

STREAM OF CONSCIOUSNESS:

AFFECTIVE CONTENT

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Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
DOCTOR OF PHILOSOPHY
July, 1973

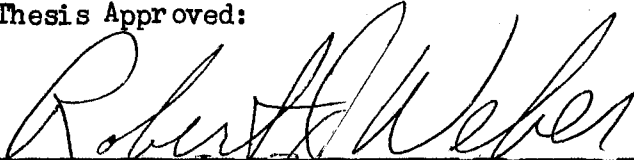
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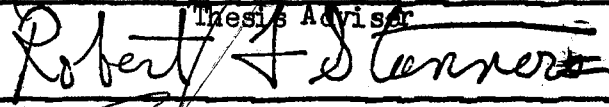
FEB 15 1974

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ACKNOWLEDGMENTS

My committee chairman once remarked, "science is not an individual process, but a social process". With reference to this project, and perhaps many of life's travels, this statement is indeed correct. I wish to thank, for his guidance, encouragement, and willingness to try something different, my committee chairman and friend, Dr. Robert Weber. I also wish to thank Stephen Close, who deeply involved in his own research, gave sizeable quantities of time to help guide me through the mysteries of computer science. His was the aid of both a colleague and a friend.

I also wish to acknowledge Drs. Barbara and Elliot Weiner, the former for her generous and expert assistance in statistical matters and the latter for his aid in obtaining the necessary stimulus materials. I further wish to acknowledge the help of my committee members: Dr. Kenneth Sandvold, Dr. Robert Stanners, and Dr. Rondal Gamble.

In a more personal vein, I would like to thank my both sets of parents for their support and encouragement, without which this project might not have been completed.

I wish also to mention my joyful son David, for the pleasure and meaning he has added to my life. He is indeed a beautiful flower. I wish further to thank my wife Joan, for her patience and understanding during a pleasurable and sometimes difficult time in our lives. This work is, in a sence, her work.

Finally, thanks to all the good Stillwater folk who have provided myself and my family with enriching experiences during our Stillwater years.

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CHAPTER I

THE LITERATURE REVIEW

Introduction

At the turn of the century researchers, led notably by William James in his Principles of Psychology (1890), were willing to accept reported mental events as valid data. Their work, though interesting, lacked both experimental precision and solid conceptual moorings. With the failure of Introspective Psychology came the advent of Behaviorism and the subsequent exclusion of mental processes as valid data. It is perhaps of benefit to look, in some detail, for the reasons psychology has largely ignored higher mental processes, for example, such phenomenon as fantasy, daydreaming, and mindwandering. It is hoped that if one can begin to understand the reasons for not studying an area, one can with the advantage of retrospection, learn how to sort and uncover future areas of study.

Scientific progress is inbedded in the Zeitgeist (Boring, 1950). Western civilization and especially American thought has long valued active, willed reason (Klinger, 1971). The emphases is on action and is opposed to contemplation and inner analysis, thus pragmatic philosophy, spearheaded by Behaviorism, sufficiently squelched interest in covert mental processes.

A second possible reason for the low output of research in this area has been a general lack of, what can be called, methodological

confidence. In other words, there has been an overconcern with rigorous and exacting methodology with a subsequent exclusion of important content areas. Thus past emphasis on overt behavior can be understood as an attempt by the young science of psychology to overcompensate and prove, to itself and others, that it deserves scientific status.

Neisser in his recent article "A Paradigm Shift in Psychology" (1972) states succinctly the case for renewed interest in internal cognitive events. He sees 'mind' no longer in terms of conscious elements but rather is interested in the flow of information in the organism. He feels that with such concepts as "storage", "retrieval", "recoding" and "selection" plus new methodology we can again approach many crucial and long-neglected problems such as imagery and daydreams.

Singer (1962) seems to feel that the present renewed interest in mental life has been strongly influenced by the methodological breakthroughs in studies of dreaming by electrophysiological means (Dement and Kleitman, 1957). He sees this work as having a "healthy impact on the morale of investigators seeking systematic means of studying the inner consciousness of man" (Singer, 1962, p. 15).

There seems also to be evolving a new force in American culture which may, in part, explain contemporary interest in inner experience. It seems that many individuals are beginning to look inward, raising questions about their own motivations and experiences. Witness the new interest in Far-Eastern philosophy and religion, introspective analysis in the news media, films such as "The Pawnbroker", an emphasis upon imagery in popular music, and a phenomenal increase in the use of mind-expanding drugs. There indeed seems to be a strong rela-

tionship between renewed interest in covert mental processes in academic areas and our evolving cultural-intellectual Zeigeist.

Definition of Phenomena

One rather prominent fact which becomes apparent at the beginning stages of exploration in this area is the general lack of consensus as to the definition of various phenomena loosely called daydreaming, fantasy, and spontaneous thought. This state of affairs is not due to any lack of attempts at definition nor lack of researcher ingenuity, but rather to the genuine complexity of the phenomena. This definitional impasse is caused, in part, by the fact that daydreams: (1) are not directly observable (unfortunately one must rely on verbal reports); (2) are multi-functional; and (3) have been until recently, largely ignored by psychologists. Hopefully this section presents some alternative ways of understanding the phenomena called daydreaming. For the purposes of exposition this paper will use the terms spontaneous thought, fantasy, and daydreams synonymously.

One common approach to definition in science is to use descriptive definitions. Daydreaming when seen in this descriptive sense, may be defined as a covert mental activity, of a personal nature, which is not directly observable and occurs when the organism is under conditions of minimum environmental stimulation. Although this definition is admittedly loose it does provide a basic conceptual understanding for the term daydreaming.

A somewhat more beneficial approach, at least experimentally, involves the use of an operational definition for daydreaming or spontaneous thought. Singer (1966) wrote that daydreaming or sponta-

necus thought can be "used to mean a shift of attention away from an ongoing physical or mental task or from a perceptual response to external stimulation towards a response to some internal stimulus" (Singer, 1966, p. 3). Extension of this operational definition by Antrobus (1966), Drucker (1969), and others has led to the perception of ongoing thought as being composed of two principle sources: immediate sensory experience called stimulus dependent thought (SD) and internal events called stimulus independent thought (SI). Much of the recent work with spontaneous thought has centered on discovering the variables which suppress or facilitate stimulus independent thought (SI). For example, Antrobus (Antrobus et al. 1966; Antrobus, 1968) have increased or decreased the number of signals to be processed in a given time period through manipulation of the information rate. As signals come closer together in time the capacity left free for processing SI thought is decreased.

Drucker (1969) has suppressed SI thought by varying the temporal uncertainty of signals. The more predictable the occurrence of signals the more a subject can safely attend to SI thought without risking a decrement in task performance. The basic concept of this aforementioned work is to find key variables which influence cognitive capacity and therefore influence the amount of attention subjects can devote to either SI or SD thought.

Daydreaming as a Cognitive Skill

The position adopted in this paper is to view organismic development as a flow of activity which develops for its own sake rather than in the service of specific erotic or aggressive drives. Functioning

is bound neither by Behavioristic reductionism which stresses overt behavior nor Psychoanalytic reductionism which stresses drives and instincts. Interest centers on the exploration of the relationship between ongoing reverberatory activity of brain processes (Hebb, 1949) and motivating properties, both within the organism and as the environment influences the organism. In other words, exploring the subtle interplay between external stimulation and ongoing inner states.

Viewed within this cognitive orientation daydreaming is seen "as a more general capacity of the organism" (Singer, 1966, p. 137). In a sense "a potential skill available for development in particular directions are under specific enhancing circumstances" (Singer, 1966, p. 139). Thus daydreaming is here understood as an ability to attend to internally produced stimuli, and when seen as a cognitive skill, can be developed to enrich our internal environment.

Affect Theory and Daydreams

The purpose of this section is to examine what role affect or emotional response may play in the formation and perpetuation of daydreams. First will be presented Tompkins' (1962) physiologically based theory of affect and then a discussion concerning the possible role affect may play in daydream sequences. It is assumed, for the purposes of exposition, that there are no major differences in the lawfulness of either (overt) or (covert) behavior. In other words, it is assumed that both overt (in the sense of observable) and covert (unobservable reported events) operate under similar principles. For example, the proven effects of reinforcement or extinction, would be similar for both overt and covert behavior. Before going further one

must, unfortunately, realize that there has been a shortage of research in the areas of both daydreaming and affect. Therefore much of the following presentation is theoretical. Appropriate evidence, where it exists, will be presented.

Tompkins (1962) has emphasized the role of affects or emotions as motivating properties of behavior. Tompkins attempts to relate affect to both feedback processes within the organism and to the neural stimulation which is elicited by external stimuli. Tompkins (1962) is saying that there are innate activities of positive (surprise, interest, joy) and negative (rage, fear, distress) affects. He suggests that negative affects are aroused by a high frequency of neural firings which are, in turn, produced either by an unpleasant or unfamiliar external situations (Tompkins, 1962). Whereas a reduced density of neural firings produces positive affects such as laughter, smiling, and joy. Although Tompkins does emphasize a kind of Freudian drive reduction conception of daydreaming namely, seeing the organism striving to increase positive affects and decrease negative affects, he is also stressing the importance of such experiences as surprise and interest as positive affects which serve to motivate the organism.

The idea that surprise and interest may be considered positive affects may add a new dimension to viewing the relationship between daydreaming and affect. Specifically, a given daydream may become pleasurable for two independent or perhaps interacting reasons. One the content of the daydream, for example a fantasy concerning sexual activity and two, the idea that this particular sexual fantasy provides the daydreamer with the opportunity for creating a novel and interesting daydream. According to Tompkins (1962), this second

activity (which may be inherent in the act of daydreaming) is also a source of positive affect.

In the previous discussion affects were seen as motivating properties of behavior with the possibility of having certain physiological centers (Tompkins, 1962). It may also be possible to view inner experience as a flow of behavioral segments (Klinger, 1971). Affect may also be a directing force within these segments.

Klinger (1971) sees fantasy as a response process composed of behavior sequences which have segmental organization over time. Fantasy is construed as a succession of verbally reported covert responses. There are basically two classes of determinants for a given sequence. One being long-term determinants which appear to be well established personality traits such as unconscious wishes and the other being short-term determinants such as moment to moment situational factors. Segments are defined as the "smallest discernable unit of content" (Klinger, 1971, p. 182) which is relative to both the individual (long-term determinant) and the situation (short-term determinant).

According to Klinger (1971) affect may be either an initiator of a segment and/or a guide of a segment. It seems advantageous at this point to try and specify, to some degree, the key differences between affect and motive. For the purposes of this paper motives entail specifiable goals. In other words, a motive is a construct "created and justified precisely in order to articulate the observation that organisms are attracted to particular goals" (Klinger, 1971, p. 210). On the other hand, affects are seen as having a ballistic effect, "aimed in a general direction rather than steered to an intended target" (Klinger, 1971, p. 211).

Affect as a Guide

Mowrer (1960) proposes that affect serves a guidance function in behavior. In other words, affect tends to direct the course of thought rather than serve as an initiator of a segment. For Mowrer (1960) individuals produce responses which lead to their feeling better. Furthermore organisms tend to promote pleasant affects. "Thus the organism's affect guides its selection of responses, and it does so in such a way as to favor the selection of probably adaptive responses" (Klinger, 1971, p. 202). This theoretical scheme has the advantage of explaining how organisms can evaluate sensory feedback. In other words, whether an organism will approach or avoid a thought and/or object will depend on the ability of the thought and/or object to elicit responses within the organism which enhance the probability of positive affect. Thus a given chain of thought moves in the direction of positive affect. Although Mowrer's (1970) scheme does provide some reasonable ideas about how a segment may be guided it does not provide a mechanism for the initiation of a segment.

Affects as Initiators

McClelland et al. (1953) were primarily interested in the initiating role of affect. For them internal and situational stimuli aroused emotion and the expectancies of emotion which then mediated the arousal of associated responses. Stated in a different way, this system assumes the presence of a cue which may be internal and/or external, which stimulates anticipation of a goal and corresponding affect associated with the goal. The goal then is the expectation of

achieving positive affect. This theory differs sharply from the Hullian system (Hull, 1943) in that it rejects the concept of drive, but it does preserve the concept of conditioned expectation which guides behavior. In terms of the sequencing of thought McClelland et al. (1953) rely largely on the traditional S-R principles such as generalization, extinction, and reinforcement.

The preceding discussion presents two alternative ways of viewing the role of affect on segments of thought. It seems appropriate to now ask what lines of evidence exist for supporting the above assertions. Unfortunately there is little evidence. What evidence that does exist operationally defines affect as behavioral preference (Klinger, 1971). Thus if an organism chooses "to drink one solution rather than another or to divide a line slightly off-center they are judged to have found the choice pleasurable" (Klinger, 1971, p. 203). The construct of affect, then, is inferred from the behavior it is supposed to explain, which renders it unacceptably circular. The approach, to avoid this circularity, becomes one of obtaining direct evidence, i.e., measurement, of at least, some aspects of affect. This work, on a major scale, has yet to be done (Klinger, 1971).

Klinger (1971) reports one bit of direct evidence regarding the nature of affective activity at the initiation of the segment. This line of evidence derives from studies of physiological variables, primarily heart rate (HR) measures, before and during the onset of covert thought. Elliott (1969) in a review of these studies concluded that, "an important set of circumstances that does effect HR elevation has two features: first, the instigation, anticipation and initiation of responses; and second, the presence of incentive" (Elliott, 1969,

p. 222). This physiological approach seems highly promising in terms of future research on the role of affect on thought sequence. Yet one must use caution in the blanket acceptance of physiological measures, especially HR. For example, it has been shown the HR measures are poorly correlated with other physiological variables. Secondly, HR measures are poorly correlated with subjects' self reports of their experiences with affective states (Klinger, 1971).

A key question in the area of daydreams and affect is; how and by what rules do affective states effect thought sequences? The question may also be expressed in terms of what factors influence the probability of a given affective response. The following represents a rudimentary attempt at trying to relate affect and daydreams. It is a theoretical and highly speculative attempt at raising some possible questions.

If one grants that there are affective responses in relationship to the onset and duration of daydream sequences then a number of interesting theoretical and empirical questions can be asked about the affective components of daydreaming. First, what factors might be important in terms of the organisms selection of a specific affective experience being associated with particular daydream content? It may be that the onset of affective experience can be aroused at any point in the chain. In other words, affective arousal may begin before, during, or after the initiation of daydream content. A parallel concern would be the issue of how do external and/or internal stimuli fit into the sequence of affective experiences and daydream content? It would seem reasonable that internal and external stimuli would interact within the individual in a unique way. Therefore one would expect

considerable individual differences in the pattern and affective quality of a daydream sequence. Here one would probably expect to find considerable sexual differences, personality differences, cultural differences, etc. Also of interest is the type of affect aroused, for example; positive, negative, or neutral and the range or intensity of a particular affect. These questions have no empirical answers and represent some of the concerns of this present research.

Background Variables

Sex

Most studies concerned with examining important background variables in daydreaming agree that there is no evidence showing that sex differences play a significant role in daydream frequency (Singer and McCraven, 1961; Wagman, 1965; Quenk, 1966). On the other hand there does seem to be some important sexual differences in daydream content.

In a study by Wagman (1965) using the General Daydream Questionnaire (a scale developed by Singer, 1961, which calls for persons to indicate the frequency, on a six-point scale, with which they have experienced each of a series of 100 daydreams) interest centered on testing the hypothesis that if "daydream behavior serves to enhance an individual's self-perception, then males and females would report fantasy and daydream material relevant to the enhancement of their masculine and feminine strivings" (Wagman, 1966, p. 329). Results indicated that men reported explicitly sexual daydreams and that women have daydreams involving passivity, narcissism, affiliation, and physical

attractiveness. Masculine daydreams also centered around heroics and athletics and were, in general, highly assertive. The result that women have passive and men more active daydreams fits well into Wagman's (1966) hypothesis that sexual role is projected into daydream content. It is interesting to note that women showed a high frequency of inward directed aggression by having a high frequency of daydreams about self injury and death. Wagman (1966) concludes that although there are no differences in the frequency of daydreams for the variable of sex there are important content differences. It is important to note that in studies employing the General Daydream Questionnaire frequency of daydreaming does not yield actual numbers, but rather a rated frequency that is after the fact and therefore dependent on long term memory of relative frequency of daydreams.

In an unpublished Doctoral Dissertation by Quenk (1966) interest centered in determining "how daydreams are related to precipitating events as well as to the individuals personal way of perceiving the world". Subjects were 25 males and 32 females who were asked to record ten daydreams on ten successive days. A subsequent interview determined the event precipitating each daydream and obtained the subject's rating of whether events and daydreams were pleasant, unpleasant, or neutral in affective tone. Results indicated generally that female data was related to affect of events. In other words, precipitating events did indeed influence affective content of female daydreams whereas male daydreams were not influenced by precipitating events. Further comparison indicated that in general, females are inclined to maintain the affect of precipitating events in their daydreams while males are more inclined to change this affect. It was

concluded that affective tone of daydreams could be most accurately predicted with a knowledge of (a) personal outlook (in the form of optimism and pessimism), (b) affect of precipitating event, and (c) sex of daydreamer.

Age

Age also seems to be an important variable determining daydream frequency. Singer and McCraven (1961) report the result that there is a significant decline in reported daydream frequency with age. "The maximum daydreams reported occurred in subjects between 18-29 with decreasing frequency in to 30-39 group and lowest frequencies occurring in subjects aged 40-49" (Singer and McCraven, 1961, p. 158). Unfortunately no elderly individuals were included in their sample and it remains a possibility that if items in the General Daydream Questionnaire were geared more toward the past, daydreaming would then show a higher frequency among the very old.

According to Singer and McCraven (1961) there seem to be at least two explanations which can account for the result that daydream frequency decreases with age. First, increased responsibilities of older persons, in the form of job and family, leave little time for the solitude necessary for extensive daydreaming. Second, it was concluded that "daydreaming is a function that involves even in fantastic aspects, some attitude toward the probable" (Singer and McCraven, 1961, p. 159). In other words, the late teens and early 20's are full of plans and possibilities, roles are less crystallized, and therefore the opportunity for free-wheeling and open-ended daydreaming is almost unlimited.

Sociocultural Background

An important finding concerning the influence of sociocultural background on daydream frequency and content was also uncovered in the study by Singer and McCraven (1961). In this study subjects were categorized according to the following sociocultural background (both parents): Negro, Jewish, Anglo-Saxon, mixed parentage. The Negro and Jewish groups showed the highest daydream frequency and the Anglo-Saxon the lowest. This preliminary study led to a rather extensive one aimed at supporting the following hypothesis. It was assumed by Singer and McCraven, that membership in an upwardly mobile social group would produce a greater tendency toward daydreaming. It was further assumed that for social groups which have attained relatively stable and secure status, there would be fewer daydreams because the future was less intriguing or demanding of imaginary exploration.

Based on the temporal introduction of immigration waves into American culture, six sociocultural groups were selected for comparison of daydream frequency and content. A formal hypothesis specified that daydream frequency would occur in the order from most to least for: Negro, Italian, Jewish, Irish, German, and Anglo-Saxon. To test this hypothesis the General Daydream Questionnaire was administered to 400 college and graduate students. From this pool six appropriate sub-cultural groups were selected (20 to 30 per category). Results strongly supported the experimental hypothesis. The groups arranged in order of daydream frequency from highest to lowest were: Italian, Negro, Jewish, Irish, Anglo-Saxon, and German. These six groups formed an obvious clustering into two groups of three: the Italian,

Negro, and Jewish, representing groups still relatively recently emergent and upwardly mobile, showed very similar scores, while the other three groups, which have a more secure status in the United States, all scored much lower on the daydream frequency scale (Singer and McCraven, 1962, p. 279). In terms of specific comparisons between content categories there were no clearcut differences although there were a number of interesting findings. For example, Negro, Jewish, and Italian groups tended to be particularly high on total erotic drive fantasies. The authors concluded that "daydream frequency seems to be related to upward mobility and that the content of daydreams is not limited to achievement or material acquisition" (Singer and McCraven, 1962, p. 280).

Cognitive and Personality Variables in Daydreaming

It is possible to ask if there are any cognitive or personality variables within the individual which are associated with high daydream frequency. In other words are there any specialized abilities, in the nature of either cognitive and/or personality traits, that are related to frequent daydreaming?

Cognitive Variable

What relationship, if any, exists between general intelligence and daydreaming? It would seem reasonable that high intelligence might be related to daydream or fantasy behavior. Sarason (1944) found that moderately mentally retarded children and adults evidenced fantasy activities in response to picture stimuli. For well educated

women, Singer and Schonbar (1961) found no significant relationship between intelligence (measured by the Large-Thorndike scale) and daydream frequency (measured by questionnaire). Singer and Antrobus (1963) in a study of 100 college freshmen found only a slight relationship between daydream frequency and intelligence measures. It should be mentioned that most studies have used a relatively limited range of subjects (most being college educated) and this may have masked results. In other words, if a large divergent sample could be obtained one might find a significant relationship between general intelligence and daydream frequency. It does however seem safe to conclude, that for the well educated, above average intelligence groups, the degree of intelligence is not especially related to frequency of daydreaming (Singer, 1966).

One may now ask, even if intelligence is unrelated to daydream frequency, if varied kinds of thought might be associated to daydream frequency? For example, would a person who shows a good deal of ideational or verbal fluency be more likely to have frequent daydreams? Singer and Antrobus (1963) investigated the relationship between daydream frequency and various measures used by Guilford (1959) called 'Divergent Productivity'.

Results did not show any consistent evidence that daydream frequency was accompanied by abilities to produce with rapidity great varieties of material such as plot titles, various uses of brick, and word fluency (Singer, 1966, p. 71).

Singer (1966) explained the lack of significant findings by assuming that persons with considerable ideational abilities are slower to respond and do less well on timed tests because there are more

responses to internally produced stimuli, which slow down reaction.

One might also speculate that there would be a strong relationship between daydream frequency and the variables of curiosity, imagination, and creativity. Measures of curiosity about personal and interpersonal events were included in the Singer and Antrobus (1963) investigation. Results indicated that high frequency daydreaming was related to curiosity about interpersonal events. In the Singer and Schonbar (1961) and Singer and McCraven (1961) studies with adults and children, there was evidence of frequent general daydreaming by individuals whose written or dictated stories were rated by judges as most original or creative. While none of these relationships were very high it is noteworthy that there is consistency in various studies using different samples. Unfortunately there has not been extensive, well planned studies directed at exploring the relationship between daydreaming and creativity.

Much of the work done in the area of imagination and daydream frequency has attempted to provide evidence that an inverse relationship exists between thought and action. This proposition is inherent in a type of drive reduction theory of daydreaming which states that individuals who daydream frequently will feel little need to express thoughts into action (Page, 1956). Page offered support for the above assertion in a study exploring the relationship between daydream frequency and richness of TAT stories. It was assumed that a rich TAT story would represent a tendency in subjects to express thought in overt action. It was found that high frequency of daydreaming correlated negatively with richness of TAT story. This result was used to support the idea that frequent daydreamers feel little need to express

thought into action.

Other studies exploring the relationship between daydream frequency and imagination have employed Rorschach M responses (human movement). Barron (1955) found that individuals rated by observers as imaginative or having considerable inner life showed a tendency to produce more M responses. An important study linking M to fantasy process and daydreaming came in another study by Page (1957). Here a questionnaire was employed to compare frequency of daydreaming to a number of Rorschach variables. Results indicated that only M responses proved to be significantly related to daydream frequency. With this evidence in mind it seems probable that there is some relationship between Rorschach M responses, motor inhibition, and daydream frequency. Further support for the possible relationship between daydream frequency and M responses comes from the work of Singer and Rowe (1962). It was found that M responses were associated with imaginative tendencies and also with "motor control, inhibition, and delaying qualities" (Singer and Rowe, 1962, p. 446). These studies therefore provide some evidence for the existence of an inverse relationship between thought and action. In other words, high daydreamers show a tendency to inhibit responses, thus also supporting a drive reduction theory of fantasy which holds that high daydreamers feel little need to express thoughts into action.

The work of Singer and McCraven (1961) attempted to provide evidence opposed to a simple drive reduction theory of daydreams. In this work the relationship between daydream frequency and creativity was explored. Subjects were first asked to complete the General Daydream Questionnaire and then upon conclusion of this task, asked to

make up stories, both in written and dictated form. Results indicated that there was a moderately strong relationship between daydream frequency and creativity. This evidence was used by Singer and McCraven (1961) to refute a simple drive reduction of daydreaming. It was concluded that the work of Page (1957) which employed TAT stories was not comparable to creativity as measured by ability to create original stories, therefore leaving open the issue of the appropriateness of a drive reduction theory of daydreaming, at least in the area of creativity.

Personality Variables

Moving from cognitively oriented variables such as intelligence and imagination to more personality centered variables one is immediately met with the stereotype that frequent daydreaming is a neurotic feature. As a matter of fact many personality inventories include such items as "I daydream frequently" as criteria for distinguishing between 'normals' and 'neurotics'.

One approach to test the above assertion has been to compare scores for 'normal' respondents on the General Daydream Questionnaire with scores on anxiety scales (Singer and Schonbar, 1961; Singer and Rowe, 1962). Results from these studies indicate:

that daydream frequency does correlate positively at moderately high levels with questionnaire measures of anxiety including Welsh's A scale (Singer and Schonbar, 1961) and Cattell's Anxiety Scale (Singer and Rowe, 1962, p. 452).

From this data Singer (1966) concludes that individuals reporting more frequent daydreams also describe themselves as more anxious, sensitive, and fearful. Singer (1966) goes on to question whether

scoring high on an anxiety scale is the same thing as being seriously emotionally disturbed.

Another line of evidence, exploring the issue of the 'normality' of daydreaming, comes from the factor analytic study of Singer and Antrobus (1963). They found that one's general pattern of daydreaming could be analyzed into various patterns, those generally reflecting broad and wishful fantasy, and those associated with fearful daydreams and fantasies preoccupied with the body (Singer and Antrobus, 1963). The latter pattern was associated with measures of emotional instability (Guilford-Zimmerman scale). According in Singer (1966) it seems likely that:

only one pattern of fantasy is associated with serious disturbance, while the more general daydreaming scale reflects anxiety only insofar as the daydream and anxiety scales may both be reflecting the daydreamer's greater self-sensativity, willingness to experience ideation consciously, and a general self-awareness (Singer, 1966, p. 74).

As a matter of fact the Singer and Schonbar (1961) study indicated that high frequency daydreamers showed the self-awareness pattern of recalling more night dreams and revealing a low frequency of lying or repressing on the Minnesota Multiphasic Lie and R scales. Therefore one gained the impression that frequent daydreamers and not 'neurotic', disturbed persons but rather are more open to self and others. Singer and Schonbar (1961) conclude that the "data suggest that high and low frequency daydreamers differ on a dimension which might be termed 'Self-Awareness' or acceptance of inner experience" (Singer and Schonbar, 1961, p. 6).

A major theoretical issue in the area of anxiety and daydreaming,

as in the area of cognition and daydreaming, is the applicability of drive reduction or cathartic theory. Briefly stated, this theory holds that fantasy serves as a drive reducing agent permitting one to imagine the desired object and thereby permitting delay of gratification with reduction of anxiety. The theory stems originally from the Freudian (Freud, 1920) concept of drive reduction.

Singer and Rowe (1962), in an attempt to refute the drive reduction theory, feel that it may be:

possible in the case of fear or anxiety that the reoccurrence of daydreams concerning unpleasant events or impulses may increase discomfort by keeping the person in the same psychological field situation (Singer and Rowe, 1962, p. 446.

Singer and Rowe (1962) cite as anecdotal evidence the observation that fantasy precedes drive arousal in sexual behavior. Singer and Rowe (1962) conclude that the functional role of fantasy may differ for different drives or affective states. In other words, the affective states of anxiety, hostility, and depression may function with fantasy operations in various ways. In view of this wide theoretical discrepancy it almost seems unnecessary to state that there is a real need for experimental evidence to specify the relationship between daydream frequency, drive reduction theory, and affective states.

The cathartic or drive reducing function of fantasy is not only a central theoretical issue in anxiety and daydreaming but also the focus in the area of aggression and fantasy. Proponents of catharsis theory have attempted to demonstrate that aggression can be displaced or reduced through fantasy, thereby reducing the strength of the drive (Feshbach, 1955; Singer and Rowe, 1962).

Feshback (1955) offered support for the cathartic hypothesis by showing the subjects who were angered by insults from an experimenter showed less residual resentment after an opportunity to write aggressive TAT stories. Estess (1960) yielded evidence that, for boys, experimentally induced aggression could be reduced by the opportunity to view a cowboy movie. Singer and Rowe (1962) report that groups with an opportunity to engage in fantasy show less resentment or aggression than those who do not have an opportunity for fantasy.

In a major study Pytkowicz (1967) tried to specify the role of catharsis in aggression and fantasy. An important expectation was that the cathartic effect of fantasy would be more pronounced for subjects reporting frequent spontaneous daydreaming than for those who seldom daydreamed. This hypothesis stems from the important theoretical proposition that fantasy is a learned skill which can serve as an adaptive mechanism for dealing with stress. It was therefore assumed that frequent daydreamers would be able to utilize the fantasy experience more effectively for catharsis than low daydreamers. High and low daydreamers were subjected to insults and then given a chance to daydream or tell TAT stories.

Results indicated that the fantasy experience, in the form of either daydreaming or producing TAT stories, had a pronounced cathartic effect for high daydreamers, thus supporting the hypotheses (Pytkowicz et al. 1967). Also of note in this study was the finding that the cathartic effects of fantasy operate in different directions, depending on which measures of aggression are employed. For example, when the object of aggression is self, as measured by an hostility scale, fantasy increased hostility scores. On the other hand, when

the object of aggression was the examiner, as measured by an attitude questionnaire, fantasy following frustration resulted in lower aggression. This result suggests that the process of cathartic action in aggression and fantasy is by no means simple, thus at least one key factor determining the presence or absence of catharsis is the target of the aggression, for example self or others.

Development and Daydreaming

In the behavioral sciences there are various ways to study and hopefully gain insight into a given phenomena. A frequently used approach is to try and trace the development of a behavior. Relevant to this paper an important question becomes: given an active, curious young child, how and in what ways does the fantasy process develop?

One approach used in studying the development of daydreaming in young children rests on the assumption that there are common elements in both play and fantasy. Usually the inferences which are made about fantasy come from observations of play. Although the problem concerning the origins of play and fantasy does evoke some important theoretical issues, it seems somewhat inappropriate to become involved in this issue. Suffice it to say that most researchers feel there is enough similarity between childhood play and fantasy (Klinger, 1971) to be able to make inferences from play about fantasy. With this assumption in mind, one can now look at some of the work which has been attempted in the area of childhood daydreaming.

Childhood

In terms of early manifestation of fantasy-like behavior most observers feel that fantasy can be observed from approximately the third year of life and that fantasy grows in imaginativeness up to about the fifth year (Klinger, 1971). Piaget (1945) in his description of play into three stages, feels that the symbolic and imaginative features of play begin to decrease around the age of four with subsequent increase in social activities characterized by participation in games with rules.

Evidence for the above assertion that fantasy processes begin at about the age of three comes from a study by Ames (1966). It was found that with "superior two-year-olds, fewer than half could be induced to tell even a brief story, but that most of the three-year-olds were able to respond rather easily" (Ames, 1966, p. 370). It seems that somewhere between the ages of two and three years in this sample and, inferentially, between two and four years in a representative sample, children gain the capacity to produce descriptions of events that are not suggested by immediate stimulus situations. Research in this area presents some difficult problems as one must wonder, for example in the above study, how language development influences reported fantasy behavior.

In Piaget's (1945) Stage II, which lasts from approximately ages four to seven, play gradually becomes coherent and orderly, with a tendency toward imitation of reality, featuring players who attempt to adopt well-defined social roles. Stage III, which includes ages eight to 12, features a "decline in symbolism and the rise of either games

with rules, or symbolic constructions which are progressively less distorting and more nearly related to adopted work" (Piaget, 1945, p. 140).

Evidence supporting the assertion that there is an increase in the realism of play, and inferentially fantasy, with increasing age comes from a study by Jersild (1933). In this work, interview data on the daydreams of 400 5-to-12-year-olds suggested a high level of reality concerns at all age levels. Overall about 75 percent of reported daydreams were classified into the following categories: prospective concerns (i.e., regarding future occupation, marriage, etc.), eight percent; current 'everyday' matters, 35 percent; themes of accomplishment, 12 percent; themes acquiring material goods, 13 percent; fears and worries, seven percent. What was of special interest was the finding that frequency of realistic daydreams increased with age. Thus prospective daydreams increased from 4 percent to 14 percent from age 5 to 12, and relatively realistic themes of accomplishment and prestige increased from 3 percent to 14 percent. Reports of daydreams about imaginary companions declined from 28 percent to 13 percent.

Adolescence

In conjunction with the great growth changes that are evolving within the organism at about the ages of 12 or 13 one also finds considerable change in the fantasy process. During early adolescence fantasy gradually becomes internalized. For example group games of pirates, or cops and robbers, gradually become inhibited as a result of social pressure and the tendency of adolescents to imitate adult-

like activities such as sports, music, and dancing. During this period the adolescent begins to discover that within himself there is a new potential for internal experience over which he or she may likely attempt to seek mastery. For Singer (1966):

this capacity to produce images, to rework the unpleasant, or to contemplate the future in the complete privacy of one's mind may be a discovery for many of greatest importance (Singer, 1966, p. 173).

As the early adolescent gains mastery over his ability to internalize fantasy he begins fantasizing frequently. As a matter of fact, the questionnaire data obtained by Singer and McCraven (1961) indicates that the highest self-reported frequency of daydreaming occurs in adolescent groups. In interviews with college students (Singer and Antrobus, 1963) it was consistently reported that daydreaming had reached a peak of frequency within the past two or three years (14 to 17).

In terms of thematic content of adolescent fantasies Symonds (1949), who relied heavily upon the Thematic Apperception Test (TAT), reports that the major themes reflected concerns with achievement, future roles, and sexual attainment. Other data (Ginzberg et al. 1951) indicates that along with concerns of achievement and sexual attainment, adolescents also express considerable interest in occupational fantasies.

It appears then that the daydream process begins at about age three and tends to be quite imaginative and idiosyncratic till about age five. Then fantasies gradually become realistic leading to group fantasy activity with well-defined social roles. Along with the growth and disequilibrium of adolescence, fantasy increases in fre-

quency and becomes well internalized and begins to reflect both current and future concerns. If this is a reasonably accurate picture of the course of daydream development then one can raise the question: what factors are important in facilitating or inhibiting the appearance of fantasy behavior? It is the opinion of this author that the nature of a child's interactions with important adult figures can significantly influence his or her attitudes and tendencies to accept fantasy as appropriate and potentially pleasurable activity. To say that the nature of the child's interactions with significant others is the key factor in the development of fantasy behavior is to, by no means, deny the possible presence of other factors. For example according to Singer (1966) there may be very real constitutional differences between children in ability to fantasize.

Parental Interaction and Fantasy Development

In order to facilitate fantasy development parents must first satisfy the young child's physiological needs (Singer, 1966). The prevention of excessive unpleasant internal experiences, i.e., thirst, hunger, etc. will help free the child to begin to explore his own body and external environment. Satisfying the needs of the young child represents only the first step in encouraging the development of fantasy skills.

The general atmosphere of the home, with an emphasis on exploration and freedom, is also important in the enhancement of daydreaming. If parent's conversations, either with themselves or the child, are limited only to immediately experienced content such as, 'take out the garbage' or 'time for dinner', then there is little material the child

can use for fantasy play. On the other hand, a home which provides discussion about material not immediately available to the child such as business affairs, gossip, and literautre, presents an opportunity for the child to incorporate this novel and strange material into fantasy play. The parent by permitting exploration and free play, and perhaps even joining with the child in some fantasy play, for example peek-a-boo-games, establishes a basic atmosphere in which the child can develop a willingness and openness toward fantasy.

In terms of which parent has more influence on the development of fantasy the literature seems to stress the role of the mother. This occurs partly because in Western culture it is the mother's role to foster language development, storytelling and inner experience. In support of the above assertion Sharaf (1959) has found that male college students who have developed a much closer relationship with their mothers were also more inclined towards awareness and inner experience. Singer and McCraven (1961) included in their study, a measure of identification with parental figures to try and determine the role of the family constellation in shaping attitudes towards daydreaming. It was found that "men who perceived themselves as relatively less different from their mothers and relatively more different from their fathers showed a tendency toward higher daydreaming" (Singer and McCraven, 1961, p. 161).

Although there has been little work on the possible relationship between daydream capacity and personality development there does seem to be some intriguing possibilities provided by the work of Singer (1961). From a psychopathological point of view, Singer (1961) has assumed that high daydreaming children might show more manifestations

of defenses associated with obsessional characteristics. He also predicted that children who show little daydreaming might exhibit patterns characteristic of hysterical personalities, with less self-consciousness and greater use of denial and repression. Using clinical observation and interviews Singer (1961) supported the above hypotheses by finding that high daydreamers tend to show obsessional features whereas low daydreamers tend towards hysterical behaviors, with high use of denial and repression.

Also in this study Singer (1961) found wide differences between high and low fantasy groups in color selection. High fantasy children most often chose blue or green crayons (cool colors) whereas low fantasy children most often chose red or yellow (warm colors). Theoretically it was assumed by Singer that the preference for cool colors in high daydreamers was "associated with a more controlled orientation to living, greater fantasy, waiting ability, and achievement motivation" (Singer, 1961, p. 409), whereas warm colors reflect tendencies toward inability to delay gratification and impulsivity. Although this research may raise interesting issues it is felt that such approaches, i.e., preference for colors, remain somewhat imprecise to resolve the key questions in the area of personality and daydreaming.

Singer (1961) has also tried to explore the possibility that children who report more frequent daydreaming also reveal different patterns of psychological conflicts than those who report minimal fantasy play. It was hypothesized that the data which showed high daydreaming groups as being closer to mothers, or in general both parents, would indicate that the child is more likely to have difficulties surrounding adult identification problems, oedipal conflicts,

and aggression directed towards fathers. Whereas children with relatively less fantasy may exhibit problems:

less involved with adult identification and more with specific deprivations or impulse manifestations, i.e., oral deprivation, diffuse aggression, passivity or dependency, feelings of rejection, etc." (Singer, 1961, p. 401).

Although Singer (1961) does suggest that caution be used because his results involve considerable clinical speculation it was found that:

high fantasy subjects show greater oedipal involvements, aggression toward father, rivalry with adults, identification conflicts, etc., while the low-fantasy children more often are reported to have conflicts centering on oral deprivation, fear of loss of love, and generalized aggression (Singer, 1961, p. 410).

Singer concludes that although these results are intriguing there is great need for intensive scrutiny of the above possibilities, under more controlled conditions.

Statement of Problem

Although there has been a reasonably large amount of research done in the area of rate of occurrence in daydreaming (Antrobus et al. 1966; Antrobus, 1968; Drucker, 1969) there has been a minimum of work on daydream content. As a matter of fact, what work that has been completed on daydream content has, to a large extent, relied mainly upon projective methods (Barron, 1955; Feshbach, 1955; Page, 1957; Pytkowicz et al. 1967). The present research is aimed at exploring, in a somewhat more rigorous manner, the affective content of daydreams.

Of primary importance in this area, as in others, is the question: is there a phenomena worthy of study? In other words, are there

affects associated with the covert behavior of daydreaming and if so are these affects reasonably stable? If there is a phenomena worthy of study, then the next question becomes: what are its main characteristics? In reference to this study the issue becomes, the identification of the major characteristics or variables which influence the affective content of daydreams. For example, are there any demographic variables such as sex, or how do instructional variables influence affective content? The next stage in scientific exploration raises the question: is the phenomena of interest able to be modified? In other words, what stimulus factors exist which may influence the affective content of daydreams.

In this study interest centered upon the effect of four independent variables on the affective content of daydreams. Affective content, a dependent variable, was measured by having subjects simply report the frequency of their positive (+), negative (-), and neutral (N) daydreams over three 100-second intervals. Thus number of thoughts in each category was the dependent variable.

A second dependent variable, the Multiple Affect Adjective Checklist (MAACL), was employed as a before and after measure. This checklist has three specific scales: (1) Anxiety, (2) Depression, (3) Hostility. It was predicted that anxiety levels would increase as a function of a negative tape recording. The rationale for this prediction was intuitive, one would expect anxiety levels to increase when subjects are exposed to negative (aversive) situations. No other predictions were made as to possible changes in MAACL scores.

The first independent variable was type of tape recording. There were three different tape recordings (positive, negative, neutral),

and each subject heard only one tape. It was predicted that subjects who heard a positive tape would tend to produce more positive responses, those who heard a negative tape would tend to produce more negative responses and finally those who heard the neutral tape would tend to produce approximately the same amount of positive and negative responses, with a subsequent increase in neutral responses. Again the rationale for these predictions rests on an intuitive basis and assumes that like stimuli produce like responses. In other words, a positive stimuli would tend to increase the likelihood of a positive response, a negative stimuli would tend to increase the likelihood of a negative response and finally a neutral stimuli would tend to increase the likelihood of a neutral response.

The second independent variable was the instructional variable of Meditational Technique. The three Meditational Techniques were: (1) Wander, in which subjects were instructed to "let your mind wander, do not dwell on any one thought", (2) Suppress, in which subjects were instructed to "try not to think of any one thought", (3) Free, in which subjects were instructed to "think of what you will". It was predicted that the output of +, -, and N thought contents would be approximately the same for the Wander and Free conditions, whereas there would be a considerable reduction in the number of affective thoughts under Suppression instructions.

The rationale for the prediction that the rate of response would be similar in both the Wander and Free conditions is based on the possible fact that there may not be enough of a difference between the two conditions to achieve different rates of response. The two conditions were included because this issue is speculative and requires

empirical verification.

The third independent variable, Replications, involved having subjects repeatedly record their +, -, and N thought contents for three separate 100-second intervals. No specific predictions were made as to the frequency of +, -, and N contents as a function of Replications. The fourth independent variable was Sex. There were also no specific predictions made about sex in relationship to differences in frequency of affective thought content.

CHAPTER II

METHOD

Subjects

One-hundred and sixty-two subjects were used in the present study. All subjects were randomly selected and volunteered from undergraduate psychology courses to receive extra course credit. There were an equal number of male and female subjects. The mean age of subjects was 20 years, with a range in age from 18 to 36 years.

Dependent Variables

One major dependent variable was number of thoughts. It was requested of subjects to score their ongoing thoughts into the categories of positive (+), negative (-), and neutral (N) affective thought contents. In other words, subjects were to rate thoughts as to whether they felt their thoughts were +, -, or N in affect. For example, a possible thought might be "a steak dinner". This would be scored by most as positive. See Appendix A for more examples. This variable was selected because it is felt that the classification of affective thoughts contents into +, -, and N categories represents a mutually exclusive and exhaustive set of response possibilities. It is hoped that the use of this dependent variable would enable one to determine how the frequency of +, -, and N thoughts vary as a function of a number of independent variables.

To enable subjects to score +, -, and N thought content with fairly good reliability, criteria for scoring were well specified. The subjects were told, in scoring thought contents, to use as a guide what they felt were the conventional meanings of their thoughts, that is, they were not necessarily classifying thoughts in terms of their own experienced affect. A copy of instructions may be seen in Appendix A. Conventional meaning was defined as how most people would feel. For example, an N thought was defined "as a thought in which you feel most people have neither positive nor negative feelings". In order to develop reliability in the scoring of the affective component of thought contents, subjects were given 15 practice thoughts. In other words, subjects listened to a possible practice thought, verbally presented by the experimenter, and were then asked to score it on the basis of its being +, -, or N in affect according to conventional meaning. Upon the conclusion of each practice thought, subjects were given feedback by the experimenter as to which category would be most appropriate, i.e., +, -, or N.

Next subjects were instructed as to how to write, in the prescribed manner, +, -, and N thoughts. They were instructed to draw a diagonal line on the response sheet when they heard the word "line". Upon hearing the word "line", subjects were asked to immediately begin recording positive, negative and neutral thoughts by writing a plus (+) for positive thought, a minus (-) for negative thought, and a capital (N) for neutral thought. They were further instructed that every once in a while they would hear the word "line" and were to draw a diagonal line and just keep on writing judgments. They were instructed to stop recording judgments when they heard the word "stop".

It was also required that subjects cover previous responses with a cover sheet. This was included to prevent subjects from using what they had previously written to bias future responses. A copy of a response sheet may be seen in Appendix B.

For the purposes of exposition, a trial in this experiment is considered to be a sequence of +, -, and N thought contents of a 100-second duration. Within each trial the word "line" was repeated every ten seconds. The purpose of having subjects draw a line every ten seconds was initially included because interest centered upon gaining data for finer time values. After inspection of data it was decided that it was more appropriate to pool data over 100-second intervals. Thus a trial consisted of a 100-second string of pluses, minuses, and capital N's alternated with diagonal lines representing ten-second intervals. After a demonstration, on the blackboard, of how to write responses, subjects were given a practice trial.

The Multiple Affect Adjective Checklist (MAACL), which included scales measuring Anxiety, Depression, and Hostility, was also used as a dependent variable. This measure was employed to help determine if there were any significant changes in either Anxiety, Depression or Hostility as a consequence of the independent variables. All subjects completed the MAACL upon entering the experimental room and again immediately after the experiment was completed. Thus it was possible to obtain a MAACL change score (before minus after) for each subject. A description of the MAACL and its three scales may be seen in Appendix C.

Independent Variables

Three 90-second tape recordings served as one of the independent variables. This variable was included to see if and how various external stimuli (tape) effect the output of affective thought contents. The content of the three tapes may be seen in Appendix D. The first tape, called negative tape, described an accident scene. The second tape, called positive tape, described a sailing and beach scene. The third tape, called neutral tape, described what to do if you cannot remember names. The tapes were standardized on a separate group of 17 subjects, who rated them on a 21 point scale ranging from most unpleasant (1) to most pleasant (21). The negative tape received a rating of 5.9, the positive tape 15.7, and the neutral tape 10.2. From this data it was concluded that the tapes could evoke appropriate positive, negative, and neutral feelings.

A second independent variable, called Meditational Technique, was used to assess how various ways of thinking or strategies would influence the output of +, -, and N thoughts. There were three different meditational techniques or strategies. Appendix A contains a copy of instructions describing in detail the instructions for the meditational techniques. The first, called Wander condition, instructed subjects "to try and let your thoughts wander. In other words, do not dwell on any one thought." A second meditational technique, called Suppress condition, required subjects to "try and suppress all thought while scoring thoughts that do occur. In other words try and control your mind by not thinking of any thought". Although subjects were encouraged to "cut out thoughts as much as possible", they were also

informed that they could not do this entirely because of the difficulty of the task. A third meditational technique, called Free condition, asked subjects to think of what they want to while scoring thought content. In other words, subjects were to "be on your own in terms of what or how you choose to think". All subjects were initially required to practice the three meditational techniques while scoring affective thought content. These three practice trials were called practice trials A, B, and C.

The third independent variable was Replications. This variable was included to see how the output of +, -, and N thought contents changed with Replications. In other words, one might find that there would be an increase in thoughts due to a practice effect. Although this was not a specific prediction it does remain a possibility to be tested empirically. Essentially Replications served the purpose of gathering data over time. There were a total of three Replications. On the first subjects were instructed to adopt a meditational technique, then listen to a 90-second tape recording and then record affective thought contents. On the second and third Replication, depending upon which group they were assigned, subjects were to use the same meditational technique and hear the same tape as in the first Replication. At all times tapes preceded the recording of thought contents.

The possibility of differential responses due to Sex differences, the fourth independent variable, was ascertained by having sex equally divided across all conditions and then analyzing the frequency of thought contents as a function of sex.

Groups

There were 27 groups (Figure 1) each consisting of six subjects, three males and three females, thus yielding a total of 162 subjects. Each of the six subjects was randomly assigned to one of the possible 27 groups. There were 54 subjects (Groups 1-9) who were to hear the positive tape on trials one, two, and three; 54 subjects (Groups 10-18) who were to hear the negative tape on trials one, two, and three; and 54 subjects (Groups 19-27) who were to hear the neutral tape on trials one, two, and three. Tapes always preceded trials one, two, and three. Within any group of 54 subjects, groups were further subdivided into three groups of 18 subjects. Each of the three groups of 18 subjects was required to use only one Meditational Technique on trials one, two, and three. For example, within the 54 subjects who were to hear the positive tape preceding trials one, two, and three; 18 subjects would hear the positive tape using only one meditational technique to score +, -, and N thoughts (Trial One); then again hear the positive tape, use the same meditational technique and score +, -, and N thoughts (Trial Two) and finally again hear the positive tape and use the same meditational technique in scoring +, -, and N thoughts (Trial Three). The three repetitions on trials one, two, and three were called Replications. The second group of 18 subjects, who were to also hear the positive tape preceding trials one, two, and three were to use a different meditational technique. The third group of 18 subjects, again hearing the positive tape, were also to use a different meditational technique on trials one, two, and three.

A second group of 54 subjects (Groups 10-18) who were to hear

MAACL (Before)	Time →	Practice Trials A B C	Trials → 1 2 3	MAACL → Awareness (After) Questionnaire
Positive Tape Groups (1-9) N = 54	Groups (1-3) N = 18	*W F S S W F F S W	W W W W W W W W W	
	Groups (4-6) N = 18	W F S S W F F S W	S S S S S S S S S	
	Groups (7-9) N = 18	W F S S W F F S W	F F F F F F F F F	
Negative Tape Groups (10-18) N = 54	Groups (10-12) N = 18	W F S S W F F S W	W W W W W W W W W	
	Groups (13-15) N = 18	W F S S W F F S W	S S S S S S S S S	
	Groups (16-18) N = 18	W F S S W F F S W	F F F F F F F F F	
Neutral Tape Groups (19-27) N = 54	Groups (19-21) N = 18	W F S S W F F S W	W W W W W W W W W	
	Groups (22-24) N = 18	W F S S W F F S W	S S S S S S S S S	
	Groups (25-27) N = 18	W F S S W F F S W	F F F F F F F F F	

* Subjects are to score +, -, and N thought contents for all designated Meditational Techniques: Wander, Suppress, Free

Figure 1. Group and Sequence of Events

only the negative tape preceding trials one, two, and three, were also divided into three groups of 18 subjects each of which was required to score thought contents while using only one Meditational Technique on trials one, two, and three. A third group of 54 subjects (Groups 19-27) who were to hear only the neutral tape preceding trials one, two, and three were also divided into three groups of 18 subjects each of which was also required to use one Meditational Technique on trials one, two, and three and to score thought contents.

It was further necessary to control for order effects while subjects were practicing the three different Meditational Techniques on practice trials A, B, and C. Thus each group of 18 subjects was further broken down into three groups of six subjects to be able to practice Meditational Technique in a specified order. For example, the six subjects in Group 1 would practice Meditational Technique in the order: Wander (practice trial A), Free (practice trial B), Suppress (practice trial C); the six subjects in Group 2 in the order: Suppress (practice trial A), Wander (practice trial B), Free (practice trial C); and the six subjects in Group 3 in the order: Free (practice trial A), Suppress (practice trial B), Wander (practice trial C). Figure 2 presents a flow chart specifying the particular steps a group of six subjects would follow during the course of the experiment. In this example Group 1 is represented, i.e., those who heard the positive tape.

The purpose of including practice trials A, B, and C was to afford each subject the opportunity to practice each of the three Meditational Techniques. If this were not done subjects may have responded differentially because they would have used only one Meditational

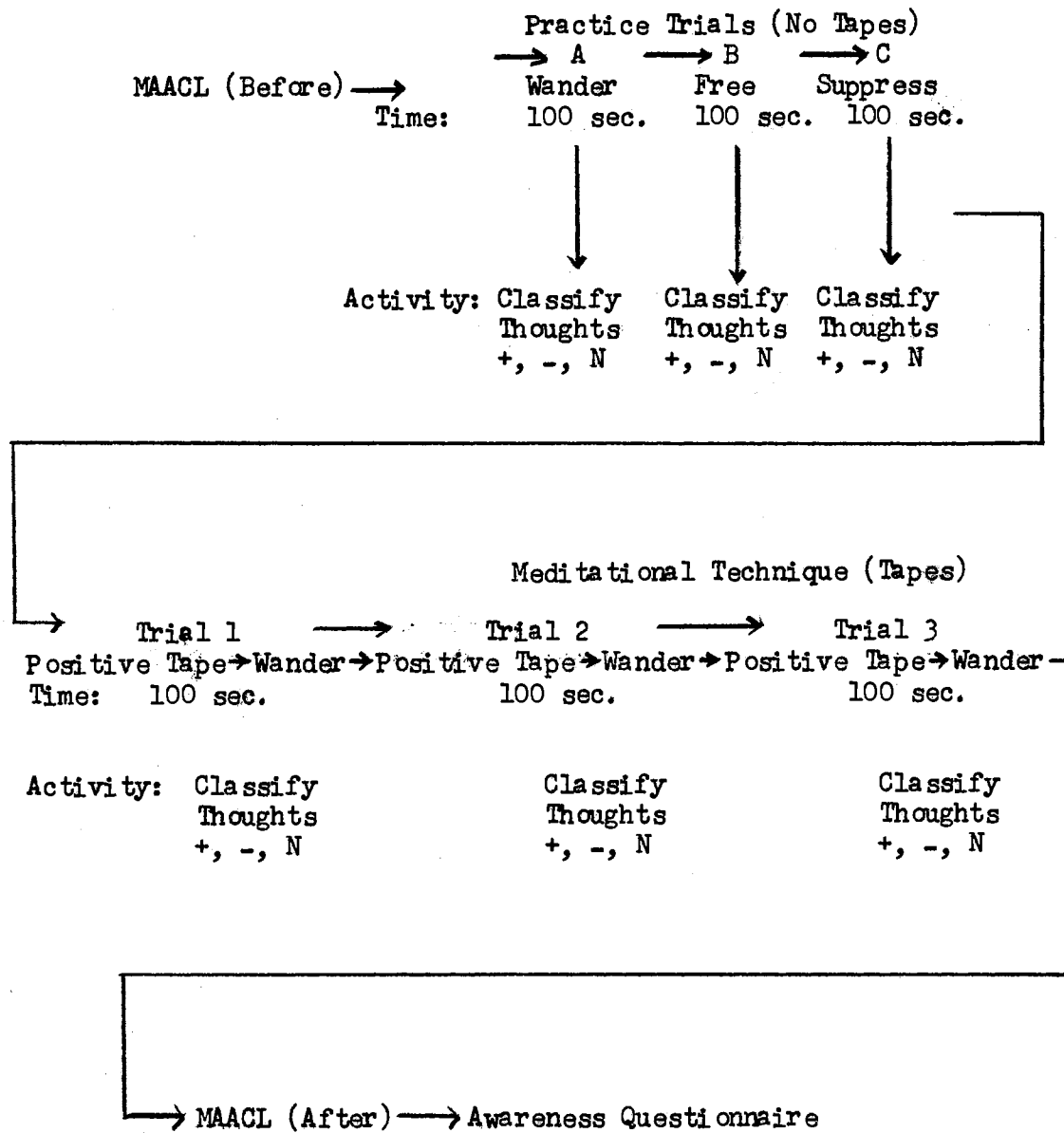


Figure 2. Flow Chart for Group 1, Positive Tape

Technique during the entire experiment, thus practice trials A, B, and C served as a control.

Procedure

All subjects participated in this experiment in groups of six, three males and three females. Upon entering the experimental room subjects were to sit in two rows each containing three chairs directly facing the experimenter's desk. Directly behind the experimenter was a blackboard. The subjects were then given a response packet, which included a before and after MAACL test form, a response sheet, and an awareness questionnaire, a #2 pencil, and a cover sheet. Apparatus consisted simply of a cassette tape recorder upon which part of the instructions were taped and of course the three tapes (positive, negative, neutral) which were to be played on trials one, two, and three. Appendix A specifies which sections of the instructions were taped.

It was first requested of subjects that the MAACL be completed. Exact instructions for the MAACL - Today form can be seen in Appendix C. When all subjects had completed the MAACL they were instructed to listen closely to the following taped instructions. They were then instructed how to score contents into the categories of +, -, and N according to conventional meanings and then how to write them on the response sheet. At this point the tape was stopped to enable subjects to practice classifying a sequence of thoughts. Next the taped instructions were started and subjects listened to a description of the three thought strategies. Finally the taped instructions, which lasted eight minutes, recapped how to score and write thought contents, and how to use the three thought strategies.

Next subjects were read non-taped instructions for completing practice trials A, B, and C. As mentioned previously practice trials A, B, and C consisted of having subjects practice using the three different Meditational Techniques. These three Meditational Techniques were balanced to control for order effects. Thus one group of six subjects would perform practice trials A, B, and C in the respective order: Wander, Free, Suppress; a second group of six subjects would perform in the order: Suppress, Wander, Free; and a third group of six subjects would perform in the order: Free, Suppress, Wander.

Next subjects were read non-taped instructions for completing trials one, two, and three. They were requested to close their eyes (to enable greater concentration) and listen closely to a brief tape recording, either a positive, negative, or neutral tape depending upon which condition subjects were assigned. They were then told, at the conclusion of the tape, to begin classifying thought contents using a specified Meditational Technique, also depending upon which condition they were assigned (trial one). Trial two consisted of having the subjects again hear the same tape and upon conclusion score thought contents using the same Meditational Technique. Trial three consisted of having the subjects listen to the same tape and then score contents using the same Meditational Technique.

At the conclusion of trial three, subjects were again requested to complete the MAACL (after measure). Finally when all subjects had completed the MAACL they completed the Awareness Questionnaire. See Appendix E for description of the Awareness Questionnaire. The subjects were first to complete the subjective part of the Awareness Questionnaire and then finish the objective section. Participants

were then informed as to the purpose of the experiment and thanked for volunteering. The entire experiment took approximately 35 minutes per group of six subjects.

Experimental Design

Ten analyses of variance were performed on the data (Winer, 1962; Kirk, 1968). Statistical tests were performed at the $\alpha = .05$ level. All analysis of variance tests were done with the aid of the Bio-Med 08V computer program (Dixon, 1971). The first analysis of variance, a split-plot factorial analysis of variance, took the form $3 \times 3 \times 2 \times 3 \times 3$, with three between-subjects variables and two within-subjects variables. Specifically the variables and levels were: 3 Tapes_f (positive, negative, neutral) \times 3 Meditational Techniques_f (Wander, Suppress, Free) \times 2 Sexes_f (male, female) \times 3 Replications_w (I, II, III) \times 3 Thought Categories_w [(+), (-), (N)]. This analysis was performed to determine if there were statistically significant differences in the output of +, -, and N thoughts as a function of either Tapes, Meditational Techniques, Sex, and/or Replications. Differences between means, for significant F ratios, were tested by use of the Newman-Keuls method for multiple comparisons (Winer, 1962).

A second analysis of variance took the form 3×3 , with one between-subjects variable and one within-subjects variable. Specifically the variables and levels were: 3 Orders_f (Wander, Free, Suppress; Free, Suppress, Wander; Suppress, Wander, Free) \times 3 Thought Categories_w [(+), (-), (N)]. This analysis was performed to determine if there were statistical differences at the $\alpha = .05$ level between output of +, -, and N thoughts as a function of the order of different Medita-

tional Techniques and practice trials A, B, and C. In other words, this test was performed to test the null hypothesis that there would be no statistical differences in thought contents as a function of the three different orders of practicing the Meditational Techniques.

For the MAACL dependent variable, three analyses of variance tests were performed, one for each of the three MAACL scales, to try and determine what relationship MAACL change scores had on Thought Categories and Replications. It should be noted that all MAACL scores represent change scores. In other words, a given subject's before MAACL score was subtracted from his after score MAACL score. It should be emphasized that these three analyses of variance tests were performed on three different samples of subjects who scored either high or low on each of the three MAACL scales. In other words, two groups were formed for each of the three MAACL scales, one group consisting of high scorers and the other of low scorers. In general the three analysis of variance tests for the three MAACL scales took the form: $3_{\text{Thought Categories (+, -, N)}} \times 3_{\text{Replications (I, II, III)}} \times 2_{\text{MAACL Scores (high, low)}}$. This general design was used for each of the three MAACL scales, depending upon which one was being analyzed.

A second analysis of variance was performed on MAACL change scores. The purpose of this analysis was to try and determine what variables might cause changes in MAACL scores. The variables of interest in this analysis were Tapes and Meditational Techniques. In this particular analysis all MAACL change scores were used, in other words subjects were not divided into high and low groups as in the previous analysis. The general design for this analysis of variance test took the form: $3_{\text{Tapes (positive, negative, neutral)}} \times 3_{\text{Replications (I, II, III)}}$

Meditational Techniques (Wander, Suppress, Free). There were actually three analysis of variance tests, one for each of the MAACL scales.

Finally two analyses of variance tests were performed on the scores derived from the Awareness Questionnaire. The first analysis of variance took the form: 3_{μ} Replications x (1, 11, 111) x 3_{μ} Thought Categories (+, -, N) x 2_{μ} Awareness (high, low) and was performed to determine what influence high and low awareness scores had on output of +, -, and N thoughts. There were 40 subjects in the high awareness group and 40 subjects in the low awareness group. This number was selected because it represented approximately the high and low 25 percent.

The second analysis of variance test on the awareness data was performed to determine what variables might influence awareness scores. Here all awareness scores were employed, in other words there were no high or low awareness groups. The form of this analysis was: 3_{μ} Tapes (positive, negative, neutral) x 3_{μ} Meditational Techniques (Wander, Suppress, Free).

It should be noted that the statistical analysis used in AOV I is somewhat controversial because +, -, and N thoughts were analyzed at the same time. Although this procedure may be questioned, it is felt that this was a valid and meaningful approach for this particular research problem.

CHAPTER III

RESULTS

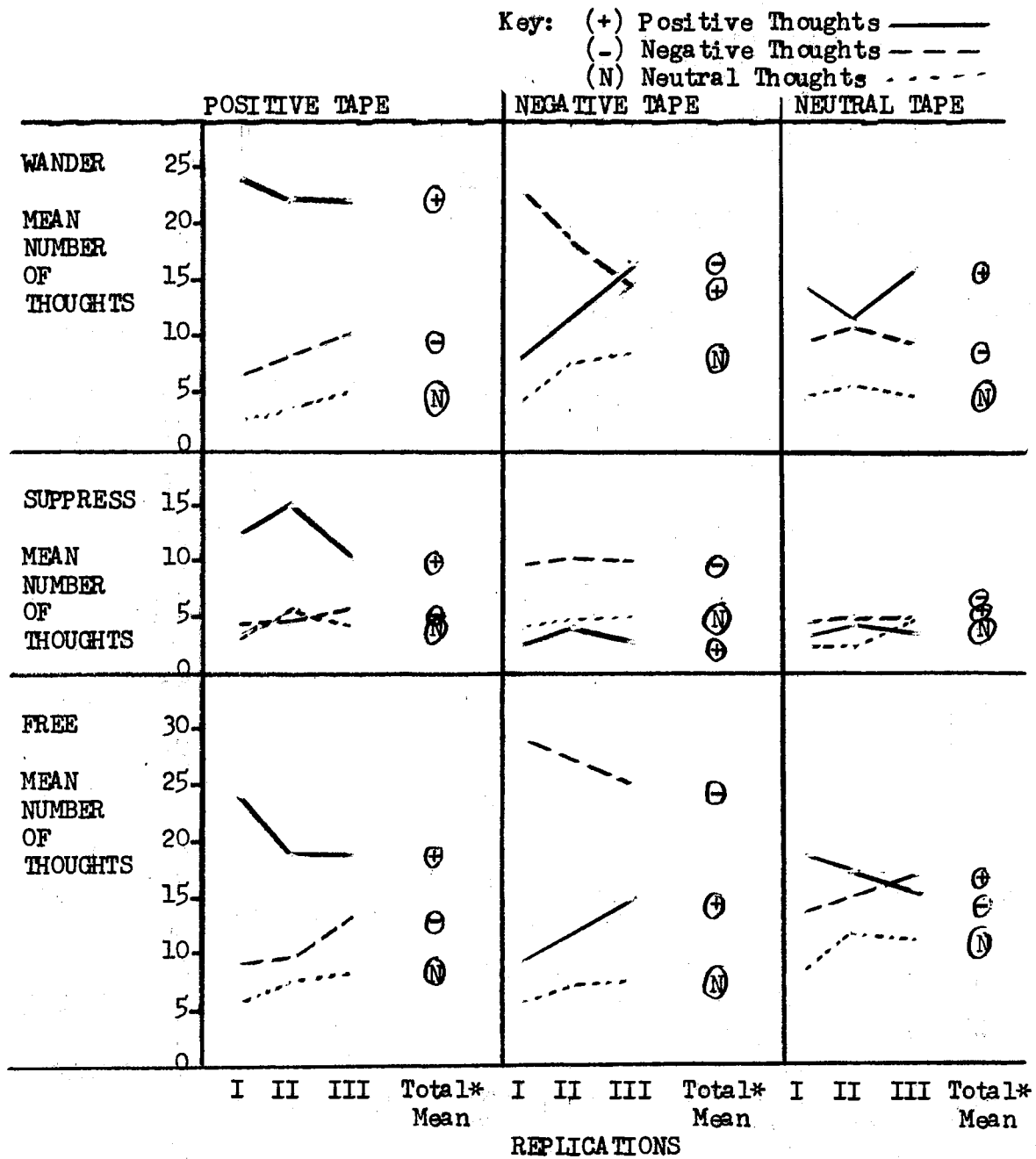
Descriptive Results

Descriptive results may be seen in Figure 3. This figure presents the mean number of +, -, and N thoughts as a function of Replications, Tape, and Meditational Techniques. Each of the means is based on 18 subjects, and Sex has been pooled for each mean. Also presented in Figure 3 is the total mean number of +, -, and N thoughts pooled across Replications.

Results of AOV I

AOV I indicated that there were statistically significant differences for the variable Meditational Technique, $F(2, 114) = 25.227$, $p < .01$. The mean number of thoughts for each of the Meditational Techniques were: Wander, 11.849; Suppress, 5.979; Free, 14.524. A Newman-Keuls test for Multiple Comparisons (Winer, 1962) was performed on Meditational Technique and indicated no significant differences. This is in contrast to the overall significant F value for this variable.

AOV I also indicated that there were statistically significant differences for Replications, $F(2, 288) = 8.803$, $p < .01$. The mean number of thoughts for each of the Replications was: Replication I, = 10.313; Replication II, = 10.897; Replication III, = 11.144.



* Number of +, -, N thoughts across Replication

Figure 3. Mean Number of Thoughts for Tapes, Meditational Technique, and Replications

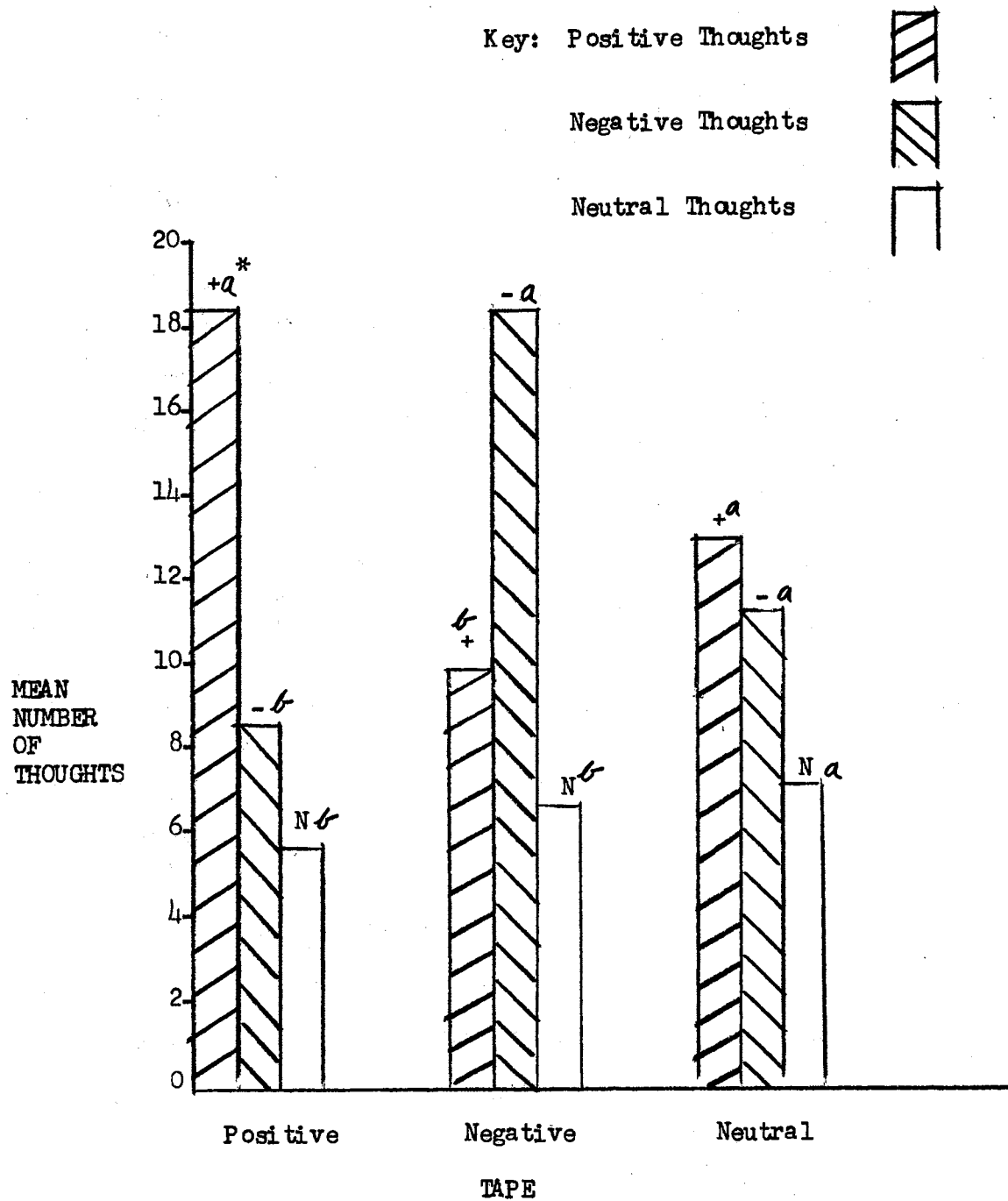
A Newman-Keuls Test of Multiple Comparisons was performed to determine if there were any statistical differences between the three means for Replications. Results indicated that the difference between Replication 1 and Replication 111 (.8312) was statistically significant with a q_r value (critical value observed difference must exceed to be statistically significant) of $q_r(288) = .8248$, $p < .05$. The differences between Replications 1 and 11 and Replications 11 and 111 were not statistically significant.

AOV I also indicated that there were statistically significant differences for Thought Categories, $F(2,288) = 29.515$, $p < .01$. The mean number of thoughts for each of the Thought Categories was: +, = 13.500; -, = 12.508; N, = 6.346.

Again a Newman-Keuls Test of Multiple Comparisons indicated that the difference between + and N thoughts (7.154) was statistically significant with a $q_r(288) = 5.008$, $p < .01$. The observed difference between - and N thought (6.163) was also statistically significant with a $q_r(288) = 4.495$, $p < .01$. The difference between + and - thoughts was not statistically significant.

AOV I also indicated that there were no statistically significant differences for the main effects of variables Tape and Sex. Because of the absence of overall significant F values no further statistical analyses of these variables was performed.

Also indicated in AOV I were two statistically significant two-way interactions. The first was the interaction of Tape by Thought Category, $F(4,288) = 15.174$, $p < .01$. Figure 4, which depicts the interaction, shows the mean number of +, -, and N thoughts for each of the three tapes. This figure indicates that at the positive tape



* Where letters differ there is statistical significance

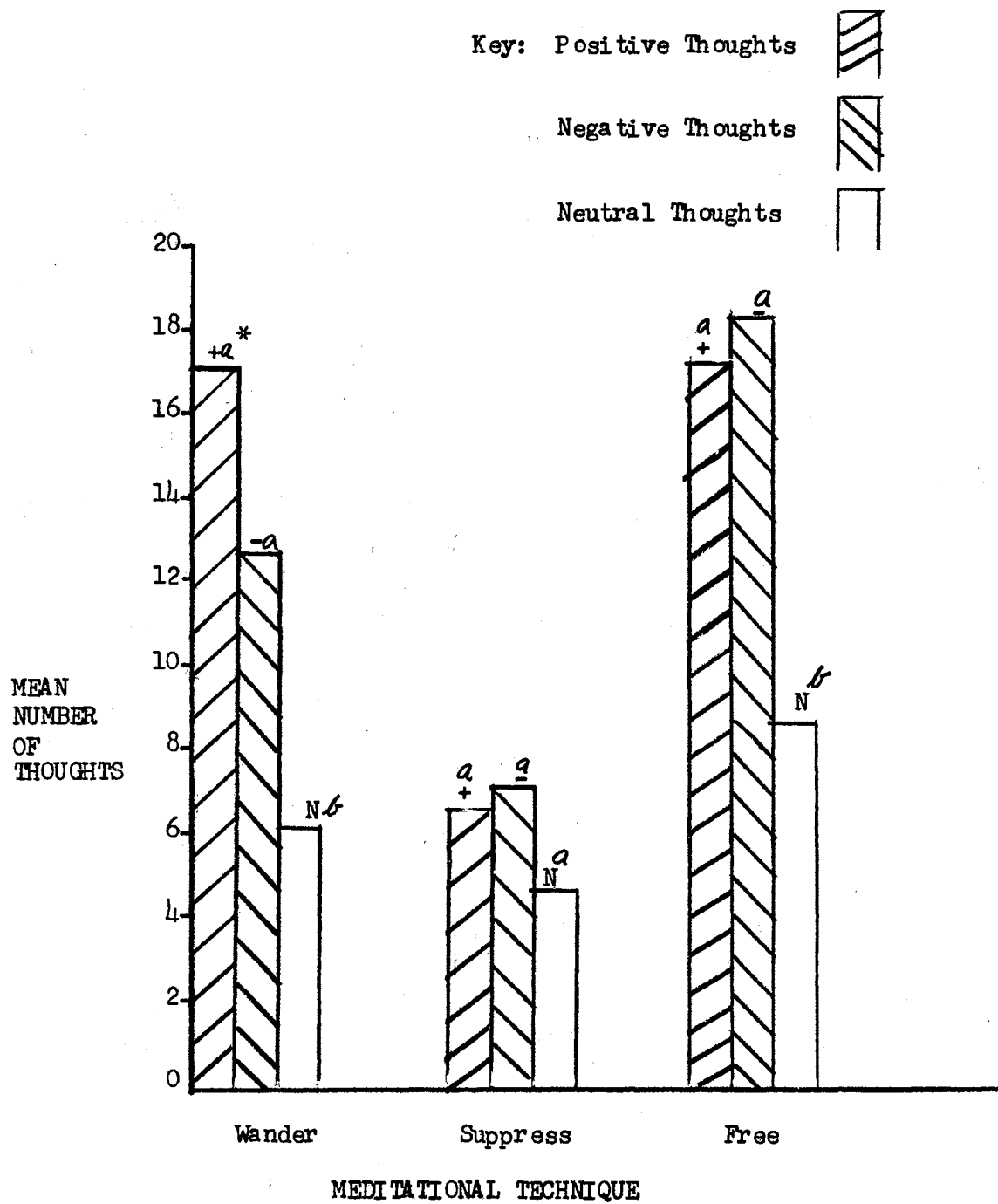
Figure 4. Mean Number of Positive, Negative, and Neutral Thoughts by Tape

there are considerably more + thoughts than either - or N thoughts. At the negative tape there are considerably more - thoughts than either + or N thoughts. At the neutral tape there are more + and - thoughts than N thoughts. Thus Figure 4 shows the tendency of positive and negative tapes to elicit respective + and - thoughts.

A Newman-Keuls Test of Multiple Comparisons was performed to determine if there were any statistical differences between +, -, and N thoughts for each of the three tapes. Thus comparisons were made for the mean number of +, -, and N thoughts at the positive, negative and neutral tapes.

Results indicated at the positive tape the difference between + and - thoughts (10.099) was statistically significant with $q_r(422) = 6.393$, $p < .05$. The difference between + and N thoughts (12.667) was also statistically significant with $q_r(432) = 7.639$, $p < .05$. The difference between - and N thoughts was not statistically significant. At the negative tape the difference between + and - thoughts (8.709) was statistically significant with $q_r(432) = 6.393$, $p < .05$. The difference between - and N thoughts (11.951) was also statistically significant with $q_4(432) = 7.639$, $p < .05$. The difference between + and N thoughts was not statistically significant. At the neutral tape there were no statistically significant differences between mean number of +, -, and N thoughts.

The second statistically significant two-way interaction was between Meditational Technique by Thought Category, $F(4,288) = 4.492$, $p < .01$. Figure 5, a plot of this interaction, shows the mean number of +, -, and N thoughts at each of the three Meditational Techniques. This figure indicates that for both Wander and Free Meditational



* Where letters differ there is statistical significance

Figure 5. Mean Number of Positive, Negative, and Neutral Thoughts by Meditational Technique

Technique conditions there is a high frequency of + and - thoughts with relatively low frequency of N thoughts. Also noticeable is the relatively low number of +, -, and N thoughts in the Suppression Meditational Technique, thus indicating that suppression reduces the frequency of all types of thought. Also present in AOV I was a three-way interaction between Tapes by Replications by Thought Category, $F(8,576) = 4.286, p < .01$.

A Newman-Keuls Test of Multiple Comparisons was performed to determine if there were any statistically significant differences between +, -, and N thoughts at each of the three Meditational Techniques. See Figure 5 for the Meditational Technique by Thought Category interaction. Thus comparisons were made for the mean number of +, -, and N thoughts at the Wander, Suppress, and Free Meditational Techniques.

Results indicated that at the Wander Meditational Technique the difference between - and N thoughts (6.562) was statistically significant with $q_r(432) = 6.393, p < .05$. The difference between + and N thoughts (10.635) was also statistically significant with $q_r(432) = 7.639, p < .05$. The difference between + and - thoughts was not statistically significant. At the Suppress Meditational Technique no statistically significant differences between means of +, -, and N thoughts were noted. At the Free Meditational Technique the difference between + and N thoughts (8.796) was statistically significant with $q_r(432) = 6.393, p < .05$. The difference between - and N thoughts (9.611) was also statistically significant with $q_r(432) = 7.639, p < .05$. The difference between + and - thoughts was not statistically significant.

There were no significant differences between means for the 3₆ Order (Wander, Suppress, Free; Free, Suppress, Wander; Suppress, Wander, Free) x 3₃ Thought Categories (+, -, N) analysis of variance. Appendix G presents the analysis of variance summary table. This result suggests that the three orders of presentation for Meditational Technique (Practice A, B, C) had no statistically significant influences on the mean output of +, -, and N thoughts.

MAACL Results

Figure 6 presents the mean number of + and - thoughts for subjects scoring high and low on the three MAACL scales (Anxiety, Depression, Hostility). This figure indicates that those subjects who score high on the Anxiety, Depression, and Hostility scales tend to have more - thoughts than + thoughts. Whereas subjects scoring low on the Anxiety, Depression, and Hostility scales tend to have more + thoughts than - thoughts. Note that the means for N thoughts do not appear in Figure 6. They were deleted because the + and - thoughts are mainly of interest. The means for N thoughts for high and low Anxiety respectively were, 5.51 and 6.08; the means for N thoughts for high and low Depression were respectively, 5.49 and 6.48; and the means for N thought for high and low Hostility were, 5.45 and 7.43.

All MAACL scores represent change scores. In other words, a given subject's before MAACL score was subtracted from his after MAACL score. Thus a positive change score indicates an increase in either Anxiety, Depression or Hostility depending upon which scale is of interest. A negative difference indicates a decrease in Anxiety, Depression or Hostility. It should be noted that the means and ranges for the

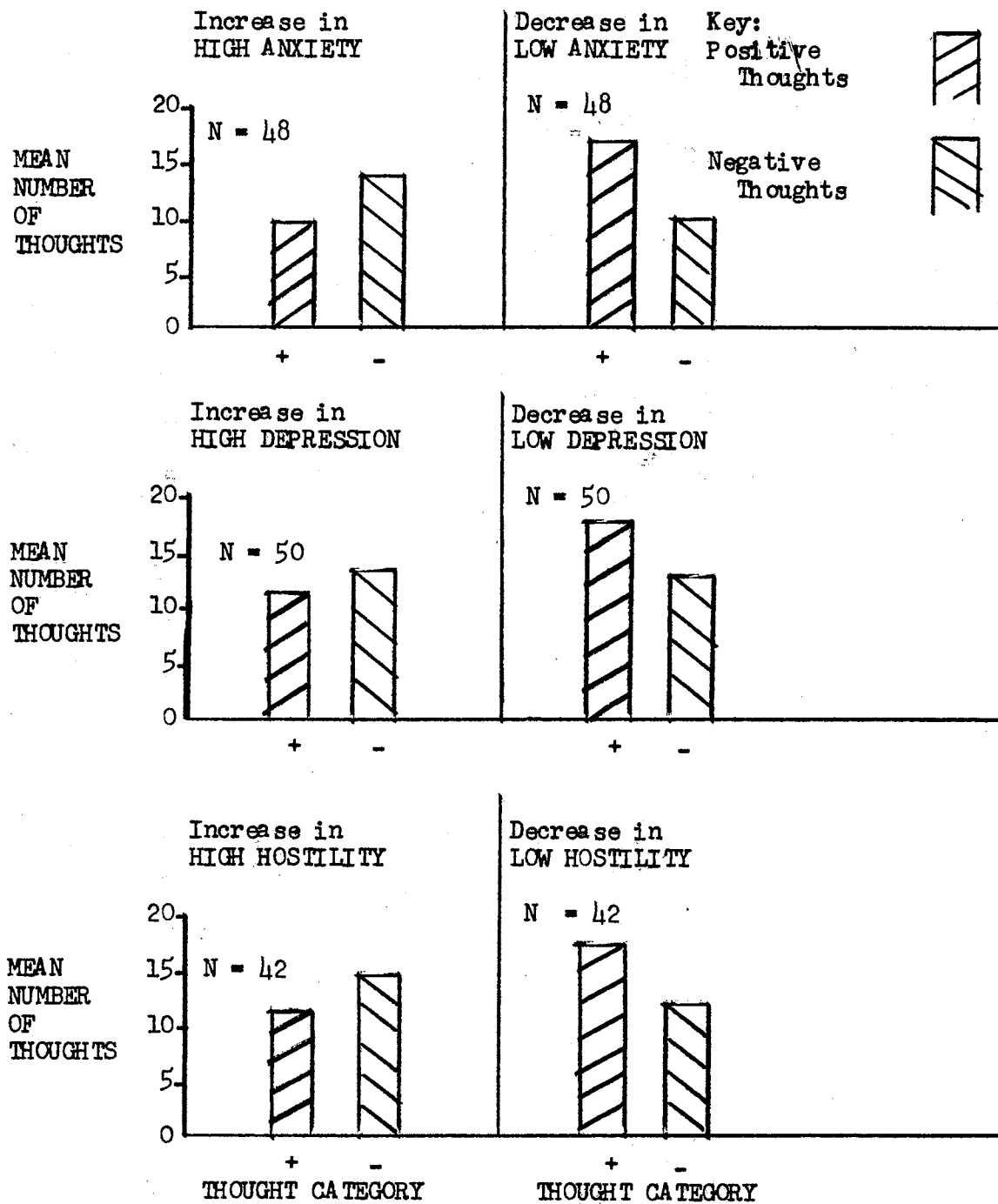


Figure 6. Mean Number of Positive and Negative Thoughts for High and Low Groups on Anxiety, Depression, and Hostility

Anxiety, Depression and Hostility scales are different and are therefore not comparable. See Appendix C for the means of these scales.

Three analyses of variance tests were performed, one for each of the three MAACL scales, to determine what influence MAACL change scores had on Thought Categories and Replications. It should be emphasized that these analyses of variance tests were performed on three different samples of subjects who scored either high or low on each of the three MAACL scales. In other words, two groups were randomly formed for each of the three MAACL scales, one group containing only high scores (increases in either Anxiety, Depression, or Hostility) the other containing only low scores (decreases in either Anxiety, Depression, or Hostility). The mean MAACL change scores for the high and low Anxiety groups were respectively +4.98 and -2.98, with 48 subjects in each group. The mean change score for the scoring high and low groups in Depression were respectively +7.40 and -3.60 with 50 subjects in each group. Finally the mean change score for the high and low groups in Hostility were respectively +5.45 and -3.26 with 42 subjects in each group. The sampling procedure for obtaining high and low groups is discussed in Appendix C.

In general the three analyses of variance tests for the three MAACL scales took the form: 3_{u} Replications (I, II, III) x 3_{u} Thought Categories (+, -, N) x 2_{u} MAACL Scores (high, low). This general design was used for each of the three MAACL scales, depending upon which one was being analyzed. Appendix H presents the summary tables for each of the three analyses of variance tests.

For each of the analyses of variance tests the main effects of variables Replications and Thought Categories were significant. The

significance of these variables is discussed in AOV I and, as they represent values based on only a sample of the 162 subjects, are of no major significance in relationship to MAACL change scores. In other words, the significance of Replications and Thought Categories was established in AOV I, with all subjects being used in the analysis, whereas only samples of subjects who scored either high or low in MAACL change scores were used in this analysis. Present interest centers upon the simple main effects of MAACL by Thought Category, to see how MAACL change scores are related to +, -, and N thoughts.

The F value for high and low Anxiety by Thought Category interaction was $F(2,188) = 8.908$, $p < .01$. The F value for high and low Depression by Thought Category interaction was $F(2,196) = 4.682$, $p < .05$. The F value for high and low Hostility by Thought Category interaction was $F(2,164) = 2.764$, $p < .10$. Each of these simple main effects are represented in Figure 6, page 56.

Figure 6 then reveals statistically significant differences in the output of +, -, and N thoughts for those scoring high and low in both Anxiety and Depression. In other words, subjects who score high in Anxiety have more - thoughts than those scoring low in Anxiety, whereas those scoring low in Anxiety have many more + thoughts than those scoring high in Anxiety. On the Depression scale, those scoring high have many more - thoughts than those scoring low on Depression, whereas those scoring low on Depression have many more + thoughts than those scoring high on this scale. No statistically significant differences were observed for the high and low Hostility groups.

A second analysis of variance was performed on MAACL change scores. The purpose of this analysis was to determine what variables

are causing changes in MAACL scores. The variables of interest in this analysis were Tapes and Meditational Techniques. In this particular analysis all MAACL change scores were used, in other words, subjects were not divided into high and low groups.

The general design for this analysis of variance test took the form: 3₄ Tapes (Positive, Negative, Neutral) x 3₄ Meditational Techniques (Wander, Suppress, Free). There were actually three analyses of variance tests, one for each of the MAACL scales. Results indicated that the only significant variable was tapes (see Appendix I for summary tables). The F value, for tapes in the Anxiety scale analysis of variance was, $F(2,153) = 16.225$, $p < .01$. The F value for tapes in the Depression scale was $F(2,153) = 14.806$, $p < .01$. The F value in the Hostility scale was, $F(2,153) = 6.710$, $p < .01$. These statistically significant values indicate that MAACL change scores are strongly influenced by tape. All F values for the variables Meditational Technique and Tape by Meditational Technique were not significant. Thus neither Meditational Technique nor the combination of Meditational Technique and Tape influenced MAACL change scores. The change scores were produced by the exposure to a particular tape.

Table I shows the mean MAACL change score for Anxiety, Depression, and Hostility for each of the three tapes. This table shows clearly that the negative tape is strongly increasing Anxiety, Depression, and Hostility, whereas the positive tape is reducing Anxiety, Depression, and Hostility. The neutral tape falls somewhere in between the effects of the positive and negative tapes. In sum these results indicate that tapes strongly influence MAACL change scores.

Table II presents the mean MAACL change scores for Anxiety,

TABLE I
 MEAN MAACL CHANGE SCORES FOR ANXIETY,
 DEPRESSION, AND HOSTILITY FOR
 POSITIVE, NEGATIVE, AND
 NEUTRAL TAPES

		TAPE		
		Positive	Negative	Neutral
MEAN MAACL CHANGE SCORE	Anxiety**	-.77*	+3.55	+1.09
	Depression	-.14	+7.06	+3.04
	Hostility	+.15	+3.28	+1.76

* A + indicates an increase in Anxiety, Depression, or Hostility
 A - indicated a decrease in Anxiety, Depression, or Hostility

** Note that measures of Anxiety, Depression and Hostility are on
 different scales (see Appendix C)

TABLE II
 MEAN MAACL CHANGE SCORE FOR ANXIETY,
 DEPRESSION, AND HOSTILITY FOR
 WANDER, SUPPRESS, AND FREE
 MEDITATIONAL TECHNIQUES

		MEDITATIONAL TECHNIQUE		
		<i>w</i>	<i>s</i>	<i>f</i>
MEAN MAACL CHANGE SCORE	Anxiety	+1.72	+0.83	+1.31
	Depression	+3.31	+2.76	+3.87
	Hostility	+1.43	+1.69	+2.08

Depression, and Hostility for the Meditational Techniques of Wander, Suppress, and Free. Here one sees the rather consistent influence of Meditational Technique for all three MAACL scales on MAACL change scores. This indicates that Meditational Technique has only a minor influence on MAACL change scores.

Awareness Questionnaire Results

A 3_{μ} Replications (1, 11, 111) x 3_{μ} Thought Categories (+, -, N) x 2_{μ} Awareness (High, Low) analysis of variance was performed to determine what influence high and low awareness had on output of +, -, and N thoughts. The mean for those scoring high in awareness was 7.90 (N = 40). The mean for those scoring low in awareness was 3.63 (N = 40). The analysis indicated that there were no statistically significant differences for the variable Thought Categories or for the Awareness by Thought Categories interaction. This result suggests that there are no significant differences in output of +, -, and N thoughts for high and low awareness groups. See Appendix J for summary tables and discussion of the sampling procedure used for selecting high and low awareness groups.

A second analysis of variance was performed to determine what variables if any, were influencing Awareness scores. Here all Awareness scores were employed, in other words there were no high or low awareness groups. The form of this analysis was: 3_{μ} Tapes (Positive, Negative, Neutral) x 3_{μ} Meditational Techniques (Wander, Suppress, Free). See Appendix K for summary table. Results indicated that the only statistically significant variable was Tapes with $F(2,153) = 4.091, p < .05$. This means that the type of tape influenced Awareness,

although the differences are not large.

The mean Awareness scores (range from 0-11, where 0 represents lowest awareness and 11 highest awareness) were: for positive tape 4.94, for negative tape 5.72, and for neutral tape 5.77. This result suggests that subjects who heard the neutral tape were most aware of the purpose of the experiment. This result suggests that the effects of positive and negative tape variation cannot be attributed to awareness. In other words, one can assume that there was only a minimum of information in the neutral tape which could have resulted in high awareness, whereas one would expect either the positive or negative tape conditions to give more clues as to what type of thought, or general awareness, was expected.

The mean Awareness scores for Meditational Technique were: Wander = 5.46, Suppress = 5.57, Free = 5.41. This result indicates that there was very little difference in awareness attributable to Meditational Technique. Hence the original significant effect of Meditational Technique (see AOV I, Appendix F) was not attributable to high awareness.

CHAPTER IV

DISCUSSION

Discussion of AOV I

The overall mean number of +, -, and N thoughts may best be seen in the analysis of Thought Categories in AOV I, see page 50 for means. Here one finds, across all conditions (Meditational Technique, Tapes, Replications, and Sex), that subjects tend to produce the same number of + and - thoughts, with considerably fewer N thoughts. This suggests that the general rate of production of + and - thoughts is about the same, with significantly fewer N thoughts. It seems that N thoughts serve a kind of residual purpose. In other words, if one grants that the organism is almost always cognitively active, then N thoughts serve to "fill up" a hypothetical "cognitive space" left vacant by the absence of + and - thoughts. This is a speculative view, but perhaps explains the relatively small number of N thoughts. Given the observed relative frequencies of +, -, and N thoughts, the next question becomes: what factors influence this general rate?

One of the major findings was that the type of tape strongly influenced the relative frequencies of affective thought contents. Specifically the positive tape produced a high number of + thoughts and a low number of - thoughts, whereas the negative tape produced a high number of - thoughts and a low number of + thoughts (see Figure 4, page 51). This result suggests that like stimuli (Tape) produce like

thought contents. On the other hand, the neutral tape seems to have no strong influence on +, -, or N thoughts, as one would expect on an intuitive basis. Also of note is that one finds about the same frequency of N thoughts across tapes, supporting the idea that N thoughts serve as a kind of residual category. It appears then that affective daydream content can be modified by external stimuli (tapes) and that this modification occurs in a predictable manner.

If one grants that + and - thoughts are capable of being modified by external stimuli, one can raise the question: what is the course of output of + and - thoughts over time, or stated differently, how does this modification vary over time? Information concerning this issue can be obtained by looking at the influence of Replications on thought contents for the positive and negative tape (Figure 3, page 49).

This data suggests that + thoughts decrease and - thoughts increase under the positive tape condition for all three Meditational Techniques. Whereas - thoughts decrease and + thoughts increase under the negative tape condition for all three Meditational Techniques. It should be noted that this pattern is most pronounced for the Wander and Free Meditational Techniques and less so for the Suppression Meditational Technique. This may be occurring because there are, in general, fewer thoughts under suppression and therefore differences become less pronounced.

This result can be explained by the general theoretical scheme proposed by Singer (1961) and Antrobus (1964). This theory assumes that only a limited number of cognitive operations can be performed on either external or internal channels. They further assume as the

limit for the number of operations is approached the individual will favor one channel over another. In terms of the present results one can think of the production of + thoughts under the positive tape condition as representing an external channel and - thoughts under the positive tape as representing an internal channel. If one uses this scheme on the present data one notices that there is a shift from low frequency of + thoughts to a high frequency of - thoughts under the positive tape indicating perhaps a shift from external channel usage to internal channel usage. In other words, one can assume that subjects are approaching their external channel limit (Replication I) and gradually moving to the internal channel (Replication III). One difficulty with this scheme is that one needs to assume that the first exposure to a positive or negative tape is serving as an approximation to an external channel limit. In other words, one is assuming that the positive and negative tapes serve as a strong source of positive and negative stimulation. This notion is supported by the fact that the positive and negative tapes seem to have strongly influenced the emotional states of subjects as evidenced by the large changes in MAACL scores due to tapes. Since there were only three Replications in the present research one can only speculate as to the form of the curves in Figure 3 for + and - thoughts under the positive tape with the addition of more Replications. It may be that + and - thoughts would tend to reach similar frequencies. This remains an interesting theoretical question which could be easily tested empirically by increasing the number of Replications.

The movement from external to internal channels also seems to hold for the negative tape condition. Here one sees a decrease in -

thoughts and an increase in + thoughts over the three Replications for all three Meditational Techniques. This supports the notion that as subjects approach the limit of cognitive operations they shift from one channel to another. One also seen in Figure 3 a gradual increase in N thoughts over all Tapes and Meditational Techniques from Replication 1 to Replication III. One can also think of N thoughts under the positive and negative tapes as being internal responses. Thus one also sees a gradual movement to internal channels for N thoughts.

As one would expect, since neutral tapes do not represent a strong source of external stimulation, one would find little tendency in subjects to move from external to internal channels. This notion is supported when one sees, in general, smaller differences between + and - thoughts under the neutral tape as compared to + and - thoughts under either the positive or negative tape.

Another major finding was that the mean number of + and - thoughts combined seem to be about the same for the Wander and Suppress Meditational Techniques and show a considerable reduction under the Suppression Meditational Technique. Neutral thoughts also show the same general pattern under Suppression but differences are less pronounced because of the fewer number of total N thoughts (see Figure 5, page 53). The finding that Wander and Free Meditational Techniques have about the same number of +, -, and N thoughts indicates, perhaps, that subjects are performing similar operations during these instructions. It is felt that this can be explained by the fact that there does not seem to be any large differences in instructions for Wander and Free Meditational Techniques. Instructions being for the Wander Meditational Technique, "let your thoughts wander, do not dwell on any

one thought" and the instructions for the Free Meditational Technique, "you are on your own in terms of what or how you choose to think".

The finding that Suppression instructions seem to work equally well for + and - thoughts has some support in previous research. In a study of thought suppression (Singer and Antrobus, 1965) subjects were asked to imagine persons they liked, disliked, or towards whom they were neutral, and then suppress the thoughts. Results indicated that the type of content did not make much difference in frequency of suppression. In other words suppression works equally well for +, -, and N affective content. Another major result of this Singer and Antrobus (1965) study was that suppression was accompanied by eye movements, both under eyes covered and eyes uncovered conditions, while daydreaming. The fact that there were eye movements under suppression instructions may indicate that there may be very real differences between Suppression and the Wander or Free cognitive processes.

Discussion of MAACL Results

Analysis of MAACL results indicates that subjects who show increases in either Anxiety, Depression, and to a lesser extent Hostility, have a high number of - thoughts and a low number of + thoughts. On the other hand, subjects who show decreases in Anxiety, Depression, and to a lesser extent Hostility, have a higher number of + thoughts and a lower number of - thoughts (see Figure 6, page 56). This result supports the common clinical observation that individuals who are anxious, depressed, or hostile tend to have negative thoughts (feelings) about self or others (Beck, 1967). It is interesting to note

that the frequency of N thoughts tend to be about the same for both high and low groups on Anxiety, Depression, or Hostility, thus indicating that N thoughts are not influenced by emotional state. This supports the notion that N thoughts are essentially a residual group of thoughts as compared to either + or - thoughts.

Also of interest with reference to MAACL change scores, was the pronounced influence of the tape recordings. Results showed that the negative tape produced increases in Anxiety, Depression, and Hostility, whereas the positive tape produced decreases in Anxiety, Depression, and Hostility. This suggests that the MAACL is a highly sensitive instrument able to reveal momentary changes in emotional states due to tapes (see Table I, page 60).

Analysis of the MAACL change scores in relationship to Meditational Technique reveals that the Suppression technique had some influence on mood. It appears that suppression decreased both Anxiety and Depression, and to a lesser extent Hostility, as well as reducing the total number of +, -, and N thoughts (see Table II, page 61). This suggests that subjects are actually "putting out of mind" the negative tape and are therefore less anxious and depressed.

It is also interesting to speculate as to the relationship between Tapes, Thought Categories, and emotional state. It appears that the tapes are strongly influencing emotional state and that perhaps thoughts mediate between tapes and emotional state. For example, one hears the negative tape, has - thoughts, and a subsequent increase in anxiety and depression. This chain seems to hold for both positive and negative tapes. In other words, one hears the positive tape, has + thoughts, and a subsequent decrease in anxiety and depression. There

remains another possible explanation for this effect, namely that there was an influence of demand characteristics in this experiment.

Discussion of Awareness Questionnaire

The data from the Awareness Questionnaire suggests that there was a minimum of demand characteristics. For example, there were no statistically significant differences between output of +, -, and N thoughts as a function of high and low awareness (see Appendix J). Also indicating the lack of demand characteristics was the result that those who heard the neutral tape had the highest awareness scores. In other words, one can assume that there was only a minimum of information in the neutral tape which could have resulted in high awareness, whereas one would expect either the positive or negative tape conditions to give more clues as to what type of thought, or general awareness, was expected. Stated differently, the fact that those who heard the neutral tape had highest awareness indicates an absence of demand characteristics because neutral tapes give a minimum of information about the experiment.

CHAPTER V

CONCLUSIONS

This research was designed to measure affective content of daydreaming. It was required of subjects to score affective content of daydreams into the categories of positive, negative and neutral thought categories. The number of thoughts per unit time was the dependent variable. There was a total of 162 subjects broken into nine groups of 18 subjects. Each set of three groups was to hear either a positive, negative, or neutral tape recording. Within each of the tape conditions each one of the three groups was randomly assigned to one of the three different Meditational Techniques, either Wander, Suppress, or Free. A trial consisted of a 100-second time interval during which subjects scored thought contents. There were a series of three identical trials called Replications. Thus a given group of 18 subjects would hear a tape and score subsequent thought contents using a Meditational Technique, hear the same tape and score contents, use the same Meditational Technique, and finally again hear the same tape and again score contents using the same Meditational Technique. Sex was equally divided in each of the nine groups. It was also requested that subjects complete the Multiple Affect Adjective Checklist (MAACL) as a before and after measure. An Awareness Questionnaire, to assess demand characteristics, was completed by subjects at the conclusion of the experiment.

Results indicated that the independent variable of tape effect strongly the relative frequency of different thought categories. In other words, positive tapes produce positive thoughts and negative tapes produce negative thoughts. It was also discovered that frequencies for positive, negative, and neutral thoughts were about the same for the Wander and Free Meditational Techniques with all thoughts being considerably reduced under Suppression. Replications tended to reduce the number of positive thoughts under the positive tape. The number of negative thoughts under the negative tape also decreased over Replications. MAACL results indicated that those who score high in Anxiety, Depression, and Hostility tend to have negative thoughts and those who score low in Anxiety, Depression, and Hostility tend to have positive thoughts. No differences were noted for neutral thoughts. Awareness Questionnaire results indicated no strong demand characteristics evident in this experiment. The data indicates that first, it is possible to measure affective content of daydreams, second this content is capable of being modified by external stimuli (Tapes), third, contents change over time (Replications). It was also concluded that emotional state can effect daydream content.

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APPENDIXES

APPENDIX A

A COPY OF INSTRUCTIONS

Tape On: This study is aimed at exploring memory. You will be asked about the contents of your thoughts. Specifically, I would like you to classify your thoughts into positive, negative, and neutral contents. Use as a guide what you feel are the conventional meanings of your thoughts. For example, if you think of someone getting ill most people would consider this negative content. A thought about success in a chosen profession would, for most, be considered positive content. A neutral thought might be one in which you think of the letters of the alphabet or a string of digits. In general, neutral thought may be understood as thought in which you feel most people have neither positive nor negative feelings. You will be asked to signify the content of your thought by writing, on the response sheet, a plus sign for positive content, a minus sign for negative content, and a capital N for neutral content. Before going further let's practice scoring some thoughts. I will read a possible thought and would like you to write whether you feel that most people would feel it is either positive, negative, or neutral in content. You may write your judgments on the response sheet where it says Practice A. (Mark each judgment next to digits 1 through 15.) I will also write along with you on the blackboard.

1. getting a fail notice at mid-term	<u>-</u>
2. seeing an old friend	<u>+</u>
3. thinking of a chair	<u>N</u>
4. a steak dinner	<u>+</u>
5. imagining a map	<u>N</u>
6. losing your wallet	<u>-</u>
7. getting in trouble	<u>-</u>
8. thinking of a pencil	<u>N</u>
9. having a good night's sleep	<u>+</u>
10. feeling thirsty	<u>-</u>
11. having romantic success	<u>+</u>
12. imagining a hat stand	<u>N</u>
13. graduating from college	<u>+</u>
14. looking clumsy	<u>-</u>
15. leaving the bathroom	<u>N</u>

Now: In order to record your judgments in the correct manner, you will be asked first to draw a diagonal line on the response sheet when you hear me say the word "line". Then I would like you to immediately begin recording your positive, negative, and neutral thoughts as each one occurs. Every once in a while I will say the word "line", you are to draw a diagonal line and then just keep on writing your judgments. You will stop recording judgments when you hear me say the word "stop". In other words, you will begin making judgments when you hear the word "line" and continue writing remembering to make a diagonal line of the response sheet whenever you hear me say the word "line". You will stop writing when you hear the word "stop". As you

move along scoring thoughts I would like you to cover your previous judgments with the cover sheet. Just cover up each top line as you go along. Before we begin classifying thoughts on the response sheet, I will demonstrate what you are to do on the blackboard.

Tape off, demonstration on blackboard and a single practice trial for subjects.

Tape On: Now that you have a good idea about how to both judge your thoughts into positive, negative, and neutral contents and how to write them on the response sheet, there are also various strategies or ways of thinking you can adopt while you are scoring thoughts. For our purposes we will be using three different strategies. In the first, called Strategy W, you will be asked to try and let your thoughts wander. In other words, while you are making judgments do not dwell on any one thought. Remember in Strategy W you are to try and not think about any particular subject, just let your mind wander. A second way of thinking called Strategy S involves trying to suppress all thought while you score the thoughts that do occur. In other words, try to control your mind by not thinking of any thought. Remember judge the thoughts that do occur in the same way. That is a plus for positive content, a minus for negative content and a capital N for neutral content. Again remember in Strategy S cut out thoughts as much as possible but you will not be able to do this entirely--some thoughts will occur. This is a fairly difficult task so try not to be discouraged if you have some difficulty.

A third way of thinking, called Strategy F for free thought involves having you think of what you want to while you are scoring thought content. In this F Strategy you will be on your own in terms

of what or how you choose to think. In other words in F Strategy you are to think of what you will. There is no particular way that I would like you to think, think freely in Strategy F.

Now just to recap, you are to score the contents of your thoughts according to their conventional meanings into the categories of positive content, signified by making a plus sign, negative content, signified by making a minus sign, and neutral content, signified by making a capital N. When you hear the word "line" you make a diagonal line on the response sheet and immediately begin scoring contents. Score each thought as it occurs remembering to make a diagonal line and continue scoring when you hear the word "line". Stop scoring contents immediately upon hearing the word "stop".

Remember to cover previous responses with the cover sheet. You will be instructed before writing thought contents as to which of the three Strategies you are to adopt while making judgments. To review, the three Strategies are:

Strategy W, in which you will be asked to let your thoughts wander.

Strategy S, in which you will be asked to try and suppress all thought and score those thoughts that do occur.

And finally Strategy F, in which you will be asked to think freely. In other words, there are no rules for the way in which you are to think in Strategy F. Are there any questions?

The following is a copy of non-taped instructions (verbally presented) used for practice trials A, B, and C. The order of presentation is: Wander, Free, Suppress. Identical instructions were used for orders: Suppress, Wander, Free; and Free, Suppress, Wander, except, of course, different groups were assigned different orders.

Okay, begin classifying your thoughts as each one occurs, on the response sheet next to line #1. Remember cover previous responses with the cover sheet. While you are classifying thoughts I would like you to adopt Strategy W. The one in which you are asked to let your thoughts wander. (At this point subjects would perform task for 100 seconds.)

Now moving to line #2: While you are classifying thoughts, as each one occurs I would like you to adopt Strategy F. The one in which you are to try and think freely. Remember there are no rules for the way in which you are to think in Strategy F. (At this point subjects would perform task for 100 seconds.)

Now moving to line #3: While you are classifying thoughts, as each one occurs I would like you to adopt Strategy S. The one in which you are to try and suppress your thoughts while scoring those that do occur. (At this point subjects would perform task for 100 seconds.)

The following is the set of instructions (non-taped, verbally presented) used on trials one, two, and three for the Meditational Technique of Suppression. Identical instructions were used for the Meditational Techniques of Wander and Free, for groups assigned to those conditions.

Now I would like you to listen closely to a brief tape recording. Please close your eyes while listening to the tape. At the conclusion of the tape I would like you to score contents beginning on line #4. Adopt Strategy S, the one in which you are asked to try and suppress thoughts while scoring those that do occur. Remember cover previous responses with the cover sheet. Any questions? Okay, here is the tape. (At this point subjects would

listen to the tape recording and then immediately begin scoring contents for a 100-second time interval when the tape ended.)

Now you will again hear the tape, continue scoring contents as each one occurs beginning on line #5, again adopting Strategy S. Remember to please close your eyes while listening to the tape. Okay, here is the tape. (At this point subjects would listen to the tape recording and then immediately begin scoring contents when the tape ended.)

Now you will again hear the tape, continue scoring contents as each one occurs beginning on line #6, again adopting Strategy S. Remember to close your eyes while listening to the tape. Okay, here is the tape. (At this point subjects would listen to the tape recording and then upon its conclusion score contents for a final 100-second interval.)

At the conclusion of trial three subjects were asked to complete the MAACL and then the Awareness Questionnaire. Finally subjects were thanked for participating in the experiment.

APPENDIX B

A SAMPLE RESPONSE SHEET

Age _____ Sex _____ Class _____

Key:

Content:

+ = Positive content

- = Negative content

N = Neutral content

Strategy:

W = Thoughts wander

S = Suppress thoughts

F = Free thoughts

Practice A:

1. _____ 2. _____ 3. _____ 4. _____ 5. _____
6. _____ 7. _____ 8. _____ 9. _____ 10. _____
11. _____ 12. _____ 13. _____ 14. _____ 15. _____

Practice B:

Practice Trial A

1.

Practice Trial B

2.

Practice Trial C

3.

4.

5.

6.

APPENDIX C

A DESCRIPTION OF THE MAACL

The Multiple Affect Adjective Checklist (MAACL) is ideally suited for studies requiring repeated measurements of affect over time. One of its major advantages being that it takes only a few minutes to complete. A second advantage is the subjects receive one point for items checked and one point for items not checked, thus providing the scales with a reasonable amount of face validity.

All MAACL scores used in this experiment were change scores. That is before scores were subtracted from after scores. The procedure used for selecting high and low groups for each of the three scales (Anxiety, Depression, and Hostility) was:

1. Delete from the total of 162 subjects all subjects who showed no changes in before minus after scores, i.e., zero change scores.
2. Employ all subjects who showed decreases in either Anxiety, Depression, or Hostility as the low group, i.e., higher before scores than after scores (this group was always smaller than those showing increases).
3. A stratified sample matching the distribution of those scoring low was selected from the individuals scoring high in either Anxiety, Depression, or Hostility (those having larger after scores than before scores).

It should be noted that the raw scores for the three MAACL scales are not comparable and must be transformed to t scores with a $X = 50$ and $SD = 10$. Raw scores for the three scales for subjects participat-

ing in this experiment fall well within published norms (Zuckerman and Lubin, 1970). For example, t score values for the 162 subjects on the before MAACL were: Anxiety = 48; Depression = 47; and Hostility = 48, thus indicating that subjects used in this research fall well within established norms. On pages 88 and 89 one can find a sample of instructions used and a test form.

Today Form

DIRECTIONS: On this sheet you will find words which describe different kinds of moods and feelings. Mark an X in the space beside the words which describe how you feel now--today. Some of the words may sound alike, but I want you to check all the words that describe your feelings. Work rapidly.

	A	D	H		
1	active	36	discouraged	71	kindly
2	adventurous	37	discouraged	72	lonely
3	affectionate	38	disgusted	73	lost
4	afraid	39	displeased	74	loving
5	agitated	40	energetic	75	low
6	agreeable	41	enraged	76	lucky
7	aggressive	42	enthusiastic	77	mad
8	alive	43	fearful	78	mean
9	alone	44	fine	79	meeek
10	amiable	45	fit	80	merry
11	amused	46	forlorn	81	mild
12	angry	47	frank	82	miserable
13	annoyed	48	free	83	nervous
14	awful	49	friendly	84	obliging
15	bashful	50	frightened	85	offended
16	bitter	51	furios	86	outraged
17	blue	52	gay	87	panicky
18	bored	53	gentle	88	patient
19	calm	54	glad	89	peaceful
20	cautious	55	gloomy	90	pleased
21	cheerful	56	good	91	pleasant
22	clean	57	good-natured	92	polite
23	complaining	58	grim	93	powerful
24	contented	59	happy	94	quiet
25	contrary	60	healthy	95	reckless
26	cool	61	hopeless	96	rejected
27	cooperative	62	hostile	97	rough
28	critical	63	impatient	98	sad
29	cross	64	incensed	99	safe
30	cruel	65	indignant	100	satisfied
31	daring	66	inspired	101	secure
32	desperate	67	interested	102	shaky
33	destroyed	68	irritated	103	shy
34	devoted	69	jealous	104	soothed
35	disagreeable	70	joyful	105	steady

106 — stubborn
107 — stormy
108 — strong
109 — suffering
110 — sullen
111 — sunk
112 — sympathetic
113 — tame
114 — tender
115 — tense
116 — terrible
117 — terrified
118 — thoughtful
119 — timid
120 — tormented
121 — understanding
122 — unhappy
123 — unsociable
124 — upset
125 — vexed
126 — warm
127 — whole
128 — wild
129 — willful
130 — wilted
131 — worrying
132 — young

APPENDIX D

WRITTEN COPY OF THREE TAPE RECORDINGS

Positive Tape

Imagine yourself out on the lake sitting on the deck of a sailboat being gently rocked by the waves. You look up and the sun is high in the sky and you feel the warmth of the sun on your body and a gentle breeze blows through your hair and keeps you cool. As you look back, you see the fleecy white clouds and pleasant blue sky. The sea gulls are soaring with the gentle breeze. Pleasant thoughts fill your mind and you think about how wonderful everything is. As the boat is gently blown ashore, you get out and you feel the cool lake water between your toes, you step into the warm sand so nice and clean, crystalline with the reflection of the sunlight. In the distance you see people laughing and splashing in the surf and you think about how wonderful it is to be alive. As you lay on the blanket you feel the sun drying you. You close your eyes and let the breeze blow little bits of sand against your feet as you wiggle your toes in the warm sand. The sun is bright and warm and you're with pleasant friends. You feel very safe and comfortable with them. As the breeze gently lulls you to sleep your mind is filled with thoughts about how wonderful everything is.

Negative Tape

Imagine yourself stepping off the curb on your way to school. You turn around suddenly and you hear the screech of brakes and you see a car bearing down on you. You try to get out of the way but you can't and it crashes into your body. You get thrown into the air and you come down hard on the side of your face and on your stomach into the rough pavement. You feel the skin ripping off from your body and you see it laying behind you as the blood starts oozing from all parts of your body. You look up and the car is over you. You try to move but you can't and the pain aches in your side and in your head. You try to untwist your legs. As you lift your arm you can see the hand is gone and there is nothing but a jagged bloody stump. With each pounding of your heart you see the blood gushing out of the torn arteries, forming pools around your legs and in your eyes. The dirty red blood oozes from your body and the smell of burned flesh from scraping across the pavement comes into your nose. You can't move, you lock, and people are standing around staring. You want to cry for help but you can't, nobody listens to you. You just lie there in pain. You try to cry for help but as the blood fills your eyes you can't see any longer. Finally the blood oozes down your cheeks and you feel the slime from the blood and the pus and the ripped skin covering your head and someone leans over you and says, "He's a goner, he won't make it".

Neutral Tape

The following story suggests what to do if you cannot remember names. No one is ever pleased if you say, "I know your face--but I just can't recall your name". Tactful people who aren't infallible about names work out a technique for coping with these moments. If you are warmly greeted by someone whose name--or maybe whose face, too--you can't recall, say something harmless such as, "Nice to see you". Then while looking quite attentive, let the other person do the talking until he or she gives a clue as to identity. Let us hope he doesn't ever say, "You don't remember me, do you?" for your own expression should always indicate you remember him well and favorably.

If you have trouble remembering the names that match the faces, always help out the other person who is probably suffering from the same thing. Never say, "Do you remember me?" or "You don't know who I am, do you?" Instead, in greeting people you haven't seen for some time or whom you are meeting outside of your usual place of encounter, identify yourself quickly and gracefully, "How do you do, Mr. Burton. I'm Joseph Bye of Arbor Mills. We did a little business together last fall". It is certainly more modest and tactful to assume that you aren't remembered than to presume that you are.

APPENDIX E

A DESCRIPTION OF THE AWARENESS QUESTIONNAIRE

An Awareness Questionnaire was constructed to assess the presence of demand characteristics. The Awareness Questionnaire had a range from 0 to 11, with 0 representing lowest awareness and 11 highest awareness. The mean awareness score for all subjects was 5.48, with a range from 2 to 10. The subjects could score a total of 12 points, six on the subjective section (see page 94) and six on the objective section (see page 94). One point was awarded to subjects for each item "correctly" scored on the objective section. In other words if subjects scored items indicating awareness, one point was awarded. On the subjective section of the awareness questionnaire criteria were established to help distinguish between high and low awareness. The criteria were established through content analysis. High and low groups were formed by selecting the highest 40 subjects and the lowest 40 subjects, thus yielding approximately 25 percent in each group.

Questionnaire #2

1. Please write what you felt was the purpose of this experiment.

- | | <u>YES</u> | <u>NO</u> |
|--|------------|-----------|
| 1. During this experiment did you feel inclined to act in a certain way in order to help me? | --- | --- |
| 2. Do you feel that this experiment was designed to measure daydreaming? | --- | --- |
| 3. Do you feel that this experiment was aimed at exploring memory? | --- | --- |
| 4. Do you feel that this experiment was <u>not</u> designed to measure emotional factors? | --- | --- |
| 5. Did you find yourself consciously aware of trying to think certain thoughts after hearing the tapes because you felt it was expected? | --- | --- |
| 6. Do you feel that this experiment was devised to find out how quickly subjects can respond to stimuli? | --- | --- |

APPENDIX F

F VALUES FOR THE EFFECTS OF TAPE, MEDITATIONAL
TECHNIQUE, SEX, REPLICATIONS ON THOUGHT
CATEGORIES FOR TRIALS 1, 2, AND 3

Source	df	Error Term	F
A (Tapes)	2,144	S(ABC)	.8535 (NS)
B (Med. Tech.)	2,144	S(ABC)	25.2265 ***
C (Sex)	1,144	S(ABC)	.8315 (NS)
R (Replications)	2,288	SR(ABC)	8.8025 ***
U (Thought Cate.)	2,288	SU(ABC)	29.5153 ***
AB	4,144	S(ABC)	1.0390 (NS)
AC	2,144	S(ABC)	.4556 (NS)
BC	2,144	S(ABC)	.2738 (NS)
AR	4,288	SR(ABC)	.5262 (NS)
BR	4,288	SR(ABC)	1.5721 (NS)
CR	2,288	SR(ABC)	.0526 (NS)
AU	4,288	SU(ABC)	15.1744 ***
BU	4,288	SU(ABC)	4.4920 ***
CU	2,288	SU(ABC)	.6692 (NS)
RU	4,576	SRU(ABC)	1.0350 (NS)
ABC	4,144	S(ABC)	1.4461 (NS)
ABR	8,288	SR(ABC)	.5326 (NS)
ACR	4,288	SR(ABC)	1.4871 (NS)
BCR	4,288	SR(ABC)	.5999 (NS)
ABU	8,288	SU(ABC)	1.1242 (NS)
ACU	4,288	SU(ABC)	.9090 (NS)
BCU	4,288	SU(ABC)	1.5754 (NS)
ARU	8,576	SRU(ABC)	4,2865 ***
BRU	8,576	SRU(ABC)	1.4455 (NS)
CRU	4,576	SRU(ABC)	1.5399 (NS)
S(ABC)	144		1.0940 (NS)
ABCR	8,288	SR(ABC)	.8727 (NS)
ABCU	8,288	SU(ABC)	.9452 (NS)
ABRU	16,576	SRU(ABC)	1.1123 (NS)
ACRU	8,576	SRU(ABC)	.9050 (NS)
BCRU	8,576	SRU(ABC)	
SR(ABC)	288		
SU(ABC)	288		.4960 (NS)

Source	df	Error Term	F
ABCRU	16,576	SRU(ABC)	
SRU(ABC)	576		

*** p<.01

APPENDIX G

F VALUES FOR THE EFFECTS OF ORDER OF PRESENTATION OF MEDITATIONAL TECHNIQUE FOR PRACTICE TRIALS A, B, AND C ON THOUGHT CATEGORIES

Source	df	Error Term	F
O (Order)	2,159	S(0)	2.3249 (NS)
U (Thought Category)	2		
S(0)	159	SU(0)	1.7446 (NS)
OU	4,318		
SU(0)	318		

APPENDIX H

F VALUES FOR THE EFFECTS OF HIGH AND LOW MAACL
 CHANGE SCORES FOR ANXIETY, DEPRESSION, AND
 HOSTILITY AND REPLICATIONS ON
 THOUGHT CATEGORIES

F Values for the Effects of High and Low MAACL
 Change Scores for Anxiety and Replications
 on Thought Categories

Source	df	Error Term	F
A (Anxiety)	1,94	S(A)	.8692 (NS)
R (Replication)	2,188	SR(A)	5.1041 ***
U (Thought Category)	2,188	SU(A)	20.9180 ***
S(W)	94		
AR	2,188	SR(A)	.0090 (NS)
AU	2,188	SU(A)	8.9076 ***
RU	4,376	SRU(A)	.6723 (NS)
SR(A)	188		
SU(A)	188		
ARU	4,376	SRU(A)	1.6982 (NS)
SRU(A)	376		

*** p<.01

F Values for the Effects of High and Low MAACL
 Change Scores for Depression and
 Replications on Thought
 Categories

Source	df	Error Term	F
D (Depression)	1,98	S(D)	2.2037 (NS)
R (Replication)	2,196	SR(D)	11.9198 ***
U (Thought Category)	2,196	SU(D)	20.9800 ***
S(W)	98		
DR	2,196	SR(D)	.7281 (NS)
DU	2,196	SU(D)	4.6815 **
RU	4,392	SRU(D)	.2586 (NS)
SR(D)	196		
SU(D)	196		
DRU	4,392	SRU(D)	.1795 (NS)
SRU(D)	392		

*** $p < .01$

** $p < .05$

F Values for the Effects of High and Low MAACL

Change Scores for Hostility and

Replications on Thought

Categories

Source	df	Error Term	F
H (Hostility)	1, 82	S(H)	.9031 (NS)
R (Replication)	2, 164	SR(H)	4.0014 **
U (Thought Category)	2, 164	SU(H)	15.7648 ***
S(H)	82		
HR	2, 164	SR(H)	.2875 (NS)
HU	2, 164	SU(H)	2.7641 *
RU	4, 328	SRU(H)	.7353 (NS)
SR(H)	164		
SU(H)	164		
HRU	4, 328	SRU(H)	.3369 (NS)
SRU(H)	328		

* p < .10

** p < .05

*** p < .01

APPENDIX I

F VALUES FOR THE EFFECTS OF TAPE AND MEDITA-
 TIONAL TECHNIQUE OF MAACL CHANGE SCORES
 FOR ANXIETY, DEPRESSION, AND
 HOSTILITY WHERE N = 162

F Values for the Effects of Tape and Medita-
 tional Technique on MAACL Change Scores
 for Anxiety Where N = 162

Source	df	Error Term	F
A (Tape)	2,153	S(AB)	16.2251 ***
B (Med. Tech.)	2,153	S(AB)	.6801 (NS)
AB	4,153	S(AB)	1.0246 (NS)
S(AB)	153		

*** p < .01

F Values for the Effects of Tape and Medita-
 tional Technique on MAACL Change Scores
 for Depression Where N = 162

Source	df	Error Term	F
A (Tape)	2,153	S(AB)	14.8601 ***
B (Med. Tech.)	2,153	S(AB)	.3520 (NS)
AB	4,153	S(AB)	.9753 (NS)
S(AB)	153		

*** $p < .01$

F Values for the Effects of Tape and Medita-
 tional Technique on MAACL Change Scores
 for Hostility Where N = 162

Source	df	Error Term	F
A (Tape)	2,153	S(AB)	6.7135 ***
B (Med. Tech.)	2,153	S(AB)	.2971 (NS)
AB	4,153	S(AB)	1.1128 (NS)
S(AB)	153		

*** $p < .01$

APPENDIX J

F VALUES FOR THE EFFECTS OF HIGH AND LOW
 AWARENESS AND REPLICATIONS ON
 THOUGHT CATEGORIES

Source	df	Error Term	F
A (Awareness)	1,78	S(A)	3.6218 **
R (Replications)	2,156	SR(A)	8.8116 ***
U (Thought Category)	2,156	SU(A)	9.9789 ***
S(A)	78		
AR	2,156	SR(A)	.5003 (NS)
AU	2,156	SU(A)	1.2165 (NS)
RU	4,312	SRU(A)	.5733 (NS)
SR(A)	156		
SU(A)	156		
ARU	4,312	SRU(A)	.2479 (NS)
SRU(A)	312		

** p < .05
 *** p < .01

APPENDIX K

F VALUES FOR THE EFFECTS OF TAPE AND
MEDITATIONAL TECHNIQUE ON
AWARENESS SCORES WHERE

N = 162

Source	df	Error Term	F
A (Tape)	2,153	S(AB)	4.0918 **
B (Med. Tech.)	2,153	S(AB)	.1357 (NS)
AB	4,153	S(AB)	1.5611 (NS)
S(AB)	153		

** p < .05

VITA

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