiety as a state or a trait associated with addiction. Correlational studies indicate high anxiety in alcoholics (Baekeland et al., 1974; Kepperman and Fine, 1974; Overall, 1973; Pollmer, 1965; Ross, 1973). Other studies indicate that anxiety may precipitate dropping out of treatment and relapsing into substance abuse (Mozdzierz et al., 1973; Ravensborg, 1973).

In addition, experimental studies have shown decreasing anxiety with increases in blood alcohol content and EMG anxiety measures Steffen et al., 1974), and paper and pencil measures (Hobson,
1971; Smart, 1968; Williams, 1966). Also, therapeutic users, as opposed to hedonistic users, claim to use substances to relieve tension and to relax (Nail, Gunderson and Kolb, 1974).

Theories concerning the etiology of alcoholism tend to focus on tension relief as a fundamental concept. Some psychodynamically oriented approaches tend to look at alcoholism as a result of internal conflicts generated from fixation at the oral stage of development (Armor, Polich and Stanbul, 1978). In another psychodynamically oriented approach, Barry (1974) suggested that the depressant qualities of alcohol allows logical inconsistencies to exist without generating conflict. This theory is also in agreement with consistency models of behavior such as Festinger’s (1957) cognitive dissonance theory. McClelland, Davis, Kalin and Wanner (1972) developed a power theory model which suggests a need for power as a primary human need, and a protection against low self-esteem. They claim that alcohol is a disinhibitor, and it allows the drinker to feel powerful by de-repressing aggression. Many of the behaviorist approaches have been based upon tension reduction, but coupled with the reinforcement theories. Alcohol is viewed as a substance which reduces anxiety, tension or stress.

A large number of studies have focused on the role of alcohol in stress reduction. Studies have also centered on the relationship of stress to increased alcohol consumption. Sadova, Mistle and Forsyth (1978) examined the role of stress in alcoholism, and found that alcoholism and drug abuse are directly related to stress. Some research has also yielded the opposite results. Nathan and O’Brien
(1971) reported increased stress levels on the day following consumption of alcohol.

Despite some conflicting evidence, there is a reasonable amount of support suggesting that alcohol consumption does increase with increases in stress, especially stress due to social and interpersonal sources (Higgins and Marlatt, 1975; Miller, Hersen, Eisler and Hilsman, 1974; Steffen, Nathan and Taylor, 1974). Anxiety due to social stressors is also frequently associated with alcohol and drug abusers (Baekland, Lundwall, Shanahan and Kissen, 1974; Overall, 1973; Pollmer, 1965; Ravensborg, 1973; Ross, 1973).

Meditation has been shown to be an effective strategy in the treatment of anxiety problems. The primary source of support for meditation as a treatment for stress can be found in the considerable physiologically oriented research that has been conducted on meditation and stress (see Davidson, 1976; and Woolfolk, 1975 for detailed reviews of the literature).

There is also a large body of clinical/psychotherapeutic literature supporting meditation. However, most of the research that has been conducted on meditation as a therapeutic intervention with stress, fears and phobias has been conducted on normal subjects. These studies do suggest that meditation does have potential for successful intervention with stress related problems. Boudreau's (1972) studies included fears of elevators, closed places, being alone, and examinations. Studies ranging from generalized anxiety (Shapiro, 1976) and anxiety neuroses (Girodo, 1974), to pain studies (French and Tupin, 1974), recovery from heart attack (Tupule, 1971)
and studies with asthmatics (Honsberger and Wilson, 1973) have had success with meditation.

Some of the studies using normals were single subject designs (Boudreau, 1972; Girodo, 1974; French and Tupin, 1974; Shapiro, 1972). Some of these studies were experimental designs and employed control groups (Goleman and Schwartz, 1976; Honsberger and Wilson, 1973; Lazar, Farwell and Farrow, 1977; Linden, 1973; Smith, 1976; Tulpule et al., 1971; Vahia et al., 1972, 1973; Woolfolk et al., 1976).

The Vahia et al. (1972, 1973) studies were the first to employ control groups. They reported clear reductions in anxiety for the treatment group, unlike the data revealed for the control group. The studies were conducted on individuals diagnosed as neurotic, or with psychosomatic disorders. The subjects were being taught yoga meditation in an attempt to help the subjects obtain voluntary control over the body and mind, through exercises, breathing and thought control. This was to keep the senses from involvement in the external world and their neurotic processes. The MMPI, Taylor's Manifest Anxiety Scale and the Rorschach showed significant psychological improvement for the experimental group versus control.

In a behaviorally oriented study (Woolfolk et al., 1976) two experimental and one control group of insomniacs were compared. The experimental groups utilized meditation and progressive relaxation. They produced very similar results -- decreases in physiological arousal -- which was significantly greater than the reductions achieved by controls.
Goleman and Schwartz (1976), using the State-Trait Anxiety Inventory (STAI) (Spielberger et al., 1970), were able to reduce stress in a lab situation in response to a stressful film. Meditators reported less state and trait anxiety than did the non-meditation group. Meditator's heart rates were also lower than those of controls. In an earlier study (Linden 1973) with test anxiety, field-independence and reading ability, another version of the STAI, the Test Anxiety Scale for Children (TASC) was employed. This meditation group also showed greater decreases in test anxiety than controls.

In 1976, Smith conducted two experiments to isolate the active agents of the anxiety-reduction effects of meditation. He found that meditation and a parallel control treatment that was meditation-like both resulted in reduced anxiety.

In a related study, Dillbeck (1977) found differences between a TM group and a relaxation group as measured by the Trait scale of the State-Trait Anxiety Inventory (Spielberger et al., 1970). This study also presents evidence regarding the active agents of the independent variable. It clarified that passive sitting alone does not equal or surpass meditation as an anxiety reducer, as Smith (1976) had sought to demonstrate.

Lazar et al. (1977) reported changes in anxiety, drug usage, cigarette smoking and alcohol consumption due to the practice of Transcendental Meditation (TM). Two experiments were run. One experiment measured changes in anxiety after four weeks of TM. Experiment II measured changes in anxiety, alcohol and drug consumption, and smoking after four, eight and twelve weeks. A marked
reduction in both anxiety, as measured by the IPAT Anxiety Scale (Cattell and Scheier, 1957), and substance usage (alcohol, drugs and cigarettes) was found. Continued practice over longer periods of time was also found to be associated with greater reductions in anxiety and consumption.

Shapiro (1980) notes, in summary of the above studies, that the research was indicating that meditation is effective in reducing anxiety, but that it is no more effective than other self-regulation strategies such as biofeedback, progressive relaxation, imagery, etc.

Since 1977 another round of studies have been conducted attempting to redress many of the methodological weaknesses of earlier studies. The employment of control groups, controlling for expectations, motivations and attentional effects has produced better designed studies with more reliable data. In 1978 and 1979 several studies were published which improved upon past designs. They explored the applicability of meditation as a clinical tool for specific populations such as substance abusers, individuals with sleep disturbance, public speaking anxiety, general anxiety and normals (Bahrke and Morgan, 1978; Borkovec and Hennings, 1978; Gilbert et al., 1978; Parker et al., 1978; Smith, 1978; Zuroff and Schwartz, 1978).

Parker et al. (1978) found that meditation and progressive relaxation were effective in reducing anxiety, but no more so than the control condition as determined by self-report measures, Galvanic Skin Response (GSR), and heart rates. But meditation and relaxation were found more effective than the control condition for decreases in blood pressure. Their study also suggests that because controls had
considerable "control" over their own relaxation, even when not employing a standard relaxation technique, that expectancy and motivation are important variables that must be controlled as in this study. They also concluded that relaxation techniques such as meditation were potentially useful in the treatment of alcoholism as the alcoholic subjects in the study experienced significant decreases in autonomic arousal and self-reported anxiety.

Some research (Gleuck and Stroebel, 1975; Parker et al., 1978) reported that relaxation techniques, including meditation, appear to produce heterogeneous responses across a number of personality variables. Gilbert et al. (1978) sought more specific knowledge of the differential effects that contributed to those responses. This study revealed different response patterns as a function of the relaxation strategies employed. This was measured by the Profile of Mood States scale (POMS) (McNair et al., 1971).

In order to further delineate characteristics of specific populations with an eye toward eventually being able to tailor specific meditation and relaxation techniques for particular populations with particular problems, Smith (1978) correlated thirty demographic and personality variables with continuity in treatment and trait anxiety scores. He found that different personality types benefited differently from the same treatments, and concluded that personality characteristics are correlated with continuation in treatment and outcome of meditation.

Some research also sought to further refine the independent variable -- what the mechanisms responsible for the relaxation
response might be. Borkovec and Hennings (1978), taking a cognitively oriented approach, examined the role of attention in the relaxation response. The authors came to the conclusion that focusing one's attention on one's physiology facilitates reduction of autonomic activity as well as perception of the relaxation response. Cognitive perspectives view the relaxation response as being due to switching focus from one set of elements in the field of awareness to another. The characteristics of one set of elements eliciting autonomic arousal, and another set not, depending on the values attached to the particular set of elements.

Zuroff and Schwartz (1978), in a well-designed study incorporating a control group, a placebo group, and measures other than self-report measures, produced results contradictory to some earlier studies. In this case TM was found to be more effective in reducing trait anxiety than the other conditions. The authors also found meditation to have no effect upon a variety of personality measures such as the ones employed in prior studies. They suggested that possibly weak designs and measures of questionable validity were responsible for the differences between earlier studies and their own.

Following the above studies, research attempted to demonstrate that meditation was no more effective than other comparable relaxation strategies, or placebo conditions, for reducing anxiety (Bahrke and Morgan, 1978; Boswell and Murray, 1979; Goldman, Dormitor and Murray, 1979). Those research studies did show that other strategies were just as effective in reducing stress and anxiety as meditation. However, these studies came no closer to determining those factors
responsible across the conditions for the relaxation response.

Recently, meditation research continues to examine a variety of issues, particularly issues concerned with the possible benefits meditation may provide to specific treatment populations such as psychoneurotic types of disorders, alcoholism, geriatrics and even athletics (DeBerry, 1982; Griffiths, Steel, Vaccarro and Karpman, 1981; Lehrer, Schoicket, Carrington and Woolfolk, 1980; Wong, Brochin and Gendron, 1981). These studies have focused upon these populations as targets possibly to be benefited by meditation and the resulting relaxation response research indicates is present.

A study by Lehrer et al. (1980) sought to follow-up on a study by Schwartz et al. (1978) which indicated differences in cognitive symptoms of anxiety as opposed to somatic anxiety symptoms. Their results were generally consistent with Davidson and Schwartz's (1976) view of meditation as a cognitive technique that is most effective with cognitively derived anxiety, rather than somatic anxiety. They concluded that frontal EEG alpha may be a physiological marker for the absense of cognitive anxiety, and further suggest that meditation is a method that better prepares people to cope with stress.

A recent experiment (Wong et al., 1981) examining the effects of meditation on anxiety and substance abuse, found decreases in anxiety determined by lessened physical tension as measured by EMG readings. It also concluded that meditation resulted in some significant increases in ability to relax, heightened self-awareness, and increased concentration as measured by the Differential Personality Questionnaire, the Mini-Mult, shortened version of the
MMPI, and the Self Assessment Scales. Similar decreases were also found for anxiety in a geriatric population (DeBerry, 1982).

To summarize, research has consistently shown meditation to result in the reduction of stress and anxiety, though it has yet to determine the therapeutic agents. The literature has also frequently shown meditation to be no more effective in producing the relaxation response than comparable methods, or even well-designed placebo treatments, despite increasing sophistication in methodological design, and across a range of populations. There has also been a good deal of inconsistency and confusion regarding the effects of meditation upon a variety of personality variables and measures. It may be regarded as uncertain what effect meditation has upon personality with different populations being treated for different problems.

Attention

This section contains the literature related to attention and meditation. It covers theories of attention, attention as viewed and utilized in self-regulation techniques, the role of attention in meditation, and a summary.

Attentional Theories and Concepts

In traditional experimental psychology the topic of attention has been subject to study for many years. Even so, there are no definitions of attention acceptable to all theorists and experimenters. Despite this condition, attention is often defined in terms of its discriminable characteristics (Kahneman, 1973). One aspect of attention is its characteristics of distribution. This
refers to manipulating attention in the direction of diffusion, a broadened focus, or in the direction of concentration, a narrowed focus. Another aspect of attention concerns the degree of vigilance, or alertness, that is greater or lesser intensity of awareness. Attention may also be employed internally or externally (Duval and Wickland, 1972).

The selectivity of attention is an aspect that has received a great deal of consideration (Broadbent, 1958; Norman, 1968; Treisman, 1969). Selectivity refers to an individual's ability to direct awareness to specific information, while ignoring other aspects of available information. Two other characteristics of attention are closely related to the selective qualities of attention, they are the divisibility of attention, and the ability to shift attention (Carver and Scheier, 1981).

The contributions of Cherry (1953) have been critical to the theory and research on attention. Using dichotic listening tasks, Cherry demonstrated that when subjects were directed to shadow messages to one ear, information going to the other ear was ignored, except for information with particular qualities, or statistical properties, such as the language used. Individual words and content were not recognized. This research stimulated considerable research and theoretical formulation.

Following Cherry's lead, Broadbent (1958) developed the first major theory in the field in an attempt to explain Cherry's Cocktail Party effect. Broadbent developed his theory around the concept of a filter in conjunction with communication theory (Shannon and Weaver,
This was the first information processing model applied to attention. The filter was conceived of as a bottleneck, allowing only one channel of information to be processed at a time. This bottleneck took place in the perceptual system, early on in the processing of information. Information processing is viewed as a very mechanical process, which depends to a great degree upon the physical qualities of the information impinging upon the sense organs, i.e. intensity, novelty, and sudden or surprising events.

Other theorists, Treisman (1961), and Deutsch and Deutsch (1963) expanded upon Broadbent’s concept of the filter. Treisman conceptualized the filter as an attenuator, or tuner, that was able to recognize pattern information and shuttle that to a dictionary that processes the particular qualities of that information. The dictionary thresholds may vary, and depends primarily upon contextual meaning. Thus, one may be enabled to recognize one’s name across the room. This attenuator processes all information according to the specific operation being performed as dictated by the context or other important meanings to the organism. This is a bottleneck type of theory like Broadbent’s, but allows for greater flexibility and explains issues left unresolved by Broadbent’s model.

Deutsch and Deutsch (1963) hypothesized that the processing of information by selective attention depends less on the weight of the information than upon the importance of the information to the organism. Memory is viewed as sufficient for selection, and the hypothesized dictionary is unnecessary for explaining these processes. All information is perceptually analyzed and passed on to the memory.
The bottleneck occurs between pattern recognition and choice. It is chosen or rejected depending on the need decisions of the organism. Potential overload of information is responsible for making decisions regarding selection. According to this theory, the bottleneck lies in a different location than that proposed in earlier models. However, in this model, as well as the others, the assumption that the organism needs to be protected from overload is made. This bottleneck regulates the flow of information. These processes are considered as occurring on preconscious levels.

Norman (1968) expanded upon the Deutsch and Deutsch model. Norman noted that both the weight and the importance of the information play a role in the processing of information. Those stimuli that contain the greatest combination of both elements are those that are selected for further processing.

The above bottleneck theories, as they are referred to, indicate that individuals are unable to respond to more than one kind of information at a time. They propose some kind of barrier that limits the flow of information, preventing the cognitive system from being overwhelmed with practically an infinite amount and variety of information. They differ in the location of that barrier. More recent theories, however, have dispensed with the notion of this protective barrier. Subsequent research (Allport, Antonis and Reynolds, 1972; Underwood, 1974) suggests that the the limitations of information processing are not as rigid as these earlier models imply.

The earlier bottleneck or filter theories disagreed on the location of the bottleneck. One of the consequences of this
disagreement was the development of models that could synthesize these viewpoints and go beyond them. Kahneman (1973) developed the first of the capacity theories. Kahneman also argued the position that cognition has a certain limit to the amount of information it is capable of processing at a time. When the supply of attention available to a particular task is not sufficient for the task, the performance upon the task declines. The amount of capacity varies with the amount of arousal, and the arousal is controlled the rules of involuntary attention as well as by intentional goals. This theory is similar to the bottleneck theories in that it predicts that simultaneous activities will interfere with each other. The bottleneck theories predict that interference will occur when different tasks use the same mechanism, whereas capacity theories predict that interference depends on the total demands of the task. Both types of interference are possible, and it appears that both types of models are useful.

Douglas and Peters (1979), after reviewing attentional theories and empirical studies, concluded that filter or bottleneck theories were not supported by the research. The distractability studies and incidental learning studies appear to contradict these models. At the very least, there is no conclusive evidence that special populations suffer from distractability, or an inability to shut out irrelevant information.

Norman and Bobrow (1975) proposed a capacity model that suggested that when attention is divided there occurs a subsequent deterioration in performance due to competition for the same limited
resources. There are physiologically oriented studies that are supportive of this position. For instance, Wickens, Kramer, Vanasse and Donchin (1983), utilizing a tracking task to elicit event-related brain potentials, found that potentials generated by task-defined events increased in amplitude, while those that were elicited by secondary tasks decreased. They concluded that the decrements were the result of the reallocation of resources due to secondary task competition for the resources.

Another capacity theory was developed by Johnston and Heinz (1978). Their theory proposed that individuals have control over the location of the bottleneck — from early in the processing to much later in the processing. This multimodal model is characterized by flexibility. This model predicts, however, that comprehension of primary information declines as more secondary information is collected. Research supportive of this position includes Moray (1969), Kahneman (1973), Maccoby and Hagen (1965) and Posner and Snyder (1975).

The capacity models have achieved popularity and status. However, these models have been criticized regarding their general inflexibility (Craik and Lockhart, 1972), inability to explain developmental issues such as memory capacity (Chi, 1976, 1978), inability to subvert alternative explanations such as differences in knowledge (Dempster, 1981; Gibson and Rader, 1979).

Neisser (1976) differs from the bottleneck and limited capacity theories in that he argues that there is essentially no limit to how much information human cognition can process. He argues that
research has not shown otherwise, and that research on learning and practise indicates that an individual is capable of performing more and more adequately with practise. He suggests that the brain is in no danger of suddenly being overloaded with information. The more skilled the perceiver the more that individual can perceive. Neisser argues that the bottleneck theories are irrelevant to natural attention because perception is an active process, not simply a passive one. From the indefinite possibilities of information available for pick up, individuals select only information that they have schemata for. We perceive what we anticipate that we will see, however, not all information pick up is under voluntary control. He states that the bottleneck theories suggest that to pick one apple from the tree an individual would have to utilize a mechanism designed to keep all the unwanted apples out of his hands. It is equally possible, he suggests, that our limitations are not due to a limited capacity, but that we are limited in the number of activities we can perform and the skills we possess.

The work of Schneider and Shiffrin (1977) has also developed the concept of practise, and have designed research to support it. However, in contrast to Neisser, they suggest that there are limitations to attentional capacities depending on the type of task. Research indicates that two relatively complex tasks can be performed together with relatively little disruption. Extended practise is usually the reason, and automatic processes develop making no demands on central capacity.
Among this group of dissenters from the bottleneck and limited capacity theories are those who propose that attention is composed of multiple resources for processing information that are independent of one another, yet interact and compete for the limited resources of attention (Baddeley and Hitch, 1974). Baddeley and Hitch argued for two specific processing systems besides a central processing unit — an articulatory loop and a visuospatial scratch pad. Likewise, Howard Gardner (1983), author of *Frames of Mind: The Theory of Multiple Intelligences*, proposes that cognition is composed of a variety of subsystems or intelligences that have their own structures, processes and functions, and that they interact and are sometimes at odds with one another.

A recent addition to the attentional theories has been the literature generated out of educational and developmental research. Unlike the bottleneck and capacity models of attention, emphasis is placed upon the relationship of attention to cognitive processes and development. An interactionist view of attention has been proposed which concerns itself with both the task performed and the child's cognitive processes. The following research and theoretical perspectives have offered some new approaches to the topic area.

Educational researchers have also contributed to a greater understanding of attentional processes with contributions to areas such as the relationship of attention to reading. For instance, Samuels (1976) suggests that with reading practice attentional skills become more automatic and less demanding of attention and effort. He conceptualizes the fundamental attentional skills as being applied to
decoding information and then processing the meaning of that information. Learning disabled readers, he speculates, spend the majority of their attentional resources on decoding, leaving few resources available for comprehension. When decoding skills become automatic there is a larger resource of attention available for reading comprehension. The latter would be more descriptive of the skilled reader.

Lupart and Mulcahy (1984) point out that reading research has shown that there are both structural and process aspects of attention that play a role in the development of reading skills. Structural factors such as developmental stage of skill acquisition over time as well as process factors such as visual scanning affect the optimization of attention in reading. They state also that much of the earlier research on reading has focused on bottom-up approaches to research, highly influenced by the behaviorist position, versus top-down approaches that are currently receiving a great deal more attention. They state that it is because of this that research is just beginning to learn how readers direct their attention, while a good deal is known about what readers do attend to.

Hochberg (1978) has proposed, based upon Miller, Galanter and Pribram’s Test-Operate-Test-Exit (TOTE) model, that there are two interacting systems that influence reading behavior. There is a peripheral search guidance system that is sensorially based and is a bottom-up process, and a top-down process that is cognitively based referred to as cognitive search guidance. Stauffer (1977) adds that reading can be guided by the reader with unregulated thinking or with
greater degrees of sophistication for more productive thinking and learning. The poor reader then is guided by the stimulus and performs a decoding task rather than setting and directing his purposes. These self-regulatory abilities, also referred to as metacognition, are composed of what a person knows about what he knows, and his ability to control those cognitions.

Results from studies on metacognitions such as the Owings, Petersen, Bransford, Morris and Stein (1980) study suggest that students who perform below their potential appear to do so because they do not monitor their learning processes. Brown's (1980) research on metacognitions have yielded some results relative to the types of metacognitive skills necessary for proficient reading such as: knowledge regarding directing attentional strategies; knowledge of oneself as a learner; knowledge of text; and knowledge of the task requirements. Most current models of attention do not consider these dimensions.

Lupart and Mulcahy (1984) have attempted to outline a model which is incorporative of the findings from reading and attentional research efforts. They have called their model the cognitive view or model. The fundamental elements distinguishing the cognitive view are that attention and developmental processes are closely linked, and that changes in attention are qualitative rather than quantitative differences. Attention is tied to development in that children learn to manage their attentional skills with increasingly greater agility and expertness. Douglas and Peters (1979) suggest that prior knowledge is responsible for developing control over current
perceptions and cognitions. Brown (1978) describes this knowledge and control as self-regulatory abilities that result in metacognitive skills. These skills, he suggests, are attentional organizers, that is, this prior knowledge serves as information that helps to predict, compare, check, monitor and test reality. This allows for chunking of information, and practice of these skills allows for automaticity to develop, freeing attentional resources for other tasks. According to the cognitive view, children with attention deficits are those children who do not adopt more efficient attention and information organizing strategies with their school or problem-solving tasks. Lupart and Mulcahy (1984) state that the cognitive model explains the attentional deficit more comprehensively in that it includes within its perspective the developmental, structural and qualitative factors that are essential for a truer representation of attentional problems. The model also allows for the possibility of further development of attentional skills rather than assuming a structural deficit deadend.

Lupart and Mulcahy (1980) have sought to provide a model which is capable of including both bottom-up and top-down approaches to cognition as well as involving task and learner characteristics. Unlike the earlier information processing models, which conceived of the attentional processes as being data driven, this cognitive model attempts to describe an interactive set of processes in which attentional processes are conceptually driven and interact with bottom-up data. These researchers propose that systematic research be conducted on top-down processes to redress the imbalances resulting from the necessarily bias perspectives of the only systematic research
available on the topic of attentional processes, the bottom-up models, to acquire a richer and deeper understanding of attentional processes. With this achieved it may be more realistic to expect to help individuals with learning and attentional difficulties.

The above theoretical positions form the basis of psychological experimentation with attention. However, from a phenomenological point of view the individual's experience of their own awareness has been by-passed entirely by many of these explanations (Merleau-Ponty, 1964). Merleau-Ponty views the physiological events in an abstract schema of perceptual events, suggesting that one does not need to know the mechanics of the body to understand the functioning of a cognitive process. It is argued from this position that one need not understand the mechanics of a computer to understand the programs utilized. Attention is instead viewed as a fundamental mental energy which is available within the structure of figure-ground perception, and interacts with the particular subjective knowledge and experiences of the individual.

There are a few other theories of attention that have also gained some recognition and acceptance that are neurophysiological in approach (Egeth, 1967; Pribram and McGuiness, 1975). These models relate particular cognitive functions to specific physiological and coding processes in the brain and nervous system. Electrophysiological measurement of brain activities such as the recording of event-related brain potentials (ERP's) during task performance has proven useful as a measure of attentional processes. These physiological processes and models, however, are beyond the
scope of the present study.

An information processing type model of attention developed recently by Carver and Scheier (1981) is the fundamental theoretical view held in the present study. Carver and Scheier have developed a model called control theory. This model postulates attention as a fundamental mental process that functions within an overall structure that provides feedback to itself. It is based upon Miller, Galanter and Pribram's (1960) Test-Operate-Test-Exit (TOTE) unit concept. Attention is the process that serves to activate each stage in the TOTE unit. Attention activates the test mechanism to determine whether or not the state of the system matches the goal or standard set by the system. It activates the stage in which a change is made in the state of the system or in the goals and standards, if necessary. Attention activates the stage in which the process of comparison is exited once a match is obtained. And attention is part of the comparator system that continuously monitors the state of the system. Like Niesser's model, this model views attention as a flexible process that is very active rather than a passive process with fixed dimensions.

Despite a long history of experimental manipulation and theorizing, no unified model of attentional processes exists. Current research on attention can be found which is based on any one of the above theoretical perspectives.
Attention and Self-Regulation

Self-regulation, as seen in the section pertaining to meditation as a psychotherapeutic technique, has a variety of theoretical bases, many of which stem from social learning theories. None of these theories focus upon the element of attention. Attention is assumed to be only a part of the self-observation process. However, cognitive control theories view attention as a fundamental component of a person's cognitive capacities to self-regulate (Carver and Scheier, 1981).

Many cognitive oriented theorists have abandoned the, in their eyes, outmoded concepts of tension reduction, drive theories and reinforcement, for control theory. Control theories are based on cybernetics, the science of communication and control, and draw on information processing theories and the underlying concepts of servo-feedback mechanisms. Control theories view goal-setting and discrepancy reduction as normal consequences of the naturally occurring self-regulation processes taking place in human beings (Carver and Scheier, 1981).

Cognitive control theories consider the human nervous system to be like a computer in terms of how it processes information. Information is considered to be anything that reduces uncertainty, and for human beings information can be transmitted either from external environmental sources, or internal sources. Information moving through the channel of the nervous system is processed through a sequencing series of instructions, and control cannot be transferred to the next series of instructions toward fulfillment of a goal until
the previous instructions have been executed successfully (Carver and Scheier, 1981).

In 1960, Miller, Galanter and Pribram developed their idea of how the nervous system controls information. They developed a program-like concept called the TOTE unit. TOTE is an acronym for test-operate-test-exit. It is based on information processing theories and on servo-feedback mechanisms as found in nature as well as mechanics. This concept is viewed by many cognitive psychologists as an important component of information processing in human beings.

The TOTE unit has a component termed the comparator which compares the existing state of the system to a standard. The comparison lets the system know whether or not the state of the system matches the standard. This component of the process is called test. If there is a discrepancy between the state of the system and the standard, the second stage of the process is called into operation. The operation component of the process adjusts the state of the system in order to facilitate conformance to that standard. Upon successful completion of the execution of alteration instructions, control is transferred to test once again to compare existing state with standard. If there is no longer a discrepancy between state and standard, control is transferred to the exit process, where a homeostasis has been achieved and the sequence concludes.

Attention is considered to be a fundamental component involved in the processing of information through the nervous system. As referred to earlier, attention can be directed in a number of ways. It can be directed in a diffused manner, a concentrated fashion, and
can operate on a continuum of vigilance of greater and lesser degree of awareness. It can also be directed internally or externally, shifting through the above possibilities as meets the goals of the individual (Carver and Scheier, 1981; Duval and Wicklund, 1972; Kahneman, 1973).

Carver and Scheier (1981) state that attention operates in conjunction with the knowledge structure obtained through experience. Standards are derived from the knowledge structure. The direction and quality of attention is influenced by, but even more importantly, influences the standards as well as the TOTE unit. In particular it is clear that attention brought to bear in the comparator, increases the efficiency by which greater discrepancies can be detected. This self-observation of one's behavior compared to one's inner model or image, one's standard, has important consequences for self-regulation of behavior and change. The direction of attention has implications regarding the amount of attention available to observe oneself as well when one considers for example that as attention toward the environment increases, attention to the self decreases (Duval and Wicklund, 1972). It becomes clear that two components of the information processing system are required for self-regulation, one system that defines goals and behavioral standards, and another that regulates activity in relation to the standard.

Research has demonstrated in a variety of areas that attention directed toward internal states influences that state. Walters (1961) and Morgan and Pollock (1977) have found that distraction from pain alleviates pain. Kanfer and Goldfoot (1966) found that attention to
pain leads to increases in reported pain. For a thorough review of the relevant research see Carver and Scheier (1981). Research from other fields also tends to substantiate these findings. In the field of particle physics it has been demonstrated that perception of events influences those events (Capra, 1975).

Speeth (1982) points out that attention is just recently coming to be more widely recognized in the helping professions as a psychotherapeutic agent. In addition to the above suggested benefits accruing to the client from self-observation, Speeth states that it is necessary for therapists to examine themselves during therapy sessions to become aware of such issues as transference, among other things, and the role that can possibly play in the therapeutic relationship. How a therapist focuses his/her attention internally and externally has a variety of influences. She suggests that only Psychoanalysis and Gestalt therapy have examined attentional issues in any depth, and that the field could perhaps benefit greatly by enhanced knowledge.

In summary, self-regulation has recently been subject to examination by cognitive psychologists, and they have approached these concepts and techniques from a new paradigmatic model - control theory. This model appears to be addressing issues that previous models had difficulty explaining, such as the issue of consciousness, and is providing more elegant solutions. Attention plays a big role in self-regulation theories and techniques, and research is being encouraged within this sophisticated theoretical ground.
Attention and Meditation

Attention has played a large role in psychological theory and research. Recently it has contributed to approaches to psychotherapy, especially the cognitive self-regulation strategies. The role of attention in the self-regulation technique meditation began to be explored in the early 1970's (Van Nuys, 1971). This section of the literature review focuses upon the manipulation of attention as an independent variable in meditation research. Attention is the independent variable in the present research.

The techniques of meditation have traditionally employed the process of intentionally directing attention. Tibetan Buddhist writings on meditation (Brown, 1977), the writings on Transcendental Meditation (Maharishi Mahesh Yogi, 1969), Zen Buddhist writings (Kapleau, 1965), and many others hold that the intentional direction of attention is fundamental to meditation.

Psychology has recently postulated the importance of attentional processes in control theories of information processing (Carver and Scheier, 1981). Ornstein (1971, 1972) has suggested that alterations in attention produces changes in dominance of brain hemispheres. Pribram and McGuiness (1975) have generated neuropsychological and psychophysiological data and research that map the control processes of attention in the brain. Likewise, clinical research has demonstrated the psychotherapeutic uses of redirected attention for a variety of therapeutic concerns. Cognitive psychologists suggest that shifts in attention are responsible for reductions in anxiety rather than counter-conditioning. For instance,
Yulis, Charnes, Jacard, Picota and Rutman (1975) demonstrated that clients who learn to shift attention from focusing upon their phobic objects improved equally to clients who learned relaxation.

The importance of attentional processes and the usefulness of cognitive models suggests a need for a cognitively oriented model of attention. One that would serve both as an elegant explanatory model as well as a guide for future research. Boals (1978) states that meditation is a process in which attention is employed differently than ordinary everyday externally oriented attention. This internal deployment of attention results in a change of consciousness as well as a relaxation response. Boals adds that such a model is needed as existing attentional theories do not adequately explain attention deployment in meditation, and neither do they explain meditation's effects.

Boals (1978) postulates that a cognitive model of meditation research is likely to succeed in resolving issues that other models are unable to resolve. The relaxation response is generally considered to be the most likely explanation for meditation's effects. However, researchers who hold the relaxation response to be the active agent producing meditation's effects are overlooking some flaws inherent in that perspective. Boals states that the research literature indicates that relaxation is a highly variable phenomena and can be achieved by such diverse activities as running, or sitting quietly visualizing pleasant scenes. Different techniques also appear to result in different psychophysiological relaxation experiences. Boals suggests that the cognitive model holding the most promise for
dealing with these issues is the sensory reduction theory (Haer, 1970; Ludwig, 1966, 1971; Silverman, Cohen, Shmavonian and Greenberg, 1961; Silverman, 1968).

A more recent development in cognitive models has occurred. Carver and Scheier (1981) have proposed a control theory model based on the TOTE unit (Pribram and McGuiness, 1975), described in more detail in the previous section of this review. In it attention is considered to be the primary variable in the operation of the components of the system. It is the primary element in self-observation. And self-observation alone has been shown to effect behavior change (Johnson and White, 1971; Shapiro and Zifferblatt, 1976). Self-observation is viewed as fundamental to psychotherapeutic change (Duval and Wicklund, 1972).

Meditation is by definition an activity that enlarges self-awareness as attention is brought to bear upon awareness itself. West (1979, 1980) states that meditators report that awareness is stronger and clearer while meditating. Increases in awareness occur as a natural result of decreasing awareness of external events (Duval and Wicklund, 1972). West (1980) also reports meditators experience an increase in physical sensations and thoughts. According to Buss' (1980) theory on private self-awareness, private self-awareness results from deploying attention toward unshared aspects of oneself such as body, thoughts, memories and fantasies.

Duval and Wicklund (1972) and Wicklund (1975) argue that attention is either directed inwardly or outwardly, and that the primary reaction to inward directed attention is self-evaluation West,
Self-evaluation naturally leads to awareness of discrepancies between one's existing state and a conceptual standard or goal to achieve self-consistency. Reactions to these discrepancies tend toward discrepancy-reduction, as noted in Carver and Scheier's (1981) control theory. For a full review of the research evidence supporting self-observation theory see Wicklund (1975) and Buss (1980).

Buss (1980) argues that attention to private aspects of self increases affect. Feelings are heightened in intensity. Research supports these arguments suggest that private self-awareness leads to resistance to false suggestions, increases in intensity of angry aggressive affect, increases in positive affect, and increased reactance to aversive stimuli (Gibbons, Scheier, Carver and Hormuth, 1979; Epstein, Rosenthal and Szphiler, 1978; Scheier, 1976; Scheier and Carver, 1977; West, 1982).

West (1982) submits that Buss' (1980) theory predicts that meditators would demonstrate increases in affective intensity, and that mental events would become more clear and distinct. In reviewing the related literature, West states that the research indicates increases in intensification of affect, and increases in perceptual clarity of neutral stimuli. But West also states that further research is also required to test the theory. He notes, however, that existing theories of attention and self-awareness do not predict or explain peak experiences, or mystical experiences that are so often reported by meditators.

The above theories and others are currently being utilized to guide rationale and direction of research design because attentional
processes are important to the functioning of the cognitive system for information processing. If information is not attended to, it will not be fully encoded and will have little effect upon consequent cognitions and behaviors. Attention influences the degree to which information influences persons (Matthews, Carver and Scheier, 1982). Also, most attentional research in the past has focused upon the selective aspects of attention to external stimuli. Research and theory relating to self-observation and meditation examine another set of attentional variables, internal stimuli, which contributes to a better understanding of cognition.

Several types of studies have been conducted which examine the relationship of attention to meditation. Some of the studies assume that attention is a component of meditation, others view attention as an effect of meditation. The research studies can be divided into types: the ones that study the effects that length of meditation practise has, whether meditation leads to increases in ability to attend, if meditation is correlated with clinical improvement, and what effects various types of cognitive focusing have. In the present study the effects of cognitive focusing upon clinical improvement is the primary concern.

The earliest studies examining the relationship of attention to meditation focused upon whether or not there were any physiological differences in meditators whose attentional focus is situated at different ends of the spectrum between a concentrative type of meditation and a broadened focus type (Anand, Chinna and Singh, 1961; Kasamatsu and Hirai, 1966). The studies indicated definite
differences between the types of meditation, or attentional focusing. Brown (1977) pointed out that there is neurophysiological evidence that differentiates active attentional focusing from passive. Pribram (1971) has distinguished between two different cortical control mechanisms regulating information processing. There is a frontal cortical system related to processing information of a restrictive type, of the stimulus figure, and a posterior temporal system associated with wide-ranging processing of information.

Maupin (1965) was the first to examine attentional style during meditation. As measures of attention he used digit span measures, continuous additions and size estimations. He found that these measures did not respond to the meditation process, and reasoned that these measures might not be appropriate for the type of attention employed during meditation.

Aware of Maupin's (1965) research, other researchers began to explore the use of other attentional measures. Van Nuys (1971, 1973) attempted to develop an attentional measure in which the subject responded on a digital counter each time concentration was interrupted. He also suggested that the type of attention employed during meditation usually involves a sustained non-analytic attention in which rational, discursive thought processes are brought to a halt. The attentional measures Maupin had utilized were measures designed to examine more active, analytic attentional processes as opposed to passive, nonanalytic. Van Nuys method of counting intrusions appeared to be an effective measure, and demonstrated increases in concentration. It also proved to be correlated with some hypnotic
mesures that sought to measure attentional absorption. However, this method of counting intrusions was criticized because of its intrusiveness into the meditational process, and also because reports of higher numbers of intrusions could also be correlated with increases in attention to disturbances (Shapiro, 1980).

Early studies of attentional style, field dependence/independence (Linden, 1973; Pelletier, 1974), indicated that meditators developed significantly more field independence than non-meditators. Linden hypothesized that meditation trains attention to discriminate figure from ground, and he predicted from this reasoning increases in field independence. Field independence was measured by Witkin's Embedded Figures Test. Though some attentional measures, as Van Nuys (1973) pointed out, may not be appropriate for meditation, Shapiro (1980) notes that although meditation may be primarily nonanalytic, some analytic reasoning may be necessary to achieve a nonanalytic focus. Therefore, some attentional tests developed to measure attention involved in analytical processes may prove sensitive to attention as employed during mediation. The Linden and Pelletier studies suggest that training of attention can contribute to personal growth and clinical improvement.

Thus far studies have centered on differences in attention directed restrictively versus broadly. Another major characteristic of attention is the intensity by which attention is directed, also called vigilance. Smith (1976) designed a study in which groups were equal on all variables except the intensity with which attention was deployed. Attention was to be directed more actively by one group,
and more passively by the other. The results of his research suggest that attentional focusing may not have been the active agent in reducing anxiety, and that active and passive focusing may be equally effective on self-reort measures of anxiety. However, Davidson and Goleman (1977), Davidson, Schwartz and Rothman (1976), and Davidson, Goleman and Schwartz (1976) produced physiological evidence contradictory to Smith's. They found cortical specificity related to active versus passive focusing, and indicated that it was probable that training in different attentional techniques results in different attentional skills. These contradictory findings might be explained by the type and sensitivity of the dependent measures utilized.

In a study similar to Smith's, Kubose (1976) also divided subjects into a meditation group and a control in which both groups sat still, but only the meditation group was given directions to concentrate attention. The two groups performed differently on a variety of measures of attention, and it was concluded that the focusing of attention upon counting breaths was responsible for producing the results. Boals (1977) has suggested that Smith's results may have been due to his having designed the control group's meditation too well. It may have been the equivalent of the experimental group, even though his intention was to create an anti-meditation group. The meditation task of the controls still required them to maintain a sustained focus of attention.

Davidson, Goleman and Schwartz (1976) compared groups of meditators with differing levels of experience. The Tellegen Absorption Scale (Tellegen and Atkins, 1974) was employed, and it was
found that more experienced meditators showed significantly greater increases in attentional absorption than less experienced meditators. This study suggests that longer term meditators develop more voluntary control over attentional processes. This study also supports Van Nuys' (1971) findings suggesting increased control.

Some research has been done which indicates that increases in ability to attend are associated with clinical improvement (Vahia, Doengaji, Jeste et al., 1973). The previous section in the literature review dealing with meditation as a self-regulation strategy also indicated the clinical effectiveness of meditation. The Vahia study indicates that there is a positive correlation between concentration and clinical improvement.

Leung (1973) found that the practise of one type of focusing leads to transfer of improvement to the other type of focus. For instance, practise of internal attention leading to increased improvements in external focusing. Borkovec and Hennings (1978) found differences between the types of internal focusing. Anxiety was found to be greatest in subjects focusing their attention physiologically, and least in those focusing only cognitively. Social psychologists in recent years have also contributed a great deal toward an understanding of attentional deployment directed either internally or externally. Their focus has been upon self-awareness and self-observation. As mentioned this is considered fundamental to behavior change. For a review of the literature see Duval and Wicklund (1973), Carver and Scheier (1981), and Wicklund and Frey (1980).
In summary, there is a great deal that is unexplored and uncertain regarding meditation and attention. The research has indicated that the practise of meditation over time is associated with increases in concentration and absorption. It has found that meditation is related to a variety of clinical improvements, but the paucity of literature leaves open the question of what particular focusing techniques are useful with what populations for what particular purposes. It is relatively clear that influencing attention is related to changes on a variety of types of dependent measures, but it is unclear as yet what particular variables are responsible for those changes and how they produce them.

**Summary**

The process of meditation has proven to be very useful to the research and therapeutic communities in recent years. It has supplied a means for exploring and expanding knowledge in theories of consciousness, self-awareness and attention, as well as providing new tools for the self-regulation oriented treatments and self-actualizing processes. Relevant to this study meditation has shown itself to have an effect upon transitory and dispositional levels of anxiety and alcohol abuse (Marlatt et al., 1976), upon increased capacity for sustained attentional involvement (Davidson et al., 1976), and upon anxiety levels and chemical dependency (Wong et al., 1981). Meditation has yet to prove itself as a unique physiological or cognitive process, but it has thus far shown itself to be equal to other self-control techniques. The review of the literature has shown
a need for continued research to determine the active components of meditation and attention, as well as a need to determine who might most likely benefit from what particular type of cognitive focusing strategies.

This chapter has presented a review of the literature in the areas of meditation and attention that are relevant to the present study. Literature was reviewed regarding meditation theories, meditation as psychotherapy, meditation as treatment for substance abuse, meditation as treatment for stress, attentional theories, the role of attention in self-regulation, the role of attention in meditation, and a summary.
CHAPTER THREE

METHODOLOGY

This chapter describes the treatment procedures used in the research so as to provide readers and researchers with accurate information facilitating clear understanding and ability to replicate and test the hypotheses of this study. This chapter contains, therefore, a description of the population, the subject sample, the setting, the research design, subjects' instructions, descriptions of the treatment, the data collection procedures, instrumentation, and the statistical analyses.

Population

The population to be generalized to includes substance abusive and dependent adults who might receive treatment similar to that provided in this study, and who have similar demographic characteristics in common with the subject sample involved. For the purposes of this study, the population generalized to as well as the subject sample have been referred to as substance abusers. While dependency may have been the primary diagnosis for which the subjects were treated, alcohol may or may not have been the individual's drug of choice. Subjects who used alcohol on only an occasional basis
reported abusive use of alcohol on those occasions or even dependent usage on those occasions. Also, since the many of subjects at Maryhaven at one time or another had abused or were dependent upon other mood altering chemicals for a period of time exceeding more than three months, the term alcohol dependent was not employed as being representative enough of the entire sample. The terms alcohol dependent and drug dependent were not considered generic enough to adequately encompass the characteristics of the sample, so the term substance abuser was employed instead. This term was also employed as a method of diminishing the stigma of the labels of alcoholic, alcohol or drug dependent or addicted even though all subjects had been diagnosed as dependent. Generalization of the results will be limited to populations with similar alcohol and other substance dependence and abuse problems as well as similar demographic characteristics.

Setting

This study was conducted at Maryhaven, Incorporated, a Columbus, Ohio, alcohol and drug treatment facility offering a variety of treatments for substance abusers. Maryhaven offers treatments such as detoxification, a 30 day rehabilitation program, a five month halfway house for women, outpatient counseling, an adolescent program, and an awareness and educational four day program for individuals arrested and convicted of operating a motor vehicle while intoxicated. Maryhaven, Incorporated serves as the Regional Alcoholism Center for Region VI in the state of Ohio. The Center services eight counties, including Delaware, Fairfield, Fayette, Franklin, Licking, Madison,
Pickaway and Union counties. Maryhaven is a private facility that is also funded by the Ohio Department of Health, the Franklin County Welfare Department, funds from the City of Columbus and the United Way as well as private payments. It also operates in cooperation with the court system of Franklin County. The court sentences some people to in-patient treatment programs such as Maryhaven. Maryhaven's policy, however, is to accept all in-patients only on a voluntary basis. The court ordered referrals, therefore, voluntarily choose to participate in Maryhaven's in-patient treatment program, or they may choose another treatment option. The majority of the in-patient clients at Maryhaven are not court referrals.

Admission into Maryhaven is based upon standard diagnostic criteria for assessing alcohol and drug abuse and dependency problems. As there are a variety of definitions and diagnostic formulations for alcoholism and substance dependency, during the pre-admission interviews with prospective in-patients, counselors at Maryhaven rely on a combination of diagnostic formulations for determining their assessment of the prospective client's status as an abuser or as dependent. Counselors include in their interview questions relating to the primary areas in life: presenting problem; precipitating events; level of functioning; lethality issues; substance usage; family life (current and past); work life; social life; physical health; and legal issues. Representative of the diagnostic criteria employed is Jellinek's (1960) formulation of the categories of alcoholism as follows:
1) **Alpha alcoholism** -- Problem drinking. A purely psychological dependence exists in which there is neither a loss of control nor an inability to abstain. This would be an abuse pattern.

2) **Beta alcoholism** -- the presence of physical problems due to alcohol are present without psychological or physical dependence. Prevalent in cultures with widespread drinking and inadequate diet.

3) **Gamma alcoholism** -- alcohol dependence characterized by psychological and physical dependence, increased tolerance, loss of control, withdrawal symptoms.

4) **Delta alcoholism** -- dependence characterized by physical and psychological addiction, but no loss of control due to increased tolerance. Cannot remain sober for even one day without the occurrence of withdrawal symptoms.

5) **Epsilon alcoholism** -- periodic alcoholism and binge drinking.

In addition to the above formulation, Maryhaven's counselors utilize the Diagnostic Statistical Manual (DSM III) from The American Psychiatric Association (1982). The primary guidelines delineated in the manual and used by the counselors in their admission interviews are those diagnostic criteria related to alcohol and substance abuse and dependence. The following is a rough outline of those criteria:

1) **Alcohol Abuse** -- a pattern of pathological alcohol use which is characterized by a need for daily use; inability to stop; efforts to control; binges; blackouts; drinking
against medical advice. Also, the impairment of social or occupational functioning characterized by violence; absence from work; loss of job; legal difficulties; traffic accidents; family difficulties. These criteria also form the basis for the diagnosis of Substance Abuse.

2) Alcohol Dependence — a pattern of alcohol use in which daily use of the substance is required for adequate functioning; an inability to stop; repeated efforts to control; drinks non-beverage alcohol; binges; occasionally drinks a fifth of spirits; has had two or more blackouts; continues to drink despite a serious physical disorder. Also, social or occupational functioning is impaired due to violence; absence from work; loss of job; legal difficulties; and difficulties with family. Lastly, there exists a marked increase in tolerance, or a marked decrease; experience of withdrawal symptoms due to cessation or reduction in consumption. Similar criteria form the basis for the diagnosis of dependency on other substances.

Clients reside in Maryhaven’s facilities for the span of the treatment program’s duration. The subject sample resided in Maryhaven’s Cannon Hall in-patient facility. Cannon Hall is designed to treat adult male and female substance abusers dependent on alcohol and other substances. The 30 day treatment program treats the majority of clients for between 21 to 30 days depending on the client’s progress. That progress is determined by the facility’s
counselors, based on the following philosophy and program structure.

The philosophy of Maryhaven is aligned with the concept of viewing alcoholism as a treatable disease. The stated goals of the facility are listed below.

1) To develop trusting relationships between the staff and clients through staff acceptance of the client's situation.
2) To demonstrate empathy and genuine concern for the clients.
3) To bring to the client's awareness both the internal and external influences that have contributed to the client's substance abuse.
4) To educate the clients as to the principles of Alcoholics Anonymous' Twelve Step Recovery Program.
5) To promote client insight into behaviors and attitudes that contribute to a self-destructive lifestyle.
6) To educate the clients concerning the physical, psychological and spiritual ramifications of substance abuse.
7) To develop the client's decision making abilities through values clarification.
8) To reinforce positive attitudes about living a sober, substance-free lifestyle.
9) To provide a finalized, individual discharge plan.

The philosophy of Maryhaven serves as a guideline for in-patient care. There are eight major components of the in-patient program listed below.
1) The first component of in-patient treatment is orientation of the client to program objectives, methods and content provided to facilitate recovery through the program's three phases.

2) The second component is the medical attention provided to assess, maintain and promote health.

3) The third component is the counseling program which provides both individual and group experiences in order to confront the chemical dependency.

4) The fourth component is the education of clients regarding the physical, psychological, social, familial and spiritual aspects of substance abuse.

5) A social service component is provided in order to assist the client's sobriety outside the treatment facility once the client has completed the program and returns to the community.

6) A work component of the program is provided as a measure for promoting a sense of responsibility and self-discipline regarding the quality of, and maintenance of, one's physical environment.

7) The seventh component, physical recreation, encourages good physical fitness and facilitates development of alternative constructive coping skills.

8) The final component includes providing the opportunity for attendance of the Alcoholics Anonymous program.
The 30 day treatment program is divided into three phases. The first phase occurs during the client’s first week of participation. The objectives during this phase are (1) to become oriented to the facility and activities of treatment, (2) to develop awareness of one’s internal dynamics, and the external influences effecting his/her substance abuse, and (3) to become familiar with the principles of Alcoholics Anonymous.

The second phase, which usually encompasses the second and third week of the program, includes the objectives of (1) increasing the client’s level of insight into his/her destructive behaviors and attitudes, (2) developing the client’s knowledge of the physical, psychological, social and spiritual costs of substance abuse, and (3) enhancing the client’s ability to make decisions through values clarification.

The final phase of treatment includes (1) reinforcing positive gains accrued during treatment, and (2) finalizing an individual discharge plan. The final discharge plan usually includes some form of aftercare.

In-patient care at Maryhaven usually consisted of several groups occurring over the span of each day. Readings were conducted in the morning out of the Alcoholics Anonymous (AA) literature after breakfast and chores. Clients would then attend a morning group dealing with understanding and confronting one’s addiction. Clients would then attend lunch and have a break. Afternoons consisted of groups focusing upon the AA Twelve Step Program, where individuals worked in a group setting to fulfill the work required in each step of
the AA process. Educational groups sessions on alcoholism and related knowledge and skill development were also conducted during the afternoons. It was in this educational and skill development component of the program that the treatment regimen of this study, relaxation/meditation, fit in and was instituted. The study was conducted over the time period beginning the fourth week of May 1985 continuously through the second week of October 1985, a period of sixteen weeks.

Subject Sample

The sample used in this study consisted of a total of 79 voluntary and court-referred admissions to Maryhaven. All subjects were clients voluntarily admitted to Maryhaven's in-patient facility, Cannon Hall, for a 30 day program of alcohol/drug treatment. Subjects' ages ranged from 18 to 62 years of age. The sample was primarily from the lower socioeconomic strata. The subject sample was comprised of 54 adult males and 25 adult females, assessed as alcohol or substance dependent, and in need of in-patient treatment. This sample was composed of seven Black males and six Black females, 67 Caucasian males and 19 Caucasian female subjects. Sixty-seven had a high school education or less. Twelve subjects had at least a year of college. Also, 12 of the subjects were court referrals. All of the subjects were randomly assigned to one of three treatment or control groups. Twenty-six subjects were assigned to group one, 27 to group two and 26 to the control group.
All clients entering Maryhaven's in-patient program at Cannon Hall must have a physical examination before entering the program. It is a requirement that the individual must not have had a drink for at least three days if they are to be allowed to participate in the treatment program. If a potential client is found to admit to having had mind altering substances within three days, or to have mood altering chemical substances in his/her urine above certain levels, or symptoms of withdrawal from alcohol or other substances, it is then required of the subject that he/she go through detoxification before being allowed to enter the in-patient program.

Due to the above policy at Maryhaven, threats to the validity of the paper-and-pencil tests administered to the subjects should be diminished as the subject's cognitive functioning is less likely to be impaired by the presence of, or recuperation from, the effects of those substances. This does not rule out, however, permanent or long-term brain or cognitive damage that may have occurred already. A fact supportive of this argument, however, is that the average length of sobriety for subjects upon entering the program was 18 days.

Subjects involved in this study were randomly assigned to either one of two treatment groups, or an attention/placebo control group. These groups consisted on an average of about seven subjects at any particular point in time. The program's population constantly varied as new clients were continually admitted, and other clients completed and left the program. There was a constantly rotating population of about twenty-two clients, with an average of five subjects entering and five subjects leaving the program each week. An
N=25 subjects per group was chosen both because it was necessary to fulfill the conditions for sought level of statistical significance, and because of time constraints.

As the experimental procedure was incorporated into the program's treatment package, the clients did not have a choice regarding participation in the treatment conditions. However, the subject did have the right not to participate in the research, in that the client could refuse to take the tests administered in the research. The clients were encouraged by the experimenter and Maryhaven to participate in the research, but were informed that participation was entirely voluntary. All subjects participated in the study voluntarily. There were no subjects who remained at Maryhaven for the entire course of the treatment program who chose not to participate. There were a total of 14 subjects who began treatment and participation in this study at Maryhaven who either left against staff advice (n=9), or who were prematurely discharged from the program (n=5).

Research Design

This segment of the methodology section consists of three parts. The treatment procedures and subject instructions compose the first part. The second part is comprised of the data collection procedures. The final section is information regarding the instrumentation employed in the data collection.
Treatment Procedures and Instructions

The design of this experiment was a variation of the pretest-posttest control group design. As such, subjects were randomly assigned to three groups. An N = 25 for each condition was sought. This study did not employ a no-treatment control group per se, but the different levels of the variable act as their own controls as the groups employed very different cognitive focusing strategies. One of the groups was an attention/placebo group, in which bibliotherapy was employed. In all three treatment conditions, there were instruments administered prior to treatment, and after treatment had been completed. Some process measures were also employed during treatment.

Pre-testing Session

The first step in operationalizing this design occurred on the subject's first day of treatment in Cannon Hall. The first day of treatment occurred on the client/subject's second day at Maryhaven. In a two hour session the experimenter introduced the subjects to the study, informed them of their rights, and obtained consent for participation. The subjects then completed a series of paper-and-pencil tests to obtain pretest data and to obtain background information. After completion of the above, the subject was instructed in the meditation that he/she was assigned to, and would be practising throughout his/her stay at Maryhaven. Any questions were then answered.

Meditation Instructions. The following comprised the initial meditation instructions read to subjects assigned to all three groups
after completing the pretests: "I am now going to instruct you in the technique that you will be using at Maryhaven while you are attending the Meditation/Relaxation groups, and practising on your own. You will be encouraged to practice this technique twice daily for a minimum of ten minutes, and up to a maximum of twenty minutes, after taking five minutes to relax. The purpose of this research is to study how focusing your attention on relaxing influences the progress that you make during your treatment here at Maryhaven. In this next task I am going to be asking you to relax and to carefully follow the instructions that I give.

1. "Sit quietly and comfortably now with your back straight, your hands on your legs, and your feet flat on the floor.

2. "Close your eyes and take a few deep breaths, and expel any tensions in your body with each exhalation the you take.

3. "For the first few minutes deeply relax all the muscles in your body in the following way. Begin at your feet and allow the muscles in your feet to become limp and relaxed. Sense the finer and deeper relaxation in the muscles of your feet, allowing all the tensions of the day to melt away and be replaced by warm, comforting relaxation... and, now, progressing up to your calves and knees..." (progressing all the way up to the subject’s face and head).

Restrictive Focusing Condition (GP1). At this point the instructions for the three groups diverged. For the restrictive focusing meditation condition the instructions were based on Van Nuys’ (1971), Maupin’s (1965), Linden’s (1973), and Shapiro’s (1980)
instructions to subjects:

1. "Now that you are relaxed and sitting erect, your job is to pay full attention to yourself while sitting quietly and listening to the instructions that are given to you. Keep your mind only on what you are experiencing, and what I say to you. If your mind wanders off the task and you find yourself paying attention to anything else, gently return your attention back to the task.

2. "Turn your attention now to your breathing. Allow yourself to breathe relaxed and naturally. Breathe naturally and without controlling your breath. After relaxing your muscles you will be sitting quietly and erect with your eyes closed, and you will begin paying attention to your breathing and letting it become relaxed and natural. Now, with each exhalation that you are taking, count the number of breaths from one to ten. With your tenth breath you will start counting again from the number one. nod your head if that is clear. Try that now for a moment.

3. "Do not allow other thoughts, feelings, sounds or sensations to distract your attention away from counting and listening to your breathing. This may be hard to do at first, but gently keep redirecting your attention back to your breath and counting. When you find that your attention has wandered, gently touch the middle finger of your right hand to your right thumb to remind yourself that your attention has wandered. Try that now. Imagine that your attention is like a thread. The idea is to keep awareness continually so as not to break the thread. Do not count absent-mindedly or mechanically. Allow your mind to be empty and at peace, while paying attention only
to your breathing and counting.

4. "Do not put pressure on yourself, or expect yourself to do this exercise perfectly. This is a difficult task for people to do and will take time for you to be able to do it without distracting thoughts, feelings, or sensations. Be gentle and patient with yourself for the best results.

5. "Now pay attention to me. You may open your eyes for a few moments, but do not stop relaxing. Remain sitting in the position you are in. There is one more component, but you will use this one only when I test you. You will use this handheld digital counter while you sit and do this meditation. You can see how it works [experimenter demonstrates]. During this testing situation only you will do the following. Every time that you notice that you have to return your attention to your breathing or counting, click the counter instead of touching your thumb and middle finger together. Every time that you have to make an effort to return your attention to your counting from one to ten, click the counter. It is important that you click the counter when your awareness has been returned from some other distracting thought, feeling, sound or sensation. It will not be necessary for you to do this in your day to day practice.

6. "Now I'd like you to try the whole exercise using this counter to keep track of the number of times that your mind wanders. You will be sitting and meditating now for the next 20 minutes. Do you have any questions about the technique I have just taught you before you begin?"
Broadly Focused Condition (GP2). For the broadly focusing meditation, this condition’s instructions consisted of the following, based on the meditation described in Hayward’s book (1984):

1. "Now that you are relaxed and sitting erect with your eyes closed, your job is to pay close attention to these instructions. Keep your mind only on what you are experiencing, and what I say to you. If your mind wanders off the task and you find yourself paying attention to anything else, gently return your attention back to the task.

2. "Your job is to attempt to be aware of everything that comes to your attention, both inside and outside of you, while not dwelling on any one particular thought, feeling, sound, or sensation. If you find that your attention has stayed on any one particular thought, feeling, sound or sensation, remind yourself that your task is to be as aware as possible of everything equally in your internal and external worlds, and not to stay focused on any one thing. At times you will recognize that your attention has wandered from the task and that you have regained your awareness of everything inside and outside of you. When this happens, refocus your attention on all that you can be aware of, attempting to give equal importance to everything. Try this now for a moment.

3. "Do not analyze any of the thoughts, feelings, sounds, sensations or any other things that you become aware of. Do not associate different ideas to them. Try not to judge or evaluate whether or not any particular thought, feeling or sensation is good or bad. Try to be aware of them only as they are, and then pass on to
being aware of everything else that is in your awareness. Be careful not to dwell on any one particular thing.

4. "When you realize that your attention has gotten caught up in paying attention to only one thing to the exclusion of everything else that you could have been aware of, bring your attention back to the task by labeling what activity you got caught up in. For instance, if you had been thinking, say thinking silently to yourself in your head and return to being aware of everything that you can be aware of. If you were feeling something, label it feeling. If you were sensing something with your senses of hearing, touch, etc., label those things sensing. At the same time that you label things, touch the middle finger of your right hand to your right thumb to remind yourself that your attention has wandered. Try that now.

5. "Now pay attention to me. You may open your eyes for a few minutes, but do not stop relaxing. Remain sitting in the position that you are in.

6. "There is one more component that we will add today, but you will use this only on occasions that I test you. You will use this handheld digital counter while you sit and do this meditation. You can see how it works. During this testing situation only you will do the following. Every time that you notice that your attention has gotten fixated or stuck with only one particular thought, feeling, sound or sensation, label what you got stuck on as thinking, feeling, or sensing and then click this counter instead of touching your thumb and middle fingers together. Every time that you make an effort to return your attention back to the task of being aware of everything
that you can be aware of, both inside and outside of you, label it and
click the counter. It is important that you label it and click the
counter every time that your attention has wandered from the task to
only one particular thought, feeling or sensation. This procedure
will not be necessary for you to do in your everyday meditation
practise.

7. "Now I'd like you to try the whole exercise using this
counter to keep track of the number of times that your mind gets stuck
on only one thing. You will be sitting and meditating now for the
next 20 minutes. Do you have any questions before you begin?"

**Bibliotherapy Condition (BP3).** The third treatment condition
was an attention-placebo control condition. This condition's
instructions consisted of the following:

1. "Now that you are relaxed and sitting erect, your job
is to listen carefully to the following instructions. You may open
your eyes now as you will when you have completed your relaxation.

2. "After five minutes of relaxation you will open your
eyes, pick up your AA book, or any self-help book, and read a passage
that you select. Read no more than a few pages. While reading, ask
yourself the following question: "How can I apply this idea to my life
today?" Spend no more than five minutes reading.

3. "After reading the passage and asking yourself the
above question, spend the next fifteen 15 thinking about how you might
apply what you had just read, and develop a plan to apply today.
Write it down if you like."
4. "Sit quietly before going on to your next activities of the day. Do not worry if you do not get your plan implemented today, but try to see if you can. After a little practice you will find that planning and implementing your plan get easier to do.

5. "There is one more component that we will add today and will use again only on days that I test you. You will be using this handheld digital counter while you sit and meditate. This is how it works [experimenter demonstrates]. During the testing situation only, you will be asked to do the following. Every time that your mind has wandered from your reading or planning, click the counter. Every time that you realize that you have been daydreaming, or thinking, or feeling about something else other than your task, click the counter. It is important that you click the counter when your attention has returned from some other distracting thought, feeling, sound, or sensation. Then resume your task. Do not let your mind wander to other things. It will not be necessary for you to keep track of distractions in your day to day practice. Are there any questions?

6. "Now I'd like you to try the whole exercise using this counter to keep track of the number of times that your mind wanders. You will be sitting and meditating now for the next 20 minutes. Do you have any questions about the technique I just taught you."

Weekly Meditation/Relaxation Sessions.

The second step in operationalizing this study's design was implemented through the on-going weekly meditation/relaxation sessions that were held three days a week for one hour - Mondays, Wednesdays and Fridays from 3:30 to 4:30 P.M. Also, the subjects were requested
to practice the meditation twice a day for ten to twenty minutes on their own. A room was available where the subjects could go to practice and could expect not to be interrupted. They also kept records of meditating on their own. The first half hour of each session began with a 20 minute lecture on methods of personal growth. The second half hour of the meditation/relaxation sessions consisted of reviewing the meditation/relaxation instructions, and practising the meditation. The Experiential Description Matrix was completed on Mondays after practising the meditation. The subjects then proceeded onto their next activities of the day.

Twelve didactic lectures were given to all members of each group. All three groups met together for the 20 minutes before breaking up into the three different experimental groups to do their meditations. The content of the 12 lectures was composed of the following themes: (1) an introduction to what meditation is, and the role that thoughts play in shaping behavior; (2) that through self-observation one can become aware of one’s patterns and change them; (3) that when we are unaware of our concepts of the world we are prisoners of those concepts; (4) the amazing capacities of our brain/minds; (5) that our cognitive capacities are amazing, yet are limited by mental set and distortion; (6) how our cognition influences our everyday lives, and how our culture influences our cognition; (7) how feelings help and hinder us; (8) the relationship of negativity to suffering; (9) self-deception and self-change; (10) choice and change; (11) suffering; and (12) responsibility.
Post-testing Session

The third and final step in operationalizing this study's design was achieved on the last day of each subject's stay at Maryhaven. At that time the experimenter again met with the subject for two hours to administer a set of paper-and-pencil tests, make observations, conduct a debriefing interview, and to answer any possible questions regarding the study.

Data Collection Procedures

Pre-testing Session

Collection of the data took place both prior to treatment, during treatment, and after the treatment for each subject. During pre-treatment the subject was introduced to the study in a two hour session in which several paper-and-pencil tests were administered. Tellegen’s Multidimensional Personality Questionnaire (1982) was administered to measure the subject’s negative affectivity and attentional absorption. Van Nuys’ method of counting intrusions (1971, 1973) of other thoughts, feelings, sounds or sensations while concentrating on a task, was done to determine whether or not there was an increase in the subject’s ability to attend. It was used as a process measure, not as a dependent variable measure. Izard’s Differential Emotions Scale (Izard et al, 1971) was utilized in order to determine the subject’s awareness of and accessibility to the frequency and intensity of emotions experienced prior to treatment, and at the end of treatment. The subject was asked to answer the test in terms of his emotional life over the three month period prior to
entering Maryhaven, during the initial testing session. The subject was asked to respond, in the final testing session, in terms of their feelings during their stay at Maryhaven. The State-Trait Anxiety Scale (Spielberger, 1970) was administered to delineate a baseline of anxiety levels. Once a week, after practicing the meditation in group, the subjects completed the Experiential Description Matrix (designed by the experimenter) to provide a self-report check on whether or not subjects followed directions regarding attentional focusing, and to monitor meditation experiences.

**Meditation/Relaxation Sessions**

Throughout the period of treatment, once a week, the subjects monitored their thoughts and gave a self-report regarding their ability to follow the directions regarding the type of attentional focusing they were required to perform, on a checklist called the Experiential Description Matrix. Subjects also kept a record of their meditation practice during the week. This record simply recorded the date, and the amount of time spent in meditation on their own. Finally, the Palo Alto Group Psychotherapy Scale was utilized for each subject, in order to determine their level of interpersonal functioning. During the first and last week of a subject's stay, the facility's counselors rated each client with this test.

The experimenter also tape-recorded the first half hour of each meditation/relaxation session to act as a validity measure that the experimenter provided the treatment that he had represented himself as providing. In addition, a checklist was maintained by the experimenter to monitor that he did indeed provide what he was to
provide to the subjects on that day in the way of treatment.

**Post-testing Session**

In the post-treatment session, conducted approximately on the subject's last day at Maryhaven, the experimenter again administered Tellegen's Multidimensional Personality Questionnaire (MPQ)(1982), Van Nuys' method of counting intrusions, as a process measure (1971, 1973), Izard's Differential Emotions Scale (DES)(Izard et al., 1971), Spielberger's State-Trait Anxiety Scale (STAI)(1970), and an adaptation of Maliszewski et al.'s POME questionnaire (1981), as a process measure. Post-testing took place for most subjects between the twenty-first to the thirtieth day of treatment.

The confidentiality of the subjects was protected by assigning each individual subject a four number code. That four number code consisted of the last four numbers of the subject's social security number. That four number code was placed upon all tests and records for each subject. The master list of codes was kept by the researchers until completion of the project and was then destroyed.

To summarize, the following outline was prepared to show the overall plan for treatment and data collection procedures:

**1st Day Pretesting Session** -- subjects were introduced to the study, consent was obtained, subjects were instructed in meditation, and the following pre-tests were administered on the first day of contact with subjects:
**Time:**
10 min. 1) introduction and consent.
20 min. 2) Tellegen's MPQ (1982)
15 min. 3) Differential Emotions Scale (Izard et al., 1971).
10 min. 4) State-Trait Anxiety Scale (Spielberger, 1970, '84).
75 min.

**Four Week Period of Treatment** — The Meditation/Relaxation group met for one hour three times per week. The following tests and procedures were utilized during that interval:

1) twenty minute didactic lecture on personal growth
2) Experiential Description Matrix (once a week)
3) Palo Alto Psychotherapy Scale (first and last week)
4) experimenter's audiotapes and checklist (each day)
5) daily meditation monitoring checklist (each day)

**Last Day Post-testing** — Post-testing was conducted on the day prior to discharge from Maryhaven.

**Time:**
20 min. 1) Tellegen's MPQ
15 min. 2) Differential Emotions Scale
10 min. 3) State-Trait Anxiety Scale
20 min. 4) Van Nuys' method
10 min. 5) POME questionnaire
75 min.

**Instrumentation**

The following instruments were used for the purpose of data collection:

**Multidimensional Personality Questionnaire (MPQ)**

The MPQ is a 300 item questionnaire factor-analytically developed by Tellegen (1982) for the purposes of assessing 11 primary normal personality dimensions and three higher order traits through self-report of true-false responses. It is written at an eighth grade
reading level and is intended for use with adults and college students. It can usually be administered in 35 to 45 minutes. It is designed to be used by counselors in rehabilitation facilities, in colleges and in private practice to assess personality dimensions as an aid to diagnosis. It provides for the computation of six validity scales. Its measures have acceptable retest reliabilities (.90 over one week's time) and internal consistancies (in the .80's and .90's), and have been correlated with other test and non-test variables. The MPQ was standardized with norm groups of adults and college students. Its scales focus on the personality dimensions of Wellbeing, Social Potency, Achievement, Social Closeness, Stress Reaction, Alienation, Aggression, Control, Harmavoidance, Traditionalism, and Absorption. Studies on the scales of the test include Hall (1977), Nichols and Schnell (1963), Schroeder (1981), Tellegen (1981), Tellegen and Atkinson (1974) and Zevon and Tellegen (1982). It was predicted that this set of scales would reflect decreases in the levels of negative affect and stress by the completion of treatment.

Van Nuys' Method of Counting Intrusions

The counting of intrusions is a concurrent validity measure developed by Van Nuys (1971, 1973) for the purposes of studying attentional processes. Though this measure was not used as a dependent measure, it was used to validate the subject's developing concentration. It consisted of having subjects depress a handheld digital counter each time that their attention wandered from task. Van Nuys (1971, 1973) found the counting of intrusions to be highly correlated with measures of hypnotic susceptibility (.42; .68), and
useful as a measure of increasing concentration with decreases in the number of intrusions over time. Thus, the practice of meditation should lead to increases in ability to maintain a focus and that this measure should validate those increases.

**Differential Emotions Scale (DES)**

The DES is a 30 item questionnaire developed by Izard et al. (1971) for the purposes of assessing adult experience of fundamental emotions. It was designed to obtain measures of intensity of an individual’s emotions in a given situation (DES), or the frequency of emotions during a given period of time (DES II). A third form was designed for low educational status groups. The average test-retest reliability was .77. Validity measures of the various scales ranged from .45 to .97 (Izard et al., 1971). Though this test has not been subject to validational research, or used in research on meditation previously, this test was chosen to validate the prediction that there would be an decrease in the number of felt negative emotions, as well as indications of an increasing level of positive emotions.

**State-Trait Anxiety Inventory (STAI-Form Y)**

This instrument is a 40 item measure developed by Spielberger et al. (1970). It was developed for the purposes of distinguishing among subjects on the basis of perceived threat. The State-Anxiety scale consists of twenty statements used to evaluate how the individual feels right now. The Trait-Anxiety scale also consists of twenty statements that are used to assess the individual’s feelings, but they focus upon how the individual feels generally. Consistent reliability data has been based on groups of high school and college
students. The test-retest correlations for the T-Anxiety scale ranged from .73 to .86. The test-retest correlations for the S-Anxiety scales were all above .90. The correlations between the S-Anxiety and the T-Anxiety scales for the normative samples gave a median correlation for the seven samples as .65. Correlations with other anxiety measures (IPAT and TMAS) ranged from .85 to .73 (Spielberger, Gorsuch, Lushene, Vagg and Jacobs, 1983). Based on these data and due to the fact that meditation has consistently showed itself to be effective in producing the relaxation effect (Benson, 1975; Shapiro, 1980), in order to replicate prior findings and to monitor differences in degree of decreases in anxiety, this instrument was chosen to validate the prediction that the practice of meditation would result in clinical improvement of stress reduction for this population.

**Palo Alto Group Psychotherapy Scale**

This instrument is an 88-item measure developed by Finney (1950's and 1960's). It was developed in order to provide a measure of client treatment success. Treatment success was defined in this measure as particular levels of functioning in interpersonal relationships as they occur in psychotherapy groups, and as viewed and rated by clinical observers. Validity data indicate that the average rho was .84, and the average tau was .67. These correlations were performed on 18 psychotherapeutic groups. Scoring reliability estimates resulted in .90. However, reliability was found to range between .73 and .86 according to type of group leader and patient. This measure was used in this study as the dependent variable for the
prediction that the experimental meditation groups would show greater improvement in interpersonal relations than controls as the experimental groups would become more sensitive to their feelings, but also more confident about expressing them due to counseling.

**POME Questionnaire**

A variation of a self-report questionnaire called Profiles of Meditation Experience (POME) (Brown, Twemlow, Engler and Maliszewski, 1978) was used in this study as a concurrent validity and phenomenological measure of experiences during meditation. Initial test-retest and internal consistency reliabilities were determined in pilot investigations, but validity estimates have not yet been established. In this study it was important to determine whether or not the subjects were practicing the assigned meditations. The questionnaire was designed to differentiate various types of meditation, and to determine the level of advancement of an individual in a particular style of meditation. The testee was asked to rate numerically on a likert scale the degree of various traits observed in his/her experience during meditation. This measure therefore provided some data regarding the subjects' adherence to the prescribed methods of practice.

**Experiential Description Matrix (EDM)**

The EDM was designed by the researchers to serve as a concurrent validity measure regarding whether or not the subjects practiced the assigned meditative attentional focusing strategies. It sought to elicit whether or not the subjects followed directions while meditating. This matrix was completed once a week at the end of a
meditative practice session.

**Daily Meditation Monitoring Checklist (DMMC)**

The DMMC is a card for providing the dates and amount of time that the subjects practiced their assigned meditations. The card provided a place for the subject to note the date, and two places for the subject to note the time they meditated twice daily. The checkmarks were transferred three times a week onto a large checklist to monitor adherence to the experimental manipulations.

**Statistical Analyses**

Several paper-and-pencil psychological tests were utilized as the dependent measures to provide the study's data. The data were analyzed using a three-way multivariate analysis of variance (MANOVA) with group, sex and age as factors. At an alpha of .05, a minimum of an N=8 male and female subjects per group was sought for the power of the test to detect differences nine out of 10 times in scores at one standard deviation. The data were collected for the three groups at Maryhaven, Incorporated.

The analysis of the data was carried out in four phases. In the first phase, computations sought to determine whether or not groups were equivalent. The second phase of the analysis sought to determine the differences in pretest-posttest scores and the effects of group, sex and age as well as their interactions upon the scores. The third phase consisted of performing calculations to determine the significance of age as a factor. The final phase consisted of follow-
The design of the study resembled the following figure:

**FIGURE 1. Research Design**

In order to facilitate statistical procedures, age was made a discrete categorical variable. The first age group was composed of individuals ranging in age from 17 to 29 years of age. The second age group was composed of individuals ranging in age from 30 to 39 years of age. In the third grouping, individuals ranged from 40 to 49 years of age. The fourth group of individuals was composed of those who were 50 years of age and above. The N for each age group was not controlled for.

The first research hypothesis utilized the State-Trait Anxiety Inventory (Spielberger et al., 1970). It was administered pre and post treatment to provide indications of change toward a reduction in anxiety over time. A multivariate analysis of variance (MANOVA) provided the statistical analysis for this first hypothesis.
The second hypothesis involved Izard et al.'s (1971) Differential Emotions Scale. Similarly, a pre and post set of observations were made by way of this paper-and-pencil test. A MANOVA was likewise performed as the statistical procedure for this test.

The third hypothesis suggested increases in clinical improvement as measured by the Palo Alto Group Psychotherapy Scale (Finney, no date). Pre and post observations were made with this test, suggesting a MANOVA as the statistical methodology.

The fourth research hypothesis involved administration of the Multidimensional Personality Questionnaire (Tellegen, 1982). The scales used in this personality measure were concerned with determining the degree of an individual's negative affectivity -- stress, alienation and aggression -- and the fourth scale examined attentional absorption. The hypothesis suggested that subjects practicing the experimental meditative focusing procedures would display improvement over time with a decrease in negative affect as compared with controls. A MANOVA was the statistical methodology applied to this test.

**Summary**

This chapter presented the methodology of the study. Descriptions of the population, the sample, the setting, the research design, instructions given to the subjects, treatment procedures, data collection procedures, the instrumentation and the statistical analyses were presented. Chapter Four presents the findings of the study.
CHAPTER FOUR

FINDINGS

The results of the statistical analyses are presented in this chapter. The data presented address the four research hypotheses posed in the Statement of the Problem in Chapter One. The statistical findings have been presented in the form of both tables and discussion. The purpose of this study was to determine the effects of attentional focusing upon the clinical improvement of three groups of substance abusers. The experimental design was a variation of the pretest/post-test control group design. Ten scales from four dependent measures and one process measure were utilized for data analysis. A multivariate analysis of variance was performed to statistically address the research hypotheses. The computations were performed by the Statistical Analysis System (SAS).

The following statistical tests were performed: (1) an Analysis of Variance (ANOVA) on pretest scores for determining group equivalence and delineating interactions; (2) a three-way Multivariate Analysis of Variance (MANOVA) with group, age and sex as factors for determining pretest-posttest differences and interactions; (3) a Multivariate Analysis of Covariance (MANCOVA) for determining if age was a significant factor; and (4) the Tukey Studentized Range (HSD),
and the single degree of freedom contrast tests were performed upon those variables with significant group X sex interactions. The statistical calculations were performed upon the scores of the study's dependent measures to test the following four hypotheses:

1) It was hypothesized that both the restrictive focusing as well as the broadened focus experimental groups would show equivalent clinical improvement, but significantly greater improvement than that shown by placebo control subjects -- the discursive focusers, in anxiety reduction as measured by the State-Trait Anxiety Inventory.

2) It was hypothesized that the experimental groups would exhibit equivalent clinical improvement, significantly greater than that exhibited by placebo controls, in awareness of and acceptance of one's emotions as determined by decreases in the self-reported frequency of, and intensity of negative emotions as measured by the Differential Emotions Scale.

3) It was hypothesized that the experimental groups would exhibit equivalent clinical improvement, significantly greater than that exhibited by placebo controls, in enhanced interpersonal relationships as determined by ratings of the subjects on the Palo Alto Group Psychotherapy Scale.

4) It was hypothesized that the experimental groups would demonstrate equivalent clinical improvement through decreases in negative affectivity, significantly greater than that which placebo controls would exhibit, on the Negative Affectivity Scales of the Multidimensional Personality Questionnaire.

Cell means and standard deviations for each of the ten scales of the dependent variables have been reported for each level of treatment. The data have been summarized in Tables 1-10 below.
Table 1.

Pretest-Posttest Difference for Cell Means and Standard Deviations for Multidimensional Personality Questionnaire (MPQ) -- Stress Scale

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<tr>
<th>TEST</th>
<th>GROUP</th>
<th>SEX</th>
<th>PRETEST MEAN</th>
<th>SD</th>
<th>POSTTEST MEAN</th>
<th>SD</th>
<th>PRETEST-POSTTEST DIFFERENCES</th>
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<tbody>
<tr>
<td>MPQ1</td>
<td>1</td>
<td>M</td>
<td>19.42</td>
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<td>MPQ1</td>
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Table 2.

Pretest-Posttest Difference for Cell Means and Standard Deviations for Multidimensional Personality Questionnaire (MPQ) -- Alienation Scale

<table>
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<tr>
<th>TEST</th>
<th>GROUP</th>
<th>SEX</th>
<th>PRETEST MEAN</th>
<th>SD</th>
<th>POSTTEST MEAN</th>
<th>SD</th>
<th>PRETEST-POSTTEST DIFFERENCES</th>
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<td>M</td>
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### Table 3.

**Pretest-Posttest Difference for Cell Means and Standard Deviations for Multidimensional Personality Questionnaire (MPQ) -- Aggression Scale**

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### Table 4.

**Pretest-Posttest Difference for Cell Means and Standard Deviations for Multidimensional Personality Questionnaire (MPQ) -- Absorption Scale**

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Table 5.

Pretest-Posttest Difference for Cell Means and Standard Deviations for State-Trait Anxiety Inventory — STAI Form Y1

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Table 6.

Pretest-Posttest Difference for Cell Means and Standard Deviations for State-Trait Anxiety Inventory — STAI Form Y2

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Table 7.

Pretest-Posttest Difference for Cell Means and Standard Deviations for Palo Alto Group Psychotherapy Scale (PALO)

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Table 8.

Pretest-Posttest Difference for Cell Means and Standard Deviations for Differential Emotions Scale (DES) -- Intensity Scale

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Table 9.

Pretest-Posttest Difference for Cell Means and Standard Deviations for Differential Emotions Scale (DES) -- Frequency Scale

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Table 10.

Pretest-Posttest Difference for Cell Means and Standard Deviations for Van Nuys' Counting of Intrusions

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<td>14.87</td>
<td>16.61</td>
<td>15.29</td>
<td>-0.44</td>
<td>13.39</td>
<td>18</td>
</tr>
<tr>
<td>INTRUSIONS</td>
<td>3 F</td>
<td>8.75</td>
<td>7.52</td>
<td>18.00</td>
<td>18.18</td>
<td>9.25</td>
<td>11.50</td>
<td>8</td>
</tr>
<tr>
<td>INTRUSIONS</td>
<td>3 GP</td>
<td>14.50</td>
<td>13.47</td>
<td>17.04</td>
<td>15.87</td>
<td>2.54</td>
<td>13.41</td>
<td>26</td>
</tr>
</tbody>
</table>
A summary of the multivariate statistics for pretest-posttest difference scores is provided in Table 11 below. The Pillai-Bartlett test statistic was used as Olson (1979) argues that it is the most robust of the test statistics. Significant differences for sex main effects were found and the ten variables were then subjected to univariate analyses to locate the source of the effects. For any follow up ANOVA test to be significant, the MANOVA must first be significant (Leary and Altmaeier, 1980). Univariate F tests were chosen as the follow up procedure as the dependent variables were considered conceptually independent.

Table 11.

Summary Table of Multivariate Analysis of Variance for Pretest-Posttest Differences and Interactions

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>Pillai's Trace</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>20,106</td>
<td>0.86</td>
<td>0.279</td>
<td>0.6385</td>
</tr>
<tr>
<td>Sex</td>
<td>10,52</td>
<td>2.41</td>
<td>0.317</td>
<td>0.0192</td>
</tr>
<tr>
<td>Age</td>
<td>30,162</td>
<td>1.17</td>
<td>0.533</td>
<td>0.2689</td>
</tr>
<tr>
<td>Group X Sex</td>
<td>20,106</td>
<td>0.94</td>
<td>0.302</td>
<td>0.5360</td>
</tr>
<tr>
<td>Group X Age</td>
<td>50,280</td>
<td>1.08</td>
<td>0.806</td>
<td>0.3474</td>
</tr>
<tr>
<td>Sex X Age</td>
<td>20,106</td>
<td>1.56</td>
<td>0.456</td>
<td>0.0758</td>
</tr>
<tr>
<td>Group X Sex X Age</td>
<td>20,106</td>
<td>1.31</td>
<td>0.397</td>
<td>0.1864</td>
</tr>
</tbody>
</table>

As the age factor generated significant differences in scores on some variables in the univariate analyses of the 10 scales, it was decided to perform further calculations upon the age variable. A scatter plot of age groups across groups and sex revealed no pattern or linearity for the discrete age groups originally utilized in the
design. A Multivariate Analysis of Covariance (MANCOVA) with age as a continuous variable was performed upon the data as well. These calculations could detect no significant effect of the age variable upon difference scores and it was therefore dropped from the model. See Table 12 for a summary of the MANCOVA.

Table 12.
MANCOVA for Pretest-Posttest Difference Scores with Age as Covariate

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>Pillai's Trace</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>18,128</td>
<td>0.59</td>
<td>0.154</td>
<td>0.8988</td>
</tr>
<tr>
<td>Sex</td>
<td>9,63</td>
<td>1.66</td>
<td>0.192</td>
<td>0.1173</td>
</tr>
<tr>
<td>Group X Sex</td>
<td>18,128</td>
<td>1.58</td>
<td>0.364</td>
<td>0.0739</td>
</tr>
<tr>
<td>Age</td>
<td>9,63</td>
<td>1.00</td>
<td>0.125</td>
<td>0.4465</td>
</tr>
<tr>
<td>Age X Age</td>
<td>9,63</td>
<td>1.06</td>
<td>0.131</td>
<td>0.4050</td>
</tr>
</tbody>
</table>

**Hypothesis One**

The first research hypothesis in this study stated that:

It was hypothesized that both the restrictive focusing as well as the broadened focus experimental groups (GPS 1+2) would show equivalent clinical improvement, but significantly greater improvement than shown by placebo control Ss (GP3) -- the discursive focusers, in anxiety reduction as measured by the State-Trait Anxiety Inventory (STAI).

To test the hypothesis, the data were subjected to a multivariate analysis of variance (MANOVA). The MANOVA procedure was selected as the statistical technique to be used for this investigation because it allows for the simultaneous consideration of more than one dependent variable. Univariate statistics test the hypothesis by determining significant differences among group means.
Multivariate statistics test the hypothesis by examining the differences among the vectors of group means. These vectors contain all the scores of the dependent variables, permitting a simultaneous test of all the measures without reducing the power of the test. MANOVA protects against higher probabilities of committing Type I error which can occur when performing multiple ANOVA's (Leary and Altmaier, 1980).

This research hypothesis tested the supposition that groups one and two would show significantly greater decreases in anxiety than group three. This hypothesis was not supported as no significant differences could be detected between the three groups. At pretesting no significant differences between the groups could be detected by the ANOVA performed upon the data. Means and standard deviations have been presented in Tables 5 and 6 above. The intercept test to determine if overall mean was equal to zero for the separate sexes indicated significant decreases in anxiety on the pretest-posttest difference scores for the three groups with p values of p = .0001 and p = .0001 for State and Trait anxiety, respectively, for both males and females (see Table 26 in Appendix).

No significant differences were found between the three treatment groups in the univariate analysis of variance on pretest-posttest difference scores, but a significant difference was found associated with the group X sex interaction effect. Tukey's Studentized Range and the single degree of freedom contrast tests were then performed upon the interactions to locate more specifically the source of the interaction. The calculations have been summarized.
in Tables 13 through 18, and Figures 2 and 3 below.

Table 13.

Univariate Analysis of Variance for State Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
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<td>8552.962</td>
<td>48.88</td>
<td>.0001</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
<td>765.957</td>
<td>2.19</td>
<td>.1193</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>349.499</td>
<td>2.00</td>
<td>.1618</td>
</tr>
<tr>
<td>Group X Sex</td>
<td>2</td>
<td>1460.001</td>
<td>4.17</td>
<td>.0192</td>
</tr>
</tbody>
</table>

Table 14.

Univariate Analysis of Variance for Trait Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1</td>
<td>9802.532</td>
<td>98.46</td>
<td>.0001</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
<td>22.414</td>
<td>0.11</td>
<td>.8937</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>124.582</td>
<td>1.25</td>
<td>.2670</td>
</tr>
<tr>
<td>Group X Sex</td>
<td>2</td>
<td>571.411</td>
<td>2.87</td>
<td>.0631</td>
</tr>
</tbody>
</table>

Table 15.

Post hoc Single Degree of Freedom Contrast Test for State Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell</td>
<td>5</td>
<td>2172.178</td>
<td>2.48</td>
<td>.0369</td>
</tr>
<tr>
<td>Contrast</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPS1 &amp; 2M vs. GP3M</td>
<td>1</td>
<td>78.796</td>
<td>0.45</td>
<td>.5043</td>
</tr>
<tr>
<td>GPS1 &amp; 2F vs. GP3F</td>
<td>1</td>
<td>410.116</td>
<td>2.34</td>
<td>.1301</td>
</tr>
<tr>
<td>GPS1,2M &amp; F vs. GPS3M &amp; F</td>
<td>1</td>
<td>473.335</td>
<td>2.71</td>
<td>.1043</td>
</tr>
</tbody>
</table>
Table 16.

Post hoc Single Degree of Freedom Contrast Test for Trait Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell</td>
<td>5</td>
<td>707.448</td>
<td>1.42</td>
<td>.2260</td>
</tr>
<tr>
<td>GPS1 &amp; 2M vs. GP3M</td>
<td>1</td>
<td>121.256</td>
<td>1.22</td>
<td>.2734</td>
</tr>
<tr>
<td>GPS1 &amp; 2F vs. GP3F</td>
<td>1</td>
<td>162.721</td>
<td>1.63</td>
<td>.6583</td>
</tr>
<tr>
<td>GPS1,2M &amp; F vs. GP3M &amp; F</td>
<td>1</td>
<td>19.639</td>
<td>0.20</td>
<td>.6583</td>
</tr>
</tbody>
</table>

Table 17.

Post hoc Single Degree of Freedom Contrast Test for State Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
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<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell</td>
<td>5</td>
<td>2172.18</td>
<td>2.48</td>
<td>.0389</td>
</tr>
<tr>
<td>Contrast</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP1M vs. GP2 &amp; 3M</td>
<td>1</td>
<td>380.45</td>
<td>2.17</td>
<td>.1446</td>
</tr>
<tr>
<td>GP1 &amp; 3F vs. GP2F</td>
<td>1</td>
<td>1486.10</td>
<td>8.49</td>
<td>.0047</td>
</tr>
<tr>
<td>GP1 &amp; 3M vs. GP1 &amp; 3F</td>
<td>1</td>
<td>1322.22</td>
<td>7.56</td>
<td>.0075</td>
</tr>
</tbody>
</table>

Table 18.

Post hoc Single Degree of Freedom Contrast Test for Trait Anxiety

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell</td>
<td>5</td>
<td>707.45</td>
<td>1.42</td>
<td>.2260</td>
</tr>
<tr>
<td>Contrast</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP1M vs. GP2 &amp; 3M</td>
<td>1</td>
<td>39.064</td>
<td>.39</td>
<td>.5930</td>
</tr>
<tr>
<td>GP1 &amp; 3F vs. GP2F</td>
<td>1</td>
<td>267.868</td>
<td>2.69</td>
<td>.1053</td>
</tr>
<tr>
<td>GP1 &amp; 3M vs. GP1 &amp; 3F</td>
<td>1</td>
<td>491.008</td>
<td>4.93</td>
<td>.0295</td>
</tr>
</tbody>
</table>
Figure 2. Cell Means for Pretest Minus Posttest Scores on State Anxiety

Figure 3. Cell Means for Pretest Minus Posttest Scores on Trait Anxiety
Hypothesis Two

The second research hypothesis in the study stated that:

It was hypothesized that the experimental groups (GP1 and GP2) would exhibit equivalent clinical improvement, but significantly greater improvement than that exhibited by placebo controls (GP3), in awareness of and acceptance of one's emotions as determined by decreases in the self-reported frequency of, and intensity of, negative emotions as measured by the Differential Emotions Scale (DES).

The supposition tested in the second hypothesis was that groups one and two would show significantly greater decreases in intensity and frequency of negative emotions than group three. Upon pretesting, the ANOVA detected no significant differences between the groups. Means and standard deviations have been provided in Tables 8 and 9 above. To test the second hypothesis a MANOVA was performed upon the data, followed-up with a univariate analysis of variance. As no significant main effects or interaction effects were detected, the hypothesis was not supported. However, the intercept test for the separate sexes showed that all groups demonstrated clinical improvement with significantly decreased intensity and frequency of negative emotions. The p values for the intensity and frequency scales, respectively, were p=.0001, and p=.0001 for females as well as males (see Table 26 in Appendix). Tables 19 and 20 summarize the univariate analyses for testing the hypothesis.
Table 19

Univariate Analysis of Variance for Intensity Scale of DES

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1</td>
<td>19.096</td>
<td>30.44</td>
<td>.0001</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
<td>0.788</td>
<td>0.89</td>
<td>.4166</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>0.975</td>
<td>2.19</td>
<td>.1430</td>
</tr>
<tr>
<td>Group X Sex</td>
<td>2</td>
<td>0.730</td>
<td>0.82</td>
<td>.4440</td>
</tr>
</tbody>
</table>

Table 20.

Univariate Analysis of Variance for Frequency Scale of DES

<table>
<thead>
<tr>
<th>Source</th>
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<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1</td>
<td>40.623</td>
<td>94.00</td>
<td>.0001</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
<td>0.751</td>
<td>0.87</td>
<td>.4235</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>1.410</td>
<td>3.26</td>
<td>.0750</td>
</tr>
<tr>
<td>Group X Sex</td>
<td>2</td>
<td>0.930</td>
<td>1.08</td>
<td>.3462</td>
</tr>
</tbody>
</table>

Hypothesis Three

The third hypothesis in the study stated that:

It was hypothesized that the experimental groups (GPS 1+2) would exhibit equivalent clinical improvement, significantly greater than that exhibited by placebo controls (GPS), in enhanced interpersonal relationships as determined by ratings of the subjects on the Palo Alto Group Psychotherapy Scale (Palo Alto).

A MANOVA was calculated to test the hypothesis that groups one and two would exhibit greater improvement in interpersonal functioning than group three. No significant differences were detected between the groups by the ANOVA upon pretesting. Means and standard deviations have been provided in Table 7 above. No significant differences were found between the groups, but significant sex main
effects were detected. However, the data did not support the hypothesis. The intercept test for the separate sexes revealed that all groups demonstrated significant improvement with p values of \( p = 0.0011 \) for females, and \( p = 0.0002 \) for males. Score means revealed that females performed significantly better than the males however (see Tables 26 and 27 in Appendixes). Table 21 summarizes the testing of the hypothesis with the univariate analysis.

Table 21.

Univariate Analysis of Variance for PALO ALTO

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1</td>
<td>19.096</td>
<td>30.44</td>
<td>.0001</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
<td>0.648</td>
<td>0.52</td>
<td>.5986</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>3.340</td>
<td>5.32</td>
<td>.0239</td>
</tr>
<tr>
<td>Group X Sex</td>
<td>2</td>
<td>2.839</td>
<td>2.26</td>
<td>.1113</td>
</tr>
</tbody>
</table>

Hypothesis Four

Hypothesis four stated that:

It was hypothesized that the experimental groups (GPS 1+2) would demonstrate equivalent clinical improvement through decreases in negative affectivity, significantly greater than that which placebo controls (GP 3) would exhibit, on the Negative Affectivity scales of the Multidimensional Personality Questionnaire (MPQ).

This research hypothesis tested the assumption that groups one and two would demonstrate improvement significantly greater than that of the third group. Upon pretesting, the ANOVA detected no significant differences between the groups. Means and standard
deviations have been provided in Tables 1-4 above. The MANOVA was performed upon the pretest-posttest difference scores and no significant differences were found between the groups. Significant sex main effects were found on the stress and alienation scales, but not upon the aggression scale. The hypothesis was not found to be supported by the data analysis. However, the intercept test for the separate sexes indicated that males and females demonstrated significant decreases in negative affectivity. The p values for females on the stress, alienation and aggression scales, respectively, were p=.0001, p=.0001, and p=.0351; for males the p values were p=.0001, p=.0003 and p=.1913 respectively. Mean scores revealed that the females performed better than did the males (see Tables 26 and 27 in Appendixes). The univariate analyses of variance performed upon the scales have been summarized in Tables 22-25.

Table 22.

Univariate Analysis of Variance for Stress Scale of MPQ

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
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</tr>
</thead>
<tbody>
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<td>1599.506</td>
<td>48.74</td>
<td>.0001</td>
</tr>
<tr>
<td>Group</td>
<td>2</td>
<td>10.497</td>
<td>0.16</td>
<td>.8450</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>224.388</td>
<td>7.01</td>
<td>.0099</td>
</tr>
<tr>
<td>Group X Sex</td>
<td>2</td>
<td>113.484</td>
<td>1.77</td>
<td>.1770</td>
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</tbody>
</table>
Table 23.

Univariate Analysis of Variance for Alienation Scale of MPQ

<table>
<thead>
<tr>
<th>Source</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
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<td>766.025</td>
<td>41.47</td>
<td>.0001</td>
</tr>
<tr>
<td>Group</td>
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<td>20.468</td>
<td>0.55</td>
<td>.5770</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>168.140</td>
<td>9.10</td>
<td>.0035</td>
</tr>
<tr>
<td>Group X Sex</td>
<td>2</td>
<td>34.763</td>
<td>0.94</td>
<td>.3949</td>
</tr>
</tbody>
</table>

Table 24.

Univariate Analysis of Variance for Agression Scale of MPQ

<table>
<thead>
<tr>
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<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
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<td>93.620</td>
<td>5.79</td>
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</tr>
<tr>
<td>Group</td>
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<td>4.348</td>
<td>0.13</td>
<td>.8744</td>
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<tr>
<td>Sex</td>
<td>1</td>
<td>25.611</td>
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</tr>
<tr>
<td>Group X Sex</td>
<td>2</td>
<td>11.181</td>
<td>0.35</td>
<td>.7088</td>
</tr>
</tbody>
</table>

Table 25.

Univariate Analysis of Variance for Absorption Scale of MPQ

<table>
<thead>
<tr>
<th>Source</th>
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<th>SS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
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<td>663.810</td>
<td>26.09</td>
<td>.0001</td>
</tr>
<tr>
<td>Group</td>
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<td>47.552</td>
<td>0.93</td>
<td>.3975</td>
</tr>
<tr>
<td>Sex</td>
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<td>32.608</td>
<td>1.28</td>
<td>.2613</td>
</tr>
<tr>
<td>Group X Sex</td>
<td>2</td>
<td>1.469</td>
<td>0.03</td>
<td>.9716</td>
</tr>
</tbody>
</table>

Summary of Findings

The study's four research hypotheses tested the supposition that groups one and two would show significantly more improvement on the dependent measures than group three. To test the hypotheses the data were subjected to a MANOVA. Univariate analyses revealed that no
significant differences could be detected between the groups at pretest. The MANOVA revealed an overall significant main effect for sex across the variables. The design of the study anticipated that age might be a significant factor. Follow-up univariate analyses indicated that age was a factor in the interaction effects. A MANCOVA with age as a continuous variable was performed upon the data in order to determine whether or not age was a significant factor and whether or not it needed to remain in the subsequent calculations. The MANCOVA showed that age was not a significant factor so it was dropped from further calculations.

1) The first hypothesis tested the supposition that groups one and two would demonstrate significantly greater decreases in anxiety than group three. The MANOVA and univariate analyses did not support the hypothesis as no significant difference could be detected between the three groups on pretest-posttest difference scores (see Tables 13 and 14). However, significant group by sex interaction effects were detected and subjected to further analyses. Also, the intercept test upon the combined data revealed that the combined groups exhibited significant clinical improvement between pretest and posttest scores. The p value of the intercept for combined data was p = .0001, and p = .0001 for the state and trait anxiety scales, respectively, for combined male and female groups (see Tables 13 and 14). Separate male and female data calculated with the intercept test also revealed p values of p = .0001 and p = .0001 for both sexes on the state and trait anxiety scales, respectively, indicating significant change between pretest and posttest for each sex (see Table 26 in Appendix).
The follow-up univariate analyses performed upon the state and trait anxiety scales of the dependent measure revealed no significant group main effects. Group main effects for state anxiety resulted in a p value of $p = .1193$, a nonsignificant result at an alpha level of .05. Group main effects for trait anxiety resulted in a p value of $p = .8937$, a nonsignificant result. The follow-up univariate analysis of variance also revealed no significant sex main effects for the state and trait anxiety scales. Sex main effects for state anxiety generated a p value of $p = .1618$, a nonsignificant finding at the alpha level .05. For the sex main effects on the trait anxiety scale, it was found that the p value was $p = .2670$, a nonsignificant finding (see Tables 13 and 14).

The univariate analysis performed upon the state anxiety scale revealed significant group by sex interaction effects. The effects were found to be significant at an alpha of .05 with a p value of $p = .0192$. For trait anxiety the group by sex interaction effects did not prove to be significant, but did approach significance with a p value of $p = .0631$ (see Tables 13 and 14). The Tukey Studentized Range and the single degree of freedom contrast tests were utilized for the post hoc analyses.

The Tukey for the state anxiety scale was found to be significant with a p value of $p = .0389$. The Tukey for the trait anxiety scale was found to be nonsignificant with a p value of $p = .2260$. The single degree of freedom contrast test for the state anxiety scale revealed that groups one and two were not significantly different from group three for males or females as hypothesized (see
Tables 15 and 16). The data, therefore, did not support the hypothesis. However, the single degree of freedom contrasts did show that females performed significantly different from one another in groups one and three versus group two with a p value of p = .0047. Females also performed significantly different from males in groups one and three with a p value of p = .0075. Males did not perform differently from one another (see Tables 17 and 18; also see Figures 2 and 3).

2) The second hypothesis tested the supposition that groups one and two would demonstrate significantly less intensity and frequency in reported negative emotions. To test the hypothesis the data were subjected to a MANOVA and follow-up univariate statistics. The results of the calculations indicated that no significant differences could be detected between the three groups, and that there were no significant main effects or interaction effects (see Tables 19 and 20). Group main effects for the intensity scale were found to be nonsignificant with a p value of p = .4166. Group main effects were found to be nonsignificant for the frequency scale as well with a p value of p = .4235. Sex main effects were nonsignificant on the intensity scale with a p value of p = .1430. And sex main effects for the frequency scale were found to be nonsignificant with a p value of p = .0750. Therefore, the data did not support the hypothesis. However, the intercept test performed upon the combined data (see Tables 19 and 20) as well as individual male and female intercept tests showed that males and females significantly reduced reported frequency and intensity of negative emotions. The p values for the
intensity and the frequency scales were $p = .0001$ and $p = .0001$, respectively, for both males and females (see Table 26 in Appendix).

3) The third hypothesis tested the proposal that groups one and two would demonstrate significantly greater improvement in interpersonal functioning than group three. This hypothesis was tested with the MANOVA and follow-up univariate statistics. The statistical analysis revealed that no significant differences were detected between the three groups, but that there were significant sex main effects. The hypothesis was not supported by the data. However, the sex main effects were found to be significant with a $p$ value of $p = .0239$. This finding demonstrated a significant difference in the performance of males and females with regard to interpersonal functioning as measured by the dependent variable. The means of difference scores revealed that females outperformed males in terms of improved interpersonal functioning (see Table 27 in Appendix). The $p$ values generated by the intercept test calculated upon separate male and female difference scores were $p = .0002$ for males, and $p = .0011$ for females. This result demonstrated that both males and females improved significantly in interpersonal functioning between pretest and posttest (see Table 26 in Appendix). This finding must be qualified in that males obviously improved a great deal between pretest and posttest, probably an improvement much greater than that of the females, however, the scores of the females still were significantly higher than those of the males.

4) The fourth hypothesis tested the supposition that groups one and two would demonstrate significantly less negative affectivity than
group three. This hypothesis was tested by the MANOVA and follow-up univariate statistics. The statistical analysis revealed that no significant differences were detected between the three combined groups of males and females, but that there were significant sex main effects. Therefore, the fourth hypothesis was not supported by the data. Group main effects were found to be nonsignificant with p values of p = .8490, p = .5770, and p = .8744 for the stress, alienation and aggression scales respectively. Sex main effects were found to be significant, however, with p values of p = .0099, p = .0035, and p = .2121 with the stress and alienation scales, respectively, showing significant differences between male and female performance while the aggression scale did not. The mean difference scores indicated that the females outperformed the males on these scales with greater decreases in negative affectivity than males (see Table 27 in Appendix). However, the intercept test performed upon the data for the separate sexes revealed that all three groups of males and females improved significantly between pretest and posttest. The p values generated by the intercept test for the female difference scores were p = .0001, p = .0001, and p = .0351 for the stress, alienation and aggression scales respectively. The p values generated by the intercept test for the male difference scores indicated p values of p = .0001, p = .0003 and p = .1913 for the stress, alienation and aggression scales respectively (see Table 26 in Appendix).

On the Experiential Description Matrix, one of the process measures used in the study, only seven out of 79 subjects, or approximately nine percent, stated that they were unable to relax
while meditating. This was taken as a self-report measure indicating that subjects perceived meditation, or cognitive focusing, as facilitating relaxation in them.

Summary

This chapter has presented the statistical findings of the study, has provided summary tables and figures, and has summarized the results. The findings did not support the study's four major hypotheses, but it was found that both males and females demonstrated significant decreases in anxiety and negative affectivity as a result of participation in the treatment conditions, including participation in the placebo condition. In Chapter Five these findings are discussed, conclusions are drawn, and recommendations based on the findings are presented.
In this chapter a summary of the problem and the findings of the study are presented. The conclusions generated from those findings are discussed and recommendations for further research are offered.

Summary of the Study

The focus of this study has been upon examining the effects of cognitive focusing strategies upon the affective dimensions. Human beings have sought to influence their own and other's psychological well-being and functioning for a very long time. It has long been known that what a person thinks influences what they experience and what they do. The cognitive sciences have confirmed that and continue to explore the many facets of mind. Attention, memory, thinking, and problem solving have been subject to considerable research and theorizing, however, there is a lack of research examining the effects of various cognitive focusing strategies upon specific dimensions of cognition with particular populations.

The purpose of this study was to compare the effects of practising discretely different strategies of attentional focusing
upon the affective clinical improvement of substance abusers. The specific effects examined included: (1) state and trait anxiety; (2) intensity and frequency of negative emotions; (3) interpersonal functioning; and (4) levels of negative affectivity.

The literature has suggested that there is a need for research that compares the clinical effectiveness of different types of cognitive focusing strategies for particular clinical populations (Shapiro, 1980). This study was aimed at that goal. Research has demonstrated that meditation has been an effective agent for reducing transitory as well as dispositional levels of anxiety, and has also contributed to reduction of alcohol consumption and dependency (Marlatt et al., 1976; Shapiro, 1980, 1984).

It has been suggested that meditation provides a useful tool for examining attention as the fundamental activity of meditation involves focusing attention in very specific ways (Shapiro, 1980). Davidson et al. (1976) have found that meditation increases an individual's capacity for sustained attentional involvement. The research has also indicated that attentional shifts and self-observation are effective cognitive control mechanisms that influence a variety of cognitive processes including affectivity, and theoretical models back this position (Carver and Scheier, 1981).

From a theoretical perspective, this study focused upon attention as a self-control mechanism, available through awareness, that can influence cognitive processing of information and therefore the person's perceptual frame of reference, cognitive/affective/physiological state, as well as behavior. It has
been found that self-observation is a feedback process which disrupts the homeostasis of the system and enables the person to reprogram new goals and standards for guiding behavior. Control theory (Carver and Scheier, 1981) has provided the primary theoretical foundation for explaining the cognitive processes operationalized in the study.

The methodology of this study consisted of employing a variation of the pretest-posttest control group design. Four paper and pencil instruments plus one process measure provided ten scales that served as the dependent variables. The four instruments included the state and trait anxiety scales of the State-Trait Anxiety Inventory, Form Y (Spielberger et al., 1970); the Negativivity scales of the Multidimensional Personality Questionnaire (Tellegen, 1982); the Differential Emotions Scale (Izard et al., 1971); and the Palo Alto Group Psychotherapy Scale (Finney, no date). The two process measures consisted of Van Nuys' method of counting intrusions (1971, 1973), and the Absorption scale on the Multidimensional Personality Questionnaire.

This study was conducted upon 79 subjects, 54 males and 25 female in-patients, in a 30 day alcohol/drug dependency treatment unit. Subjects were randomly assigned to three levels of the independent variable. All subjects received the same 20 minute didactic lecture, then each of the three treatment groups practised their assigned meditation three afternoons a week in different rooms. Subjects practised on their own an average of four days a week. Formal and informal practice was monitored and encouraged, but not enforced. All subjects received three to four weeks of treatment.
The dependent measures were subjected to multivariate analyses of variance as well as follow-up analyses.

Subjects were instructed in the cognitive focusing strategies upon initially entering the treatment program. They were instructed in three different strategies for directing the inclusiveness of attention. Forms of meditation served as guidelines for the different types of cognitive focusing. Group One was instructed in a form of meditation that employed a restrictive, narrowed focus of awareness. Group Two learned a meditation which deployed a very broadened, all-inclusive style of focusing. In both types of meditation the practitioner aimed at suppressing, or ignoring rational, discursive thought processes, or not becoming involved or identified with any particular thoughts. Group Three was considered a placebo condition and was given no directions concerning the deployment of attention, but was expected to utilize rational processes for developing a plan of action after reading a passage from an AA self-help book.

The statistics involved several steps. Univariate analyses of variance (ANOVA's) were utilized to determine group equivalence. A Multivariate Analysis of Variance (MANOVA) was performed upon the scores to determine if there were significant main effects or interaction effects. A Multivariate Analysis of Covariance (MANCOVA) was performed to find out if age was a significant factor. No significant findings were generated from the calculations so age was dropped from further analyses. Follow-up univariate analyses (ANOVA's) were then calculated to determine where the specific effects were located. The Tukey Studentized Range and the single degree of
freedom contrast tests were used for follow-up analyses. Means and standard deviations were calculated and presented to indicate direction of scores over time.

The statistical analyses were performed to test the four following hypotheses:

1) It was hypothesized that both the restrictive focusing (GP1) as well as the broadened focus (GP2) experimental groups would show equivalent clinical improvement, but significantly greater improvement than that shown by placebo control subjects (GP3) — the discursive focusers, in anxiety reduction as measured by the State-Trait Anxiety Inventory.

2) It was hypothesized that the experimental groups (GP1 and GP2) would exhibit equivalent clinical improvement, significantly greater than that exhibited by placebo controls (GP3), in awareness of and acceptance of one's emotions as determined by decreases in the self-reported frequency of, and intensity of, negative emotions as measured by the Differential Emotions Scale.

3) It was hypothesized that the experimental groups (GP1 and GP2) would exhibit equivalent clinical improvement, significantly greater than that exhibited by placebo controls, in enhanced interpersonal relationships as determined by ratings of the subjects on the Palo Alto Group Psychotherapy Scale.

4) It was hypothesized that the experimental groups (GP1 and GP2) would demonstrate equivalent clinical improvement through decreases in negative affectivity, significantly greater than that which placebo controls would exhibit, on the Negative Affectivity scales of the Multidimensional Personality Questionnaire.

Findings

Several findings resulted from testing the hypotheses. They have been summarized as follows:

1) The statistical analyses revealed that the data did not support the first hypothesis — that Groups One and Two would significantly exceed Group Three in decreased anxiety levels as measured by the State-Trait Anxiety Inventory. All groups, male and
female, demonstrated significant decreases in anxiety regardless of the treatment condition. It was not possible to determine if the cognitive focusing strategies were responsible for the decreases, but neither was this the object of the study.

2) It was found that there was a significant group by sex interaction effect in the data resulting from testing hypothesis one. Female groups proved to be significantly different from one another as well as significantly different from males. Most importantly, females in Group Two performed in a unique manner with significant and dramatic increases in state anxiety as compared to both males and females in all other groups. It is also of interest to note that Group Two females performed similarly to other female groups on trait anxiety exhibiting significant decreases in trait anxiety on pretest-posttest difference scores.

3) Females demonstrated significantly greater decreases in anxiety levels than males, on both transitory and dispositional anxiety scales. The exception to this was Group Two females practising the broadened focus of attention. They demonstrated significant increases in anxiety of a transitory nature compared to all other groups.

4) The statistical analyses revealed that the data did not support the second hypothesis — that Groups One and Two would demonstrate significantly greater decreases in reported intensity and frequency of negative emotions than Group Three as measured by the Differential Emotions Scale. All groups exhibited significant decreases in reported intensity and frequency of negative feelings.
5) The third hypothesis — that Groups One and Two would demonstrate significantly greater enhancement of interpersonal functioning than Group Three — was not supported by the data. Examination of the statistical analyses did show that the three groups demonstrated significant enhancement of interpersonal functioning as measured by the Palo Alto Group Psychotherapy Scale.

6) Significant sex main effects were found in the data testing the third hypothesis. Mean difference scores showed that females performed significantly better than males on this variable with greater enhancement in interpersonal functioning.

7) It was found that the data did not support the fourth hypothesis — that Groups One and Two would exhibit significantly greater decreases in negative affectivity than Group Three. However, it was found that all groups demonstrated significant improvement on the Negative Affectivity scales of the Multidimensional Personality Questionnaire. Only on the Aggression scale did males not demonstrate significant improvement, while females exhibited significant decreases in aggression. Only on the Absorption scale did the females only approach significant advance, while males demonstrated significant improvement.

8) The statistical analyses testing the fourth hypothesis revealed significant sex main effects on the Stress and Alienation scales of the Multidimensional Personality Questionnaire. Examination of mean difference scores indicated that females demonstrated significantly better performance on the Stress and Alienation scales than did the males.
9) The results of the study were not supportive of those findings in the literature which suggested that there were differences in subjects that practised differing cognitive focusing strategies (Anand, Chinna and Singh, 1961; Kasamatsu and Hirai, 1966).

10) The average scores of participants in this study were considerably higher than the average working adult in the general population on state and trait anxiety. Mean scores for males and females in the general population on state anxiety are 35.72 and 35.20 respectively. The average pretest scores for males and females participating in this study were 51.10 and 49.25 respectively on state anxiety scores, considerably above the general population. The average pretest scores on trait anxiety for males and females participating in this study were 53.93 and 57.38 respectively, also considerably higher than the general populace.

11) It was found that Van Nuys' method of counting intrusions was not an accurate measure of intrusions, and that it was difficult to determine just what the results obtained really meant. Subjects did not demonstrate any consistent pattern of decreases in the number of intrusions into their cognitive focusing task as measured by this technique. However, subjects' performance on the Multidimensional Personality Questionnaire's Absorption Scale indicated a significant change in all groups' abilities to concentrate and become attentionally absorbed. These findings were supported by the self-reports of the subjects at posttest. The findings on the Absorption scale were also much more consistent among individuals and between groups, as can be seen upon examination of the score data.
Conclusions

1) Based upon the finding that there were no significant differences found between the three groups for state and trait anxiety in the first hypothesis, it was concluded that it is neither a restrictive focus, nor a broadened focus, nor a discursive focus in and of themselves that facilitates differing experiences of state or trait anxiety. It may be that Group Three's cognitive focusing task was not an adequate placebo condition, or sufficiently different from Group One, as Group Three subjects focused their attention in a restrictive fashion, eliminating distractions or competing thoughts while reading and problem solving. This may have made Group Three similar to Group One except for the active employment of thinking.

What is clear is that the three different focusing techniques did not produce recognizably different effects upon transitory or dispositional anxiety and that the limitations of the study did not dramatically influence the results of the study. The resultant data and effects were fairly uniform and consistent across the sex variable while maintaining differentiation between the sexes. Due to the broad range in the patterns of substance usage, time of usage, and substances used, it is unlikely that such uniform results would have occurred by chance.

2) It was also concluded that the presence or absence of discursive, rational thinking processes is not a major factor in producing differing experiences of anxiety. As Group Three did not perform significantly different from Groups One or Two, it is evident that the presence of active thinking processes did not hinder subjects
from decreasing their anxiety levels, or negative affectivity, any more than the other groups. One of the major concerns of this study was whether or not the presence of rational thought makes a difference upon the effects of meditation in terms of relaxation. It was evident in this study that those who meditated and employed thinking as a part of that process were not handicapped in their achievement of relaxation as compared to the other two groups which kept thought processes to a minimum.

3) Based upon the results of testing the first hypothesis it was also concluded that something unique occurred for females in Group Two, particularly because females performed with significantly greater decreases in anxiety overall than males on state and trait anxiety. Females employing the cognitive focusing techniques assigned to Groups One and Three demonstrated significantly greater decreases in state and trait anxiety than did males in Groups One and Three. Females also exceeded males in reduced trait anxiety scores in Group Two. The reverse was true in the scores of males and females on the state anxiety scale however. Females practising the cognitive focusing technique utilized in Group Two reported dramatic increases in transitory anxiety. Males in Group Two did not perform significantly different from males in Groups One and Three (see Figures 2 and 3).

One can only speculate at this point as to why females responded so differently to the treatment employed in group two on state anxiety. The explanation that there was something unique about the females in Group Two, or that they experienced something different from the other groups, is untenable as these issues were controlled
for in the design of the experimental procedures. It is more reasonable to assume then that there was something about the independent variable that precipitated the results in Group Two females, and that sex was an important factor, especially since Group Two males did not perform in the same manner. It is an issue that deserves further consideration and exploration.

Control theorists might explain the results above by stating that there was something about the particular cognitive focusing strategy utilized by females in Group Two that influenced the manner in which goals and standards were disrupted and reformulated that had a particularly unique effect upon female’s transitory anxiety levels. This explanation is consistent with the total results.

The data suggest that females, when confronted with opening themselves up to awareness and experiencing of internal and external factors beyond their usual state of awareness, experience a greater sense of being threatened than do males in the same situation. However, the findings also suggest that following this heightened sense of being threatened, females then gain a significantly improved sense of freedom from anxiety of a dispositional nature, significantly greater than that experienced by males. Previous research supportive of these findings has indicated that meditating subjects are more sensitive to stressful stimuli, but recover quickly and are then less effected by it than non-meditating subjects (Goleman and Schwartz, 1976; Orme-Johnson, 1973).

4) The findings indicated (1) that neither the differing cognitive focusing strategies, nor the presence of discursive
thinking, result in differing experiences of negative emotion; (2) that neither the differing cognitive focusing strategies, nor the presence of discursive thinking, result in differing interpersonal functioning; (3) that neither the differing cognitive focusing techniques, nor the presence of discursive thinking, result in differing experiences of negative affectivity. Based on these findings it was concluded that the active agent in producing affective change was not only the inclusiveness of attentional focus but other factors as well. Neither does the presence or absence of rational, discursive thought apparently interfere with decreases in anxiety and negative affectivity due to the practise of cognitive focusing techniques.

5) Based upon the findings that manipulating the inclusiveness of attention through the cognitive focusing strategies was not supported as being the agent of change in producing group differences, it was concluded that programs would be able to utilize cognitive focusing strategies to achieve clinical intervention treatment goals with substance abusers, but could not successfully predict the usefulness of particular attentional focusing strategies for achieving particular clinical goals other than helping clients reduce negative affectivity and anxiety. The composite data of this study suggest that differing cognitive focusing strategies, or meditations, do not provide significantly different outcomes in affective change, and so most cognitive focusing strategies can be depended upon only for increasing relaxation as far as present research can determine. Although the present study did not seek to
determine the focusing strategies' effectiveness as techniques promoting relaxation, the findings of this study are generally supportive of the large literature postulating this benefit of cognitive focusing.

Recommendations

The stresses generated by living in contemporary society warrants the exploration of techniques that can be utilized by mental health consumers and providers to better manage stress in daily affairs. In recent years progress has been made, however, there is considerable need for research which will better enable society to independently promote its own well-being. Several recommendations emerge from this study which can be used as a guideline for further research.

1) It is recommended that further theorizing and research be conducted that better defines the boundaries of focused attention and enables operationalizing the variables in some measurable form. It is impossible to adequately operationalize cognitive focusing strategies for research, if one cannot clearly discriminate between the strategies. Problematically, it is assumed that all treatment conditions, including control conditions, will inevitably deploy attentional focusing of one form or another, intentionally directed or not. And it will be necessary to define the focusing strategies more specifically to determine their effects. By determining the specific parameters of focusing, it might be possible to determine which aspects of cognitive focusing could be profitably employed to produce
specific clinical outcomes, or which strategies could be combined for optimal benefit.

2) It is recommended that research be pursued that would involve refining the dependent measures utilized for the research. Not only must the processes of attention be more clearly defined and operational, but they must be measurable to conduct quantitative type research. For instance, Davidson and Schwartz (1976) suggested that anxiety may have both a cognitive as well as a somatic aspect. Different individuals with differing problems might profit by particular cognitive strategies as opposed to somatic strategies. Future research might benefit most by research wholistically monitoring subjects to determine what particular cognitive, affective or physiological aspects might have been influenced.

3) It is recommended that research directed toward further clarification of how differing attentional strategies influence the functioning of the cognitive/affective/physiological processes, is needed. Research and theory have indicated that attention does influence these areas, but it has not yet been determined what particular types of deployed attention do what particular things to whom. The present study revealed that men and women performed significantly different from one another on a number of variables. In order to be able to tailor to particular individuals a specific treatment strategy utilizing cognitive focusing, it will be necessary to know more specifically how particular cognitive focusing strategies and gender interact.
4) A further recommendation would be that research be pursued that would focus upon the individual. A single case design might provide profitable data otherwise lost due to combining group data. A closer examination of the individual characteristics of the subjects might prove fruitful. Development of subject profiles of those individuals most and least likely to benefit from the results of practising cognitive focusing strategies is likely to provide more successful intervention strategies.

5) It is recommended that a similar study to the present one be conducted upon subjects not diagnosed as substance abusive or dependent. It may be that individuals without substance abuse and dependency issues would demonstrate differences in the effects of differing cognitive focusing strategies as there is a much less of a degree of likelihood of any kind of cognitive impairment.

6) Utilization of a different design may also yield different results. A limitation of the design was that the groups were never one group that was altogether at once receiving the same treatment, as there was a rolling admissions and release procedure in effect. Also, the addition of a no treatment group might be very instructive regarding the effects of those receiving benefits just from the milieu as compared to the separate group treatments.

7) A final program recommendation would be that treatment programs may find it useful to employ cognitive focusing procedures to obtain the benefits of stress reduction and management training that these procedures provide for their clients. There is the additional benefit of increased attentional involvement or concentration. These
benefits alone warrant inclusion of these treatment strategies, not to mention the variety of benefits the literature has suggested these procedures provide.
Table 26.

Pretest-Posttest Difference Score Intercept Values

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F values</th>
<th>p (males)</th>
<th>p (females)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress Scale</td>
<td>1</td>
<td>25.93, 22.27</td>
<td>.0001</td>
<td>.0001</td>
</tr>
<tr>
<td>Alienation Scale</td>
<td>1</td>
<td>14.90, 22.23</td>
<td>.0003</td>
<td>.0001</td>
</tr>
<tr>
<td>Aggression Scale</td>
<td>1</td>
<td>1.75, 5.04</td>
<td>.1913</td>
<td>.0351</td>
</tr>
<tr>
<td>Absorption Scale</td>
<td>1</td>
<td>23.01, 4.05</td>
<td>.0001</td>
<td>.0564</td>
</tr>
<tr>
<td>State Anxiety</td>
<td>1</td>
<td>25.81, 24.34</td>
<td>.0001</td>
<td>.0001</td>
</tr>
<tr>
<td>Trait Anxiety</td>
<td>1</td>
<td>68.33, 30.81</td>
<td>.0001</td>
<td>.0001</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>1</td>
<td>16.04, 14.10</td>
<td>.0002</td>
<td>.0011</td>
</tr>
<tr>
<td>Intensity Scale</td>
<td>1</td>
<td>33.30, 50.59</td>
<td>.0001</td>
<td>.0001</td>
</tr>
<tr>
<td>Frequency Scale</td>
<td>1</td>
<td>51.99, 42.62</td>
<td>.0001</td>
<td>.0001</td>
</tr>
<tr>
<td>Intrusions</td>
<td>1</td>
<td>0.24, 0.04</td>
<td>.6234</td>
<td>.8076</td>
</tr>
</tbody>
</table>

The intercept test is an overall mean of pretest-posttest difference scores testing whether or not posttest scores are equal to zero when pretest scores are set at zero.
Table 27.

Means of Pretest-Posttest Difference Scores

<table>
<thead>
<tr>
<th>Source</th>
<th>N</th>
<th>Mean (males)</th>
<th>Mean (females)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress Scale</td>
<td>54, 25</td>
<td>-3.315</td>
<td>-6.880</td>
</tr>
<tr>
<td>Alienation Scale</td>
<td>54, 25</td>
<td>-2.111</td>
<td>-5.280</td>
</tr>
<tr>
<td>Aggression Scale</td>
<td>54, 25</td>
<td>-0.704</td>
<td>-1.920</td>
</tr>
<tr>
<td>Absorption Scale</td>
<td>54, 25</td>
<td>3.315</td>
<td>2.000</td>
</tr>
<tr>
<td>State Anxiety</td>
<td>54, 25</td>
<td>-9.074</td>
<td>-13.280</td>
</tr>
<tr>
<td>Trait Anxiety</td>
<td>54, 25</td>
<td>-10.315</td>
<td>-12.920</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>54, 25</td>
<td>-0.355</td>
<td>-0.786</td>
</tr>
<tr>
<td>Intensity Scale</td>
<td>54, 25</td>
<td>-0.556</td>
<td>-0.794</td>
</tr>
<tr>
<td>Frequency Scale</td>
<td>54, 25</td>
<td>-0.627</td>
<td>-0.912</td>
</tr>
<tr>
<td>Intrusions</td>
<td>54, 25</td>
<td>1.370</td>
<td>0.480</td>
</tr>
</tbody>
</table>
APPENDIX C

DIFFERENTIAL EMOTIONS SCALE
(adapted from Izard et al., 1971)

INSTRUCTIONS

This scale consists of thirty words which describe different emotions. Please indicate the extent to which each word describes the way you feel at the present time.

Record your answers by circling the appropriate number on the five-place scale following each word. Presented below is the scale for indicating the degree to which each word describes the way you feel.

1 2 3 4 5
not at all slightly moderately considerably very strong

Also, a second scale will follow the first one upon which you will be requested to indicate how frequently you have each emotion.

Record your answers by circling the appropriate number on the scale illustrated below.

1 2 3 4 5
never occasionally moderately often quite often very often

Think carefully and sort out your emotions as accurately as you can. Work at a good pace. Giving your first impression usually provides the best estimate.
1. **repentent**

<table>
<thead>
<tr>
<th></th>
<th>not at all</th>
<th>slightly</th>
<th>moderately</th>
<th>considerably</th>
<th>very strong</th>
</tr>
</thead>
<tbody>
<tr>
<td>never</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>occasionally</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>moderately often</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quite often</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>very often</td>
<td></td>
<td></td>
<td></td>
<td></td>
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MULTIDIMENSIONAL PERSONALITY QUESTIONNAIRE
(adapted from Auke Tellegen, 1982)

DIRECTIONS: Please do not write in this booklet! In this booklet you will find a series of statements a person might use to describe her/his attitudes, opinions, interests, and other characteristics.

Each statement can be answered as either true or false. Read the statement and decide which choice best describes you. Then mark your answer on the answer sheet.

In marking your answers on the answer sheet, be sure that the number of the statement in the booklet is the same as the number on the answer sheet.

Please answer every statement, even if you are not completely sure of the answer.

Read each statement carefully, but don’t spend too much time on deciding the answer.

1. I often find myself worrying about something.
2. Sometimes I feel and experience things as I did when I was a child.
3. If people criticize me, I usually point out their own weaknesses.
4. Some people go out of their way to keep me from getting ahead.
5. I can be greatly moved by eloquent or poetic language.
6. My feelings are hurt rather easily.
7. When someone hurts me, I try to retaliate (get even).
8. While watching a movie, a T.V. show, or a play, I may become so involved that I forget about myself and my surroundings and experience the story as if it were real and as if I were taking part in it.
9. I am easily "rattled" at critical moments.
10. Many people try to push me around.
11. If I stare at a picture and then look away from it, I can sometimes "see" an image of a picture, almost as if I were still looking at it.
12. I enjoy violent movies.
13. Often I get irritated at little annoyances.
14. Sometimes I feel as if my mind could envelop the whole world.
15. Most people make friends because they expect friends to be useful.
16. I suffer from nervousness.
17. I like to watch cloud shapes change in the sky.
18. When I have to stand in line I never try to get ahead of others.
19. People often try to take advantage of me.
20. If I wish, I can imagine (or daydream) some things so vividly that they hold my attention as a good movie or story does.
21. I often feel lonely.
22. I see no objection to stepping on people's toes a little if it is to my advantage.

23. I think I really know what some people mean when they talk about mystical experiences.

24. When I want to, I can usually put fears and worries out of my mind.

25. People often just use me instead of treating me as a person.

26. I sometimes "step outside" my usual self and experience an entirely different state of being.

27. When I get angry I am often ready to hit someone.

28. Textures—such as wool, sand, wood—sometimes remind me of colors or music.

29. I often find it difficult to sleep at night.

30. I am almost always treated fairly.

31. Sometimes I experience things as if they were doubly real.

32. My mood often goes up and down.

33. I admit that I sometimes take pleasure in hurting someone physically.

34. When I listen to music I get so caught up in it that I don't notice anything else.

35. I have had a lot of bad luck.

36. I sometimes feel "just miserable" for no good reason.

37. If I wish I can imagine that my body is so heavy that I could not move it if I wanted to.

38. I can't help but enjoy it when someone that I dislike makes a fool of herself/himself.
39. I have personal enemies who would like to harm me.

40. Often I have feelings of unworthiness.

41. I can often somehow sense the presence of another person before I actually see or hear her/him.

42. I would rather turn the other cheek than get even when somebody treats me badly.

43. The crackle and flames of a wood fire stimulate my imagination.

44. Occasionally I experience strong emotions—anxiety, anger—without really knowing what causes them.

45. I would be more successful if people did not make things difficult for me.

46. It is sometimes possible for me to be completely immersed in nature or in art and to feel as if my whole state of consciousness has somehow been temporarily altered.

47. I am easily startled by things that happen unexpectedly.

48. I am ready for a fight when someone tries to take advantage of me.

49. Different colors have distinctive and special meanings for me.

50. People often say mean things about me.

51. I am often nervous for no reason.

52. I am able to wander off into my own thoughts while doing a routine task and actually forget that I am doing the task, and then find a few minutes later that I have completed it.

53. Sometimes I seem to enjoy hurting someone by saying something mean.

54. I feel that life has handed me a raw deal.
55. I can sometimes recollect certain past experiences in my life with such clarity and vividness that it is like living them again or almost so.

56. I often feel fed up.

57. I enjoy a good brawl.

58. Things that might seem meaningless to others often make sense to me.

59. I sometimes get myself into a state of tension and turmoil as I think of the day’s events.

60. I know that people have purposely spread false rumors about me.

61. While acting in a play I think I could really feel the emotions of the character and "become" her/him for the time being, forgetting both myself and the audience.

62. I get a kick out of really frightening someone.

63. I am often troubled by guilt feelings.

64. My thoughts often don’t occur as words but as visual images.

65. Most people stay friendly only as long as it is to their advantage.

66. I would describe myself as a tense person.

67. I often take delight in small things (like the five-pointed star shape that appears when you cut an apple across the core or the colors in soap bubbles).

68. Sometimes I hit people who have done something to deserve it.

69. People rarely try to take advantage of me.

70. When listening to organ music or other powerful music, I sometimes feel as if I am being lifted into the air.
71. Minor setbacks sometimes irritate me too much.
72. Sometimes I can change noise into music by the way I listen to it.
73. I would not hurt others to get what I want.
74. If I have a humiliating experience I get over it very quickly.
75. Several people would like to take away what success I have.
76. Some of my most vivid memories are called up by scents and smells.
77. I like to watch a good, vicious fight.
78. I often lose sleep over my worries.
79. Some music reminds me of pictures or changing color patterns.
80. My "friends" have often betrayed me.
81. I often often know what someone is going to say before he or she says it.
82. I worry about terrible things that might happen.
83. I sometimes tease people rather mercilessly.
84. I have often been lied to.
85. I often have "physical" memories; for example, after I've been swimming I may still feel as if I'm in the water.
86. I often feel listless and tired for no reason.
87. The sound of a voice can be so fascinating to me that I can just go on listening to it.
88. When people insult me, I try to get even.
89. I know that certain people would enjoy it if I got hurt.
90. There are days when I'm "on edge" all of the time.
91. At times I somehow feel the presence of someone who is not
physically there.

92. I could not feel happy about anybody's bad luck.

93. Sometimes thoughts and images come to me without the slightest effort on my part.

94. I am too sensitive for my own good.

95. When people are friendly they usually want something from me.

96. I find that different odors have different colors.

97. I sometimes change from happy to sad, or vice versa, without good reason.

98. Sometimes I just like to hit someone.

99. I can be deeply moved by a sunset.

100. Some people oppose me for no good reason.
APPENDIX E

Experiential Description Matrix (EDM)

Directions:
  a) Circle Y for Yes, N for No, or DK for Don't Know after each question.
  b) Write last four digits of your social security number here ________.

1) Did your attention drift to other things than your meditation today?  Y  N  DK
2) Did thoughts of persons, places or things interrupt your focusing on meditating today?  Y  N  DK
3) Did feelings interrupt your concentration today?  Y  N  DK
4) Were you relaxed while meditating today?  Y  N  DK
5) When you meditate do notice that you are often preoccupied with your feelings?  Y  N  DK
6) Are you making an effort to focus your awareness according to the instructions?  Y  N  DK
7) On a scale of one to five, with five being the most effort, how much effort have you put into meditating today?  1  2  3  4  5
8) Estimate how much of the time you were able to focus on the meditation.  1/4  1/2  3/4  all the time


