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AN INVESTIGATION OF THE RELATIONSHIP OF IMAGERY CONTROL AND PERSONALITY CHARACTERISTICS IN A SHORT-TERM PSYCHOTHERAPY EXPERIENCE

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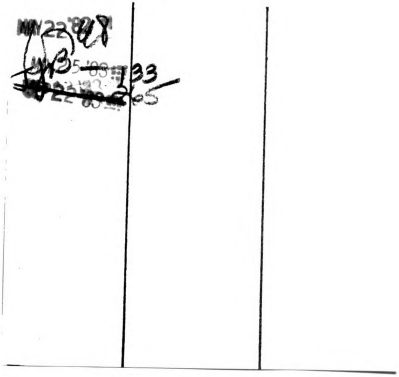

AN INVESTIGATION OF THE RELATIONSHIP OF IMAGERY CONTROL AND PERSONALITY CHARACTERISTICS IN A SHORT-TERM PSYCHOTHERAPY EXPERIENCE

By

Melissa Crider Andrea

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ABSTRACT

AN INVESTIGATION OF THE RELATIONSHIP
OF IMAGERY CONTROL AND PERSONALITY
CHARACTERISTICS IN A SHORT-TERM
PSYCHOTHERAPY EXPERIENCE

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The major objective of this study was to determine the degree to which the ability to control visual imagery is related to habitual patterns of behavior as identified by C. G. Jung's theory of psychological types. An additional purpose was to study the degree to which the imagery control factor can be related to psychotherapy outcome or improvement as measured by attitude and value changes.

The sample for this study consisted of 25 undergraduate and graduate clients who had requested help with personal concerns from the staff of the Michigan State University Counseling Center during the 1979/1980 academic year. The participating therapists were eight counseling psychology interns and one staff therapist, all of whom regularly saw clients at the Center.

The data gathered for the analyses consisted of scores on the following three instruments: (1) the

Richardson revision of the Gordon Test of Visual Imagery Control (Gordon Test), (2) the Myers-Briggs Type Indicator (MBTI), and (3) the Personal Orientation Inventory (POI). The Gordon Test, the MBTI, and the POI were all administered to the Counseling Center sample as part of a pretest battery. After ten weeks of therapy, posttests, consisting of the Gordon Test and the POI, were administered.

Three statistical measures were employed: (1) two univariate analyses of variance where the independent variables were client MBTI type with two levels (Extraversion and Introversion) for one analysis and client MBTI type with two levels (Sensing and Intuition) for the second analysis of variance; (2) a two-way analysis of covariance where the independent variable was the client score on the Gordon Test with two levels (autonomous imagers and controlled imagers); and (3) a t-test on the adjusted POI scores (using the POI pretest as the covariate) where the independent variables were client score on the Gordon Test with two levels (autonomous imagers and controlled imagers) and therapist score on the Gordon Test with two levels (autonomous imagers and controlled imagers).

Four hypotheses were tested with an experimental level set at the .05 level. Four major conclusions were drawn. First, no relationship was found to exist between

the ability to control visual imagery and the tendency to exhibit Extraversion or Introversion as a direction of interest. Second, individuals who had a tendency to exhibit Intuition as a mode of perception were more likely to exhibit controlled visual imagery than individuals who had a tendency to exhibit Sensing as a mode of perception. Third, no relationship was found to exist between client adjusted scores on the POI and the tendency to exhibit either controlled or autonomous visual imagery. Finally, no relationship was found to exist between adjusted scores on the POI and the pairing of clients with therapists of similar imagery type.

DEDICATION

To my parents

ACKNOWLEDGMENTS

Dr. Don Hamachek, chairperson of my committee, has been a source of support throughout my graduate career. To him goes my appreciation for his encouragement, challenges, and caring. My growth as a person and as a professional has been greatly enriched by his presence.

The members of my committee have each made unique and substantial contributions. Dr. Douglas Miller has consistently been available for consultation, and has shown me that striving for excellence can be congruently blended with good humor. Dr. Ralph Kron has helped me see that abstract concepts can indeed be researched, and has encouraged me to direct my own curiosity into productive channels. Dr. Al Aniskiewicz, whose warm professionalism is a model for me, has been a steady source of support. Dr. Norman Kagan has provided me with insights and a sense of pride in Counseling Psychology as a profession.

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My parents, who have always valued my learning and have encouraged me in my educational endeavors, have been a source of continual caring, interest, and support.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION TO THE STUDY

The Problem

Imagery and the way image formation is controlled may be affected by the way one directs attention to both external and internal realities, and by the way one perceives the world in general. Nearly all therapeutic procedures depend in greater or smaller measure on the presence of imagery; most of them depend on the capacity to recall and recreate persons and situations which are a part of an inner world, though they are not concretely present in the therapy session. Specific information about the variables involved in controlling and directing imagery is therefore important.

Need for the Study

Differences in the ways individuals control their imagery include cognitive styles that range from flexible to rigid. Other factors contributing to those differences include certain personality characteristics, a tendency toward divergent or convergent thinking, or variations in the way images are formed. It is necessary to examine each factor in the imagery process in order to more fully

comprehend how the process functions. It therefore seems important to study the relationships between individual types and imagery processes.

Although there has been a resurgence of interest in the empirical study of imagery, there has been little research done to explore possible relationships between personality types and control of imagery. Once we know more about these relationships, therapists may be better able to predict the sort of imagery particular clients will use as a way of facilitating therapeutic progress. Hence, there is a need for a study of this nature in order to more fully understand how imagery and personality type are related.

In addition, a greater theoretical understanding of the variable of control in the imagery process, especially as this may be related to personality variables, is warranted. For example, examination of the way in which individuals with certain personality types direct their interest (Extraversion or Introversion) or tend to prefer a particular mode of perception (Sensing or Intuition) might give clues to the nature of differences in effectiveness in controlling imagery. This information might be especially pertinent for therapists trying to help their clients toward greater insight into their problems.

Certain individuals, depending on their personality styles, may be able to use imagery spontaneously in therapy while others may require training in imagery techniques. Regardless of the particular habitual pattern of imagery control, it is possible to provide an opportunity to develop new ways of imagery usage. Imagery training techniques could subsequently be utilized in achieving a fuller, richer, more creative potential.

Purpose

The purpose of this study is to determine the degree to which the ability to control imagery is related to the habitual patterns of behavior as identified by the Jungian model of psychological types. An additional purpose is to study the degree to which the control factor can be related to psychotherapy outcome or improvement as measured by attitude and value changes.

Theory

The need for the current study has a basis of theoretical support, which is now discussed.

Imagery as an Area of Study

The ability to generate and control mental imagery is of central importance to most therapeutic approaches. The closeness of images to perception evokes emotional responses and cognitive processes associated with real

experience. The recall of a particular affect that was associated with earlier life experiences therefore becomes possible in the therapeutic setting. This gives the imagery transformation system special advantages in therapy, which depends greatly upon lifelike reproductions of situations that are disturbing and threatening to the individual in outside life.

Reviews of the literature on imagery such as that of Horowitz (1978) and Richardson (1969) have recommended efforts directed toward identifying special components of the imagery process rather than treating it as a single phenomenon. In this regard, Gordon's scale (1949) to measure the variable of control within the imagery process has been finding increasing application in imagery research. Her work has served to define the polarity of controlled versus autonomous imagery, and gives us additional information about the subroles of imagery responses.

Imagery and Psychological Type

The use of imagery alone in the therapeutic setting is by no means a sufficient cause for a positive outcome. Imagery needs to be formulated, controlled, and communicated. Efforts to measure imagery have been facilitated by the operational focus on controllability of imagery by using self-reports. What still needs to be done, however,

is research concerning what goes into the internal process of formulating and controlling imaginal thoughts.

In explaining individual differences in imagery, several researchers (Gordon, 1959; Hudson, 1966) have suggested that there is a relationship between flexible and rigid image types on one hand and the tendency toward divergent and convergent thinking on the other. Others have found that imagery is more likely to manifest itself in the person who has the most creative potential and that artistic and creative self-concept is related to a syndrome that includes imagery (Holt et al., 1959; Freedman & Marks, 1965).

There remains, then, the problem of examining the reasons for variations in imagery ability and the way that certain variables are related to the imagery process.

Jungian Differences in Direction of Interest and Perceptive Styles

The theories of Carl Jung (1923) include a discussion of personality type differences dealing with direction of interest (Extraversion vs. Introversion) and modes of perception (Sensing vs. Intuition). Jung repeatedly emphasized the dichotomous nature of the human character and his personality typology presents bipolar alternatives on three dimensions: Extraversion or Introversion are

primarily inborn general attitudes toward the world and the self; Sensing or Intuition are perceiving functions; and Thinking or Feeling are judging functions. According to Jung's theory, each individual has an habitual preference for one alternative over the other on each dimension. However, Jung thought that the validity and the positive contribution of the opposite of one's preferred type in various life situations should be recognized.

Direction of Interest, Perceptive Style, and the Myers-Briggs Type Indicator

Since 1962, Jung's personality type distinctions have been measured through the use of the Myers-Briggs Type Indicator (MBTI) in a variety of settings. Much of the data resulting from research with the MBTI have demonstrated that type differences account for variations in imaginal ability, occupational choice, and creativity (Myers, 1971; McCaulley, 1975). The MBTI therefore seems to have promise as a device for identification of personality differences as they relate to imagery use.

Upon taking the MBTI, an individual receives a score on four dimensions: Extraversion-Introversion (E-I), Sensing-Intuition (S-N), Thinking-Feeling (T-F), and Judging-Perceiving (J-P). Judging-Perceiving was not specifically discussed by Jung as a separate dimension but has been included in the MBTI to add meaning to scores

in the other areas. The J-P scale identifies the preferred mode of one's outward behavior with others. Conversely, the opposite of one's J-P preference identifies the preferred mode of inward reflection.

Imagery has been identified as an inner-directed activity utilizing concrete sensory referents. The two dimensions of direction of interest (E-I) and perception (S-N) therefore seem of particular interest in this study.

The Extraversive alternative (E) is described as a preference for orienting primarily to the outer world of actions, objects, and persons. There is a tendency to get caught up in whatever is happening externally. Action-oriented activity and changes in the environment are valued in Extraversion. The Introversive alternative (I) is described as a preference for orienting primarily to the inner world of concepts and ideas. There is a tendency to detach from the external world. Reflection and working alone are valued in Introversion.

The Sensing alternative (S) is described as a preference for receiving information from the environment primarily through the five senses, focusing on precise details and tangible data. Particularities are observed more clearly than patterns and large relationships. Precision and practicality are valued in Sensing. The Intuitive alternative (N) is described as a preference for registering information from the environment

unconsciously in patterns and wholes rather than in specific detail. Stimuli are observed for complex relationships and abstract deeper meanings rather than peculiarities and details. Imagination, hunches, and potentialities are valued in Intuition.

If the ability to introspect and perceive in a visual way are the first steps in imagery, the alternative modes of direction of interest and perception as outlined by Jung and measured by the Myers-Briggs Type Indicator might therefore explain differences in ability to control one's imagery.

Research Hypotheses

The following general hypotheses are derived primarily from theoretical notions of Extraversion-Introversion, Sensing-Intuition, and the nature of imagery control. Specific research hypotheses are stated in Chapters III and IV.

I. Individuals who have a tendency to exhibit Introversion as a direction of interest are more likely to exhibit controlled visual imagery than individuals who have a tendency to exhibit Extraversion as a direction of interest.

II. Individuals who have a tendency to exhibit Intuition as a mode of perception are more likely to exhibit controlled visual imagery than individuals who have a tendency to exhibit Sensing as a mode of perception.

III. There will be a difference in scores on a measure related to therapy outcome between individuals who exhibit controlled visual imagery and individuals who exhibit autonomous visual imagery.

IV. There will be a difference in the scores on a measure related to therapy outcome between individuals who exhibit controlled visual imagery and who are also working with a therapist with controlled visual imagery and individuals with autonomous visual imagery and who are also working with a therapist with autonomous visual imagery.

Definition of Terms

The following terms have been employed frequently throughout the study and used as defined below.

Perception refers to the means of taking in or registering information from the environment. As defined by Jung (1923), perception may involve either of two alternative ways of taking in or registering information: Sensing or Intuition.

Sensing (S) as a mode of perception involves a preference for receiving information from the environment primarily through the five senses, focusing on precise details and tangible data.

Intuition (N) as a mode of perception involves a preference for registering information from the environment in patterns and wholes rather than in specific detail, focusing on imagination and inspiration.

Direction of Interest refers to the preferred orientation of attention. Jung felt that there are two opposite ways of directing attention and interest: Extraversion or Introversion.

Extraversion (E) as a direction of interest involves a preference for orienting primarily to the outer world of actions, objects, and persons, having a tendency to get caught up in whatever is happening externally.

Introversion (I) as a direction of interest involves a preference for orienting primarily to the inner world of concepts and ideas.

Imagery is a concrete re-representation of visual material of which one is self-consciously aware and which exists in the absence of actual sensory stimuli.

Controlled Imagery involves the ability to manipulate visual images with ease.

Autonomous Imagery, or uncontrolled imagery, involves the inability to manipulate visual images at will.

Assumptions

The following assumptions were made in the present study:

1. That all participants answered questionnaires and inventories honestly and without bias.
2. That ability to control imagery can be validly and reliably measured by a self-report questionnaire.
3. That attitudes, preferences, movement, and growth can be validly and reliably measured by self-report questionnaires and inventories.
4. That movement and growth can occur in short-term therapy within a range of 7 to 10 sessions.

Overview

The need has been stated for a study focusing on the relationship between an individual's personality type and control of imagery. The theory underlying the need has also been examined. The remainder of the study focuses on the investigation of the problem itself. In Chapter II, the pertinent literature is reviewed. In Chapter III, the design and methodology employed in carrying out the study are presented. In Chapter IV, the specific research hypotheses are stated, along with the results of the data analysis. And in Chapter V, there is a discussion of the results of the study as well as implications for further research.

CHAPTER II

REVIEW OF THE LITERATURE

The focus of the present study is on the effect of the personality variables of Extraversion, Introversion, Sensing, and Intuition on the ability to control imagery within a therapeutic setting. In line with this emphasis, the review of pertinent literature includes imagery as a general area of consideration; the element of control as an important variable of imagery; personality characteristics and their effect on imagery; imagery use in psychotherapy; control of imagery and the Richardson revision of the Gordon Test of Visual Imagery Control; Jungian modes of direction of interest, perception, and the Myers-Briggs Type Indicator; and psychotherapeutic outcomes and the Personal Orientation Inventory. A discussion and summary of the review of the literature conclude the chapter.

Imagery as a General Area of Consideration

The first systematic research on imagery was conducted in the late nineteenth century by Francis Galton (1907). Galton formulated a questionnaire that had the

ability to arouse particular sensory images. He was especially interested in the study of individual differences, with particular attention directed toward a person's capacity to evoke various kinds of sensory images. Thus, subjects were requested to recollect their breakfast table and note the clarity of the resulting images. This interest in types of imagery is manifest currently in the work of Richardson (1969, 1972).

While Watson's behavioralism had virtually eliminated interest in imagery research in the United States, the Swiss psychiatrist Jung was continuing to write about imagery. He believed that any particular image can only be indirectly related to the perception of the external object, because it depends on unconscious fantasy activity. Jung also thought that every image is compounded of the "most varied material coming from the most varied sources" (Jung, 1923, p. 554). He defined an image as a "representation" and postulated that psychic processes can become consciously apprehended contents only if they can be represented in the form of an image. Gordon (1972) took issue with Jung and wrote that such a definition was so all-embracing that it blurred the distinction between the image and the percept.

Representative of general contemporary agreement with Gordon's criticism, recent research has utilized fairly precise descriptions of clinical behavior related

to internal events. These descriptions have been geared to specific operations in a clinical or experimental situation. Imagery has been increasingly studied in a form susceptible to replication and control. The studies by Segal (1971) on the Perky effect (1910), the extensive research by Paivio (1971) on the learning implications of concrete and abstract words which differ in their capacity to generate imagery, and the analysis of children's learning by Reese (1970) and Rohwer (1970) were examples of careful and replicable experiments on events previously classified as entirely subjective.

Also in the experimental realm were the continuing research projects on the psychology of daydreaming and imaginative play (Singer, 1966, 1973), the resurgence of interest in hypnosis as an experimental field (Barber, 1970; Hilgard, 1965), and various works attempting to organize the psychological and experimental knowledge on imagery and fantasy (Horowitz, 1970; Klinger, 1970).

Many researchers have written about the relationship of imagery and perception. Segal (1972) has found that the measurement of imagery is actually quite close to the measurement of perception. "In both instances, there is a phenomenological experience based on patterns of response within the optic tract and the brain, in both instances the observer reports on the phenomenological experience and the neural substrate is obscured" (p. 204).

Segal wrote that the main difference seems to be that perception is characterized by the presence of a clearly defined physical stimulus against which verbal reports or other behavior measures can be measured; however, no such clearly relevant external stimulus characterizes the image.

Both Gordon (1972) and Horowitz (1978) conceived of imagery as involving the senses not only of sight, but of hearing, smell, taste, touch, and movement. Gordon stated that "an image is a perception in the absence of an external stimulus, irrespective of the sensory mode in which this perception occurs" (p. 63). Sensory referents appeared as a common characteristic of many of the thirteen types of mental imagery listed by Holt (1964), presumably because an image's sources are largely dependent on sensation and perception. However, the characteristic emphasis has historically focused on the visual mode and its various attributes (high or low imagery, controlled or autonomous imagery, concrete or abstract reference) and, to a lesser degree, audition.

Related lines of research on imagery have delineated both differences and similarities between images and percepts. Richardson (1969) thought that the similarities are overriding. He cited Perky's research (1910) as "the definitive study which made it apparent to most psychologists that no quantitative or qualitative attributes

could serve as absolute markers for consistent differentiation of images and percepts" (p. 6). Perky's study has recently been replicated by Segal and Nathan (1964).

Perky's basic procedure was to ask a subject to produce an image of some specified object, such as a lemon, and project that image on a ground glass screen. The subject was unaware that the screen separated the laboratory from another room that contained a slide projector. The instructions were to form the image around a dot in the center of the screen; at the same time, a slide of the same object was projected at slightly below visual threshold. The intensity of the slide could then be raised to well above threshold without the subject becoming aware that the image had any sensory basis. Richardson (1969) refered to these confusions between the inner world of images and outer world of percepts as present in individuals who are neither psychotic nor neurotic, but well within the range of healthy psychological functioning.

On the other side of the argument, Segal (1971) and other researchers maintained that the unique qualities of the sensory receptors are raraly duplicated by imagery. Various studies showed that images usually appear less vivid, smaller, and less clearly defined than percepts (Brooks, 1967; Galton, 1883; Külpe, 1902; Sheehan, 1966). Experimental results have also shown that a percept will often have especially dark and clear edges with contour

lines strongly marked; the probability is mediated by the specific action of excitatory and inhibatory effects in the cells of the optic tract (Granit, 1955; Hubel & Weisel, 1962; Ratliff, 1965). Also, Segal (1971) claimed that a percept usually shows considerable stability, because the physical event remains stable or shows predictable changes even as the observer changes position in relation to it.

Another major stream of research that has contributed significantly to the understanding of imagery and fantasy processes has come from research on sensory deprivation. These studies were originally set up to tap significant aspects of the nature of brain function in the absence of sensory input (Hebb, 1960). However, as Holt (1972) wrote, they soon began to produce "very striking evidence of the degree to which ongoing imagery processes are a central feature of human experiences, particularly when reduced demands are made on the perceptual apparatus to process the complex stimulation ordinarily available in the physical environment of the individual" (p. 110).

Gordon (1972) described imagery as serving several important biological and psychological functions. She thought that imagery helps arrange complex sensory stimuli into meaningful patterns, and that imagery enables one to classify and abstract, to relate present perceptions to past experiences and to tolerate present frustrations for the sake of future satisfactions. Both Gordon

and Arieti (1976) saw imagery as the raw material of the human being's capacity to imagine and symbolize. Arieti stated that "images soon constitute the foundation for the inner reality, which in human psychology is as important (and sometimes moreso) as external reality. Imagery not only helps the individual to understand the world better, it also helps him to create a surrogate for the world" (p. 45).

The Element of Control as an Important Variable of Imagery

Various researchers have written about the importance of the variable of imagery control (Gordon, 1949; Horowitz, 1978; Richardson, 1972; Singer, 1974). Horowitz maintained that individuals cannot be reliably separated into discrete image types according to a given sense mode because most people do not exclusively or even habitually think in one mode. He did consider it possible, however, to distribute people along a continuum from high to low capacity for forming and controlling voluntary images in general.

The notion of control is an important one, since there is evidence as Strupp (1970) has pointed out, that a major component of affective psychotherapy is the client's experience of increased control of both emotions and overt behavior. Singer (1974) stated that "heightened awareness of imagery also increases to some degree the

extent of control over such process so that they seem less strange and also can be called into service in connection with a particular difficulty or need of the individual" (p. 220). Horowitz (1978) declared that "through image formation, as through any form of thinking, the individual acquires the capacity to gain control over his internal motives and, by action, over external reality" (p. 311).

From at least the time of Galton (1883), the dimension of controllability has had a place in the discussion of mental imagery. The empirical investigation of control, however, was begun by Gordon (1949) in a study concerned with the relationship between imagery control and the simplicity-complexity dimension in ethnic stereotypes. The instrument she used was a set of eleven questions, each requiring a "yes" or "no" answer. The sample was composed of 54 male and 10 female college students and 27 male and 27 female workers. To be placed in the "controlled" category, the subjects had to answer yes to every question as well as say that they could control visual imagery in a separate interview. All others were placed in the autonomous category.

The possession of an autonomous memory imagery in Gordon's study was associated with conventional (simple) stereotyped imagery to ethnic stimulus words (Englishman, Chinese, Jew, German). These stereotypes were formed

early in life based on characters seen in films, books, etc. The less conventionalized stereotypes of controlled students had their origin in the more recent past and were affected by personal contact with actual representatives of the groups involved. The theory that evolved from this study was that the presence of conventional stereotypes was reflective of the same cognitive rigidity seen in the inability to maintain a voluntary control of the image.

The relationship between control over the behavior of a percept and control over the behavior of an image has been supported by data published by Gordon (1950) and by Costello (1956, 1957). Costello's 1957 study, which will be detailed more completely in the review of the literature section on individual characteristics, showed that psychiatrically diagnosed groups of dysthymics and hysterics both had relatively uncontrolled imagery when compared with a control group of normals.

Hudson (1966) found a certain correlation between flexible (controlled) and rigid (autonomous) image types on one hand and the tendency toward divergent and convergent thinking on the other. He postulated that extreme flexibility as well as extreme rigidity were defenses against experiencing anxiety, but which themselves created even more anxiety by conjuring up a world which

appeared too permanent, or else so effervescent that nothing in it seemed solid and reliable.

In a recent work, Gordon (1972) elaborated on the correlation between rigid imagery and the difficulty in controlling imagery and between flexible imagery and the capacity to control it easily.

> This in itself must affect the world a person thinks he inhabits, and above all his idea of himself as a free and autonomous being. The dimension of activity-passivity, which clearly colours and is coloured by both rigid-flexible and autonomous-controlled imagery types, is most likely further affected by whether a person's imagery is predominately reconstructive or else constructive and inventive. (p. 66)

Richardson (1969) in his comprehensive work on imagery, included a slightly altered form of the Gordon Test of Visual Imagery Control. In a later chapter (1972), he cited examples for further tests on imagery control utilizing varied sensory modalities. His examples included questions in the visual, auditory, tactile, kinesthetic, olfactory, and gustatory modes. To date, however, sensory modes other than visual have not been included in research on imagery control.

Horowitz (1978) wrote that in the imagery process, sets of information derived from perception, memory, schematization, and fantasy were combined, compared, and recombined in what he called "thought by trial perception." He postulated that the element of control in imagery formation allows the review of information for

new meanings, the contemplation of objects in their absence, and the search for new similarities and differences. This last factor has been widely recognized as a central element in the creative process (Arieti, 1976; Aylwin, 1977; Ghiselin, 1959).

The importance of imagery control in the creative process was referred to by Arieti (1976). He asserted that imagery plays a crucial role in creativity, but that people differ in their ability to produce and control images. He maintained that control in the imagery process can liberate the imager from a "punctilious reproduction of reality and introduce something new: the first elements of creativity" (p. 51).

Horowitz (1978) developed a schemata outlining the five most frequent inhibitions of entry of information into the visual imagery system. Of these five, three are linked with the inability to control imagery. The first is the avoidance of images associated to contents expressed in words; Horowitz believed that fear of not being able to control the image is connected to a feared loss of control of resulting feelings. The second is the prevention of primary process or spontaneous flow types of image formation; in this process the fear is that bizarre images would take over. The third is the non-translation of enactive (kinesthetic) representation into

imagery, for fear that there would be little or no control over the resulting self image.

It is worth noting the similarity between what has been described as an autonomous image by Gordon and the characteristics of certain kinds of imagination images. McKeller (1957) pointed out that autonomy is a fundamental and central aspect of hypnagogic imaging. This spontaneous and uncontrolled quality seems to be common among some other less drastic forms of imagination imagery, such as perceptual isolation imagery (Vernon, 1963), sleep deprivation imagery (Bliss & Clark, 1962), and meditation imagery (Pinard, 1957).

Individual Differences and Their Effect on Imagery

There may be certain personality characteristics that lend themselves to special types of imagery and cognitive labeling processes. One possible basis for the trait of introversion may be that an individual, in general, functions as what Broadbent (1958) termed as a "long processor." Broadbent found that this individual compares any new set of inputs with a large number of previously evaluated material before finally assigning the new material either for storage or for some kind of overt response. Broadbent saw the "short processor" or the extrovert as merely matching new material against the most recently occurring previous material, therefore

processing more material but storing it less effectively. He felt that the particular set of the individual toward how to code the material probably operates fairly consistently and generates unique patterns.

Singer (1974) asserted that the distinction often made clinically between the hysterical personality who is generally viewed as more extraverted, and the obsessional personality (more introverted) could be understood from this viewpoint. He felt that the obsessional is tormented by almost too many associations and complex interactions when presented with particular questions or when thinking about a particular issue. The coding strategy is simply too complex from the start. The hysteric, conversely, is unlikely to recall many significant events unless placed directly in a setting conducive to the recall since there is probably not much rehearsal in the interim. Singer felt that this explains why the induced imagery of hypnosis is effective with hysterics (Singer, 1974). In effect, a context is set up that is similar to the one in which the hysteric originally acquired the information so he or she can then reproduce it more effectively.

The principle finding in an investigation by Costello (1957) was that autonomous (uncontrolled) imagery was more common in a sample of diagnosed neurotics than in a sample of normals. But what was

of particular interest was the additional discovery of a qualitative difference between two sub-samples of neurotics. Using Eysenck's (1957) definition of the dysthymic as an introverted neurotic and an hysteric as an extraverted neurotic, Costello found that dysthymics had vivid autonomous imagery and hysterics had weak autonomous imagery. The imagery of the normals could be either vivid or weak but was almost always controlled. Among the tentative conclusions: "The type of imagery indicates more the type of disorder to which the individual may be prone rather than indicating mental disorder itself" (p. 848).

Richardson (1962, 1966) conducted two studies on the same topic, one using a sample of students from the University of Western Australia and the other a sample from the University of Kansas. The results of both studies supported the prediction derived from the principal finding in Costello's 1957 study. Significantly more of those who scored above the media on the neuroticism scale were able to control their imagery. However, the expected difference in imagery characteristics between the introverted and extraverted "neurotics" was not reliable, though in the predicted direction.

Sullivan (1956) pointed out that the more introverted person's fantasies are over-elaborated and differentiated, becoming increasingly complex, so that the product seen in therapy may have changed greatly from the early

childhood fantasy. By contrast, the more hysterical personality, who is less geared toward producing imagery and also more inclined toward separating from distressing material, tends to have a fairly circumscribed recurrent daydream that remains largely unchanged. Sullivan wrote that many of the images and fantasies of hysterics are adopted wholesale from books and other sources.

Recent researchers (Bakan, 1978; Meskin & Singer, 1974; Seamon, 1973) have explored correlations between individual differences, imagery, and hemispheric functioning. Meskin and Singer (1974) found that subjects who were described as inner-attentive were more likely to shift their eyes to the left (right hemisphere dominance) while thinking of answers to complex questions or trying to recall early childhood material; on the other hand persons low on measures of day-dreaming and inner sensitivity (not inner-attentive) were more likely to shift their eyes to the right (left hemisphere dominance) in such a situation.

In regard to hemispheric lateralization, numerous recent studies (Dimond & Beaumont, 1974; Kinsbourne & Smith, 1974; Nebes, 1974) showed that people who were right-brain dominant tended to be intuitive, imaginistic, concrete, holistic, and oriented toward primary process. Individuals who were left-brain dominant, on the other

hand, tended to be rational, logical, analytic, and oriented toward secondary process.

Gur and Gur (1975) reported differences between inner-attentive and other-attentive subjects in the kinds of defense mechanisms used. Inner-attentive subjects (right hemisphere dominance) were more likely to use denial, repression, and reaction formation and were more likely to report psychosomatic symptomatology. The preferred defense mechanisms of other-attentive subjects (left hemisphere dominance) were projection and outward turning of aggression.

Seamon (1973) reported that subjects who used interactive imagery in learning paired words were likely to respond more rapidly to material depending on the arousal of the right hemisphere of the brain, thus suggesting that the right hemisphere was indeed more involved in imaginal processes. Meskin and Singer (1974) also reported that inner-attentive subjects were likely to give more extensive responses to questions involving visual recall of complex material from the past or imaginal material of some kind.

The resemblance between personality characteristics of the more frequent imagers in a study by Holt and Goldberger (1959) and those found by Foulkes, Spear, and Symonds (1966) in their study of imagery are worth noting here. Taken together, these two studies provided

some support for the notion that imagery is more likely to manifest itself in the person who has the most creative potential (Barron, 1963). In general, Freedman and Marks (1965) obtained results which were consistent. They concluded that "an artistic, sensitive and creative self-concept is related to a syndrome that includes imagery" (p. 111).

Imagery Use in Psychotherapy

One important factor in psychotherapeutic practice, the reliance upon the client's imagery, can be examined across various schools and shown to relate to some basic principles of human information processing and emotion that are susceptible to scientific research and scrutiny. Singer (1974) wrote that Jung's method of active imagination, a kind of extended phenomenological approach, formed a basis for the mental imagery movement in psychotherapy. There was very little written of a technical nature on this method by Jungian analysts, however, and the technique was not widely disseminated nor researched.

More recently, Reyher (1963) explored the properties of "emergent uncovering," a method for producing profound involvement on the part of the client in the analytic session. Reyher believed that considerable insight would be gained by the client from the ongoing production of imagery and that active interpretation was not essential

for this procedure because of the dramatic impact of the flow of imagery itself.

In a more formal psychoanalytic interpretation, Knapp (1969) distinguished sets of mental images or predispositions to certain image contents at each of three levels: conscious, preconscious, and unconscious. The easiest to distinguish is the conscious or fully emergent layer which consists of overt images of self and other. Behind this is a preconscious layer in which daydreams can enter consciousness periodically. The unconscious hidden images express primitive urges and fears and have to be inferred by unraveling the disguises of reported images. Knapp believed that all three levels must be addressed in the course of psychotherapy.

While various therapeutic methods emphasize control of imagery, Singer (1974) particularly stated that an effective psychoanalysis is indeed very much of a kind of training in imagery control. As Strupp (1970) has convincingly argued, one of the chief purposes of therapy is the promotion of self-control. By teaching the use of careful attention to ongoing dreams and fantasies, psychoanalysis provides an opportunity for careful training of the patient in self-control and autonomy with respect to imagery capabilities.

With reference to the general field of psychotherapy, however, imagery has been rediscovered as an important

psychological phenomenon largely through the influence, not of psychoanalysts, but of the behavior therapists. Singer (1974) stated that the greatest influence has been the use of imagery in behavior modification and learning theory approaches to psychological treatment. Introduced chiefly through the efforts of Wolpe (1958), behavior modification techniques have touched almost every phase of psychotherapy and approaches to social change. A critical feature of many behavior modification techniques has been the reliance upon imagery generated by the client.

Gordon (1972) argued that nearly all current therapeutic procedures depend on the presence of imagery and that different types of therapy can be distinguished from one another in terms of how extensively and comprehensively they mobilize the client's imaginal world. Horowitz (1978) supported this proposition, asserting that "when a therapist of any persuasion suggests, encourages, or inquires about an image he is, in effect, asking the patient to think" (p. 356). Horowitz advocated that the focus be on problem areas: the facets of clients' lives and behavior patterns that they presently experience having trouble thinking about or wish to avoid thinking about because of associated feelings. Horowitz further stated that:

> Whatever other factors may be involved, this encouragement of thinking facilitates conceptual and emotional change. Image formation as a particular form of thinking may be a route to expression of emotional conflict and to expression of distortions or instability of self and object representations. (p. 356)

A number of therapists and researchers (Gordon, 1972; Horowitz, 1978; Singer, 1974) asserted that the closeness of images to sensory perception can evoke emotional responses and cognitive processes associated with real experience. Thus it may be possible for a client to relive and complete events and fantasies that were too overwhelming in the past. Because of the defenses against the expression of their grief or fear in therapy, however, many clients repeatedly describe important past experiences, but always with a numbness of feeling. Horowitz (1978) thought that a visualization of such an experience might release emotions and permit grieving to take place. Sometimes, as Hammer (1975) stated, image formation will circumvent a defense such as denial, isolation, or repression.

Hovland and Janis (1959) cited the assumption that a central element of attitude change is the anticipation of rewards and punishments conveyed by the communicator. They concluded that "persons with a rich fantasy life have greater ability than others to imagine these outcomes and are therefore more receptive to persuasive communication" (p. 82). If therapists can be said to be persuasive, then

perhaps clients who utilize imagery may be more open to therapeutic suggestions than clients who do not.

Gordon (1972), Hammer (1975), and Horowitz (1978) all agreed that the imagery formation of the therpist is also an important factor in the process of psychotherapy. As the client describes the images of a dream of fantasy, the therapist can allow images to form like the one described. Horowitz believed that these images within the therapist may serve to generate empathic understanding. Also, these images provide the therapist with a set of memories that can be reviewed later for additional understanding. Ross and Knapp (1962) recommend that when the image of the therapist is incongruent with the experiences reported by the client, the therapist might question whether the client is being clear, whether there is some resistance within the client or difficulty in the relationship, or whether the therapist is experiencing a countertransference reaction.

The approach of Tauber and Green (1959) utilized the imagery of both the client and the therapist. They called attention to many of the constructive and creative functions of a variety of types of imagery which could be employed in psychotherapy. While agreeing that some of the replaying of frightening incidents or potentially distressing events could have a magical drive-reducing property, Tauber and Green also asserted that the use of

an imaginistic "correcting situation" implies that something different might have happened and strengthens the possibility of it actually occurring in the future. They noted that responding to a threatening situation (in the form of a fantasy or daydream) does not only unleash defensive referential processes but creative potential. As previously noted, there seems to be a link between the control of imagery and the creative process (Arieti, 1976).

Control of Imagery and the Richardson Revision of the Gordon Test of Visual Imagery Control

The test of visual imagery control devised by Gordon (1949) was used initially to discriminate subjects who had autonomous imagery (independent of volitional control) from those who had controlled imagery (under volitional control). The Richardson revision of the Gordon Test of Visual Imagery Control (Richardson, 1969) is a twelve-item test designed to assess more fully how well images can be manipulated. Very little research has been conducted on this test's reliability, although it has been used extensively in imagery research as the favored measure of imagery control.

In a study conducted by Juhasz (1972), reliability of the Richardson revision of the Gordon Test of Visual Imagery Control (Gordon Test) assessed by Cronbach's

(1970) α_2 (an estimate of internal reliability) was obtained from 67 undergraduates in two sections of introductory psychology, and twelve professors at Bucknell University. The students were administered the test in a group; the professors took the tests individually. The test protocols were scored according to the standard procedures and the α_2 coefficients calculated from contrasting odd and even items on the test. This assured no dfferential loading of sub-tests.

The estimate of odd-even reliability was .88 for undergraduates, and .95 for professors. These results suggest that, for these subjects, the measure had satisfactory internal reliability; this includes not only the often tested undergraduate but a group of professors as well.

McKelvie and Gingras (1974) added to the data on the reliability of the Gordon Test by obtaining test-retest, split-half, and parallel-form estimates. The latter two are generally thought to estimate the upper and lower bounds of reliability, respectively. The subjects were 87 high school students, aged 16 or 17 years. All 87 subjects were administered the Gordon Test; three weeks later, 33 students were retested with the original tests, and 45 were given a parallel form (nine subjects did not reappear for testing). The three reliability estimates were obtained for each test using the Pearson correlation

method. The split-half reliability, computed from the odd-even scores obtained by the original 87 subjects, was adjusted according to the Spearman-Brown formula and computed to be .76.

McKelvie and Gingras found that the Gordon Test had a lower-bound parallel-form reliability of .73 and a test-retest reliability of .84. However, their internal consistency figures were surprisingly low (.76), especially in the light of Juhasz's (1972) estimates (.88, .95). A further test (McKelvie & Gingras, 1974) was made by administering the Gordon Test to a group of 24 undergraduates (who were similar to Juhasz's first group), but the split-half reliability for their scores (.74) was not markedly different from that of the high school students. Thus, although the time-to-time and form-to-form consistencies of the Gordon Test appear to be acceptable, its internal consistency has not proven to be particularly strong.

Test scores on the Gordon Test have been positively related to stereotyped imagery (Gordon, 1949), reversal rates of the Necker cube (Gordon, 1950), and mental disorder (Costello, 1957). More recently, test correlates have included extrasensory perception (Price, 1973), frequency of dream recall (Hiscock & Cohen, 1973), success in mental rehearsal (Rawlings & Rawlings, 1974),

creative self-perceptions (Khatena, 1975), and personality (Euse & Haney, 1975).

Jungian Modes of Direction of Interest, Perception, and the Myers-Briggs Type Indicator

Carl Jung's theory of psychological type (1923) has inspired several efforts to measure the categorical dimensions of direction of interest (Extraversion-Introversion) and perception (Sensing-Intuition). Myers' (1962) research and development of the 166-item, self-report Myers-Briggs Type Indicator (MBTI) has been especially productive along these lines. A thorough review of the literature and assessment of the MBTI has recently been completed by Carlyn (1977).

A number of researchers have investigated the reliability of the MBTI, some treating scores as continuous data. Both internal consistency reliability and test-retest reliability have been examined. Carlyn (1977) reported that estimates of internal consistency of continuous MBTI scores seemed to be quite adequate for a self-report instrument, ranging with few exceptions between .70 and .90. Myers (1962), Stricker and Ross (1963) and Webb (1964) used different statistical procedures to produce similar results on continuous score reliability, with reported coefficients ranging from .76

to .82 (E-I), .75 to .87 (S-N), .69 to .86 (T-F), and .80 to .84 (J-P).

Estimating the internal consistency of the type categories has been more difficult because only high and low estimates can be provided by existing statistical categories. Hoffman (1974), Myers (1962), and Webb (1964) have reported phi coefficients ranging from .55 to .65 (E-I), .64 to .73 (S-N), .43 to .75 (T-F), and .76 to .84 (J-P).

Test-retest data for MBTI type-category scores were reported for four samples. Studies by Levy, Murphy, and Carlson (1972), Stalcup (1968), and Stricker and Ross (1964a) involved college students, and a study by Wright (1966) involved elementary school teachers. In every case the proportion of agreement was significantly higher than would be expected by chance. In the studies by Levy et al. (1972) and Stricker and Ross (1964a), test-retest correlation coefficients were computed for continuous MBTI scores. Pearson product-moment correlations were all significant at the .01 level and Carlyn (1977) stated that these appeared reasonable for a self-report inventory. Mendelsohn (1970) noted that, in general, the reliability data for the MBTI were similar to those for other self-report personality instruments.

Evidence for content validity of the Myers-Briggs Type Indicator was obtained by Bradway (1964) in a study

involving Jungian analysts. The analysts were asked to classify themselves according to the Extraversion-Introversion, Sensing-Intuition, and Thinking-Feeling type categories; comparisons were then made between self-typing and MBTI typing. There was 100% agreement on E-I classification, 68% agreement on S-N classification, 61% agreement on T-F classification, and 43% agreement on all three dimensions. The E-I index proved to be remarkably valid, and the S-N index acceptably so for the sample.

Additional evidence for content validity has been obtained by correlating subjects' scores on the MBTI with their scores on the Gray-Wheelwright Questionnaire (Gray & Wheelwright, 1946), another instrument designed to identify Jungian types. The Gray-Wheelwright also uses continuous scores to assign subjects to type categories, but it has no J-P scale. Bradway (1964) and Stricker and Ross (1964b) compared scores on the two instruments and found correlations ranging from .75 to .96 (E-I), .58 to .75 (S-N), and .60 to .72 (T-F). All correlations were significant at the .01 level.

An advantage of the Myers-Briggs Type Indicator is that it was derived from a well-known conceptual formulation (Jung's typological theory) to which empirical findings may be related. Numerous correlational studies have been conducted comparing MBTI scores with scores on other instruments. Several researchers have used factor analysis

to investigate these relationships. Saunders (1960) compared the continuous MBTI scores of 1132 subjects with their scores on the Allport-Vernon-Lindzey Study of Values (AVL), an instrument based on Spranger's theory of types. Factor analysis revealed that the four Jungian type dimensions formed a good simple structure and both instruments appeared to be measuring related constructs. In studies by Madison, Wilder, and Suddiford (1963) and by Ross (1966), factor analysis was used to relate a variety of tests to the MBTI. In all of the studies, the four MBTI scales tended to have substantial loadings of different factors.

The scores of Extraverts on a number of tests indicated that they tend to be talkative, gregarious, and impulsive, with underlying needs for dominance, exhibition, and affiliation (Myers, 1962; Ross, 1966; Stricker & Ross, 1962; Webb, 1964). Studies indicated that introverted types prefer reflecting before acting and enjoy working alone. They scored high on scales of self-sufficiency and were rated by faculty as more solitary and less carefree than Extraverts (Myers, 1962; Ross, 1961; Stricker & Ross, 1962). On tests of aptitude, abstract reasoning, reading ability, and aesthetic values, Introverts usually scored significantly higher than average (Myers, 1962; Saunders, 1960; Stricker & Ross, 1964b; Webb, 1964).

Research indicated that a preference for sensing leads to an interest in what is solid and real (McCaulley & Natter, 1974). As a group, Sensors usually scored extremely high on the Economic scale of the AVL (Myers, 1962; Saunders, 1960). On other personality inventories, they consistently placed a high value on work and authority and were likely to be rated by faculty as cooperative, pragmatic, and willing to take direction (Ross, 1961).

Studies have shown that Intuitors like to use their minds and have considerable tolerance for complexity (Myers, 1962). Intuitive types generally expressed a strong need for autonomy and had a positive attitude toward change (Myers, 1962; Madison et al., 1963). They were more likely than sensing types to be rated as imaginative (Ross, 1961) which was consistent with McKinnon's findings (1966) that over 90% of the creative architects, research scientists, and mathematicians studied at the Institute of Personality Assessment and Research were intuitive types.

The findings summarized above appear to be quite consistent with Jungian constructs, and, taken as a whole, they give strong support to the validity of the Myers-Briggs Type Indicator. These findings indicate that MBTI scores "relate meaningfully to a large number of variables

including personality, ability, interest, value, aptitude and performance measures, academic choice, and behavior ratings" (Mendelsohn, 1965, p. 322).

Psychotherapeutic Outcome and the Personal Orientation Inventory

Recently, empirical research in the area of self-actualization has been facilitated through the development of an instrument for the delineation of personal self-fulfillment measured through concepts of self-actualization. Shostrom has indicated that several dimensions of personal growth and self-actualization as counseling and psychotherapy goals, were measured by the Personal Orientation Inventory (Shostrom, 1964). Shostrom's orientation was derived largely from the humanistic psychological theory of Maslow (1954, 1962), but the influence of contemporary humanistic theorists such as May (1958), Riesman, Glazer, and Denny (1950) and Perls (1947; Perls, Hefferline & Goodman, 1951) in the conceptualization of the Personal Orientation Inventory (POI) is clearly evident.

The POI, with content based on value judgment problems identified by psychotherapists over a five year period, is the only available inventory designed specifically to measure self-actualization. Tosi and Lindamood (1975) felt that the POI offered much potential as a means of assessing psychotherapeutic progress. The value of the

POI is indicated by studies which used the instrument as a criterion measure of changes in self-actualization in sensitivity groups (Culbert, Clark, & Bobele, 1968), attitude and personality change during counselor training (Mazer, 1969), and in focusing on positive mental health in clients during counseling (Foulds, 1970).

The Personal Orientation Inventory consists of 150 pairs of two-choice items and is scored for two major scales and ten sub-scales. Shostrom (1964) reported test-retest reliability coefficients of the major scales, Time Ratio and Support Ratio, as .91 and .93, respectively, with no mention of the time lapse. Klavetter and Mogar (1967) reported one week test-retest reliabilities of the twelve scales ranging from .52 to .82, with a median of .705. Ilardi and May (1968) reported test-retest reliabilities of an approximately fifty week time lapse ranging from .32 to .74; the median in this study was .58.

Evidence for construct validity has been presented by a study that used the POI to differentiate three adult groups who were clinically nominated as "self-actualized" (n: 29), "normal" (n: 160), and "non-self-actualized" (n: 34). The POI significantly differentiated the self-actualized from the non-self-actualized on eleven of the twelve scales; Nc was not significant (Shostrom, 1964). Wall (1970) compared the POI with the Rotter Internal vs.

External Control Scale and concluded that self-actualization, as measured by the POI, is relatively independent of Rotter's concept of locus of control. This gave support to the construct of the Support Ratio I scale as measuring inner-directedness rather than internal control.

Numerous studies reported on the concurrent validity of the POI; of these, four were especially important. McClain (1970) found that nine of the POI scales were significantly correlated with staff evaluation of school counselors based on Maslow's criteria of self-actualization (significant correlations were not observed for Sr, Nc, and Sy). Shostrom (1964) reported significant changes in inner-directedness for pre- and post-test mean scores of individuals in sensitivity training and school psychologist training programs.

Further support validation comes from numerous studies that contrasted "non-healthy" individuals with "normal" or self-actualized" individuals through the use of the POI. Fox, Knapp, and Michal (1968), for example, reported that all twelve scales of the POI significantly differentiated the hospitalized psychotic group from both the normal and self-actualized groups of Shostrom (1964).

Braun and Asta (1968) correlated the POI with the Gordon Personal Inventory (GPI). More significant correlations were found with the GPI Original Thinking scale

than with any other. This was consistent with Maslow's emphasis of the creativeness of the self-actualizing individual and with the finding of a significant positive relationship between the POI and the Remote Associations Test (Braun & Asta, 1969).

Three studies were representative of recent research on the use of the Personal Orientation Inventory in counseling and psychotherapy. Cooper (1971) reported significant increases for pre- and post-test mean gain scores for individuals undergoing two one-week T-group training sessions for the I, Ex, Fr, S, and A scales of the POI. Young and Jacobson (1970) reported on the effects of a fifteen-hour marathon group experience which emphasized verbal and non-verbal communication processes. They found significant pre- and post-test mean differences for the experimental group on the SAV scale of the POI and higher (though not significant) mean gain scores for all POI scales except Sr, indicating change in a positive direction toward "health." These studies indicate the POI reflects growth and self-actualization within short-term psychotherapy settings.

Shostrom and Knapp (1966) reported the relationships between the POI scales and the MMPI for a beginning therapy group and an advanced therapy group. The POI and MMPI were administered to both groups. All twelve POI scales significantly differentiated the two groups, while

the Hs, D, Hy, Pd, Pa, Pt, and Sc scales of the MMPI were significant, with the advanced group scoring higher on the POI and lower on the MMPI than the beginning group. The investigators concluded that these observations give credence to the POI as a measure of psychological health and growth toward self-actualization. This, among numerous other studies, shows the sensitivity of POI measures to changes resulting from psychotherapeutic treatments.

Summary

Literature was reviewed which addressed the area of imagery in general and the variable of imagery control in particular. Research on imaginal thought has become more sophisticated since Galton's time but there remain many questions about the nature and functioning of imagery. The similarities and differences between an image and a percept are presently being studied, with varying results currently reported.

The importance of the control variable within imaginal thought has been widely reported but little empirical investigation has taken place. Gordon (1949, 1972) has been one of the few contributors to this area of knowledge. In particular, the relationship of imagery control and specific personality characteristics has been relatively neglected as an area of research.

The review of literature indicated, however, that this may be a fruitful area to pursue more fully. Some studies have shown that inner-directedness or introversion seems to be related to ability to image and ability to control images, and that extraversion seems to be related to an inability to control imagery. These studies, for the most part, have been done with a predominately neurotic or psychotic population.

Other studies have indicated that imagery may be linked to predominantly right-hemisphere functioning, which is spacial, intuitive, imaginistic, and concrete. Imagery and the ability to control imagery also seem to be evidenced frequently in those persons labeled "creative."

The primary test of imagery control, the Richardson revision of the Gordon Test of Visual Imagery Control, was reviewed. Although internal consistency reliability figures were not particularly strong, the time-to-time and form-to-form consistencies were acceptable.

The literature on the Myers-Briggs Type Indicator was reviewed with particular attention given to the Extraversion-Introversion and Sensing-Intuition scales. Both the internal consistency and test-retest reliability figures were found to be above .70 for both E-I and S-N. Various studies have reported satisfactory conclusions on

the validity of both scales as measures of Jung's original constructs.

Hypotheses for the current study derive primarily from theoretical notions of Extraversion-Introversion, Sensing-Intuition, and the nature of imagery control. No correlations have been reported in the literature on imagery control with either of these personality scales: However, numerous concurrent validity studies show Extraversion correlating with gregariousness and a general orientation to the external world, and Introversion correlating with introspection and reflection. Imagery control has been found to correlate positively with thought patterns involving complex interactions and inner sensitivity and negatively with less complex thought patterns that are externally oriented.

Concurrent validity studies on the MBTI also show Sensing correlating with pragmatism and a preference for what is solid and real, and Intuition with complexity, autonomy, imagination, and creativity. Imagery control has been found to correlate positively with creativity, spatial orientation, flexibility, and autonomy of thought processes, and negatively with rigidity of thought patterns and a pragmatic conventional orientation.

The review of the literature has indicated that the use of imagery is prevalent across many diverse schools

of psychotherapy, and that the control of imagery is an important factor in the ability of a client to cognitively and affectively access certain material. Therefore, therapeutic outcome may depend in some measure upon the variable of imagery control.

The literature on an instrument to measure therapeutic outcome, the Personal Orientation Inventory (POI), was reviewed. The internal consistency and test-retest reliability figures were found to be acceptable. Numerous studies have reported satisfactory validity statistics on the POI and have also shown the sensitivity of the POI to changes resulting from psychotherapy.

The review of the literature indicated that theoretical support exists for examining the Extraversion-Introversion and Sensing-Intuiting differences in imagery control, and for examining these differences within a therapy setting.

CHAPTER III

DESIGN OF THE STUDY

Sample

Clients

Permission was first obtained from the Michigan State University Committee on Research Involving Human Subjects and from the Michigan State University Counseling Center. The 25 participating clients were undergraduate and graduate students at MSU who had requested counseling at the Counseling Center during fall term of 1979.

In order to be asked to participate, a potential research client had to: (1) have a presenting problem that was primarily personal/social in nature, (2) not be considered actively suicidal or in an extreme crisis situation, (3) be willing to make a commitment to at least seven counseling sessions, and (4) be considered appropriate for traditional, dyadic counseling (e.g., clients who were most suitable for group counseling, anxiety reduction, assertiveness training, etc., were excluded).

Initial contacts with clients were made by the research therapists, either in the intake session or in

the first sessions of therapy. Clients were asked if they would be willing to participate in a research project being conducted at the Counseling Center. Those who agreed were then contacted by telephone and informed about the nature of their potential participation. They were asked to take a pretest, consisting of the Richardson revision of the Gordon Test of Visual Imagery Control (Gordon Test), the Myers-Briggs Type Indicator (MBTI), and the Personal Orientation Inventory (POI), and a post-test, consisting of the Gordon Test and the POI.

It is important to note that the sample is not a random one, but a volunteer sample. Approximately 14% of the potential clients who were asked to participate failed to come in for the pretest. Twenty-five of the thirty clients who took the pretest completed the post-test, although two clients took the posttest after six and seven weeks of therapy, respectively. All other clients took the posttest after ten therapy sessions.

A control group of nineteen individuals was composed of volunteers who were on the waiting list at the Counseling Center for at least seven to ten weeks. The pretesting and posttesting took place at the same times for both the treatment (therapy) group and the control group. The treatment group and control group were compared on the following demographic variables: sex, age, and class

standing. A summary of these data is presented in Table 3.1. Two-tailed t-tests indicated that the differences between the treatment and the control group on the variables of age (p = .19), and class standing (p = -0.1), were not significant at the .05 level.

Table 3.1

Comparison of the Treatment and Control Groups According to Sex, Mean Age, and Mean Class Standing

	Treatment Group	Control Group
Sex	18 females 7 males	13 females 6 males
Mean age	22.6	21.5
Mean class standing	3.5[a]	3.1

[a]Based on class standing when Freshman = 1; Sophomore = 2; Junior = 3; Senior = 4; and Graduate = 5.

In addition to this comparative data, additional information was gathered about both the control group and the clients who were engaged in therapy during the period of the study. The description of these individuals may be useful to the reader or researcher wishing to generalize to target populations which are similar in regard to demographic characteristics. Cornfield and Tukey (1956),

in detailing their bridge argument, have advanced the practice of generalizing from the particular sample to populations composed of similar characteristics. Thus, the results of the current study might be generalized to analogous populations of Counseling Center clients.

Of the 25 therapy clients, 18 were female and 7 male ranging in age from 18 to 33 years, with a median age of 21 and a mean age of 22.6. Only one client was black. Five clients had declared majors in Education; 3 in Business; 3 with "No Preference" 2 in Social Work; 2 in Criminal Justice; 2 in Pre-Medicine; and 8 "other." For the 19 control group individuals, 13 were female, 6 male, ranging in age from 18 to 30 years, with a median age of 21 and a mean age of 21.5 years. All were white. Three individuals had declared majors in Education; 2 "No Preference"; 2 in Business; 2 in Pre-Medicine; 2 in Social Science; and 7 "other."

Therapists

Nine Michigan State University Counseling Center therapists were used in this study. Each therapist worked with from one to seven of the research clients. This was not a random sample of all the therapists at the MSU Counseling Center; each therapist volunteered to participate in the research project. Five of the therapists were female; four were male. Eight therapists were interns,

all of whom were enrolled in a counseling psychology doctoral program. One therapist was a full-time staff member at the Center, a recent Ph.D. graduate from a counseling psychology program. Each of the therapists was trained in traditional styles of counseling and therapy and each was eclectic in using a variety of styles and techniques (e.g., intrapersonal, interpersonal, emotional, cognitive).

Threats to Generalization

The following factors limit the generalization or, as Campbell and Stanley (1963) term it, the external validity of the study.

1. The subjects used in this study were undergraduate and graduate students enrolled at a Big-Ten university (Michigan State University, East Lansing, Michigan). Their age ranged from 18 to 33 years, with a mean age of approximately 22.6 years.

2. The subjects were volunteers, and therefore, the sample does not represent a random selection from the university population of students who seek help from the Counseling Center.

3. The subjects' presenting problems were personal/social in nature rather than educational, vocational, or academic. They were not considered to be actively suicidal, severely confused or disorganized, or in a crisis situation.

4. The subjects were posttested after seven to ten weeks of therapy. This represents either short-term treatment or the beginning stages of longer term therapy.

5. The therapists were volunteers and therefore do not represent a random selection of the Counseling Center population of available therapists.

6. The use of a pretest could have influenced the subjects' responsiveness to the experimental variable and thus make results unrepresentative of populations not pretested.

Measures Used in the Study

Three separate measures were used in this study: (1) the Richardson revision of the Gordon Test of Visual Imagery Control (Gordon Test, Richardson, 1969), (2) the Myers-Briggs Type Indicator (MBTI, Myers, 1962), and the Personal Orientation Inventory (POI, Shostrum, 1963).

The Richardson Revision of the Gordon Test of Visual Imagery Control (Gordon Test)

The Gordon Test is the best known and most widely used test of imagery control. The original test (Gordon, 1949) has become synonymous with the notion of visual imagery control, and involves oral instructions which precede eleven questions that subjects answer either "yes" or "no" depending on their ability to manipulate evoked visual images. Richardson (1969) made several changes in this format: he added a twelfth item, included a tripartite scoring system ("yes," "no," and "unsure"), and advocated the use of printed rather than oral instructions.

According to the most commonly used scoring method, each "yes" is scored two points, each "unsure" one point, and each "no" answer is scored zero points. Thus the highest attainable score is 24 points and the lowest possible score is zero. In Gordon's original test, subjects were labeled "controlled" only if they scored perfectly on each of her original eleven questions. If only one question was marked "no," the subject was labeled "autonomous" or uncontrolled.

Richardson, in his report of his four unpublished studies (1972), did not specify his cut-off point for controlled or autonomous imagers. Broadway (1971), using Richardson's scoring for a university sample, specified the median of his sample as the cut-off point. It was decided to use this latter method of scoring for the sample of the present study. The median was found to be 20.5; all subjects who scored 21 and above were defined as controlled imagers and all subjects who scored 20 and below were defined as autonomous imagers.

Given the present state of available measures that propose to assess visual imagery control, it seemed appropriate to use the Richardson revision of the Gordon Test of Visual Imagery Control in the present study. It is a simple and straightforward self-report inventory that has been fairly reliable and much of the normative

data reviewed in the literature have come from research with university and college populations.

The Myers-Briggs Type Indicator (MBTI)

The Myers-Briggs Type Indicator is a 166-item self administering questionnaire which was developed by Briggs and Myers in 1962 to measure the variables in Carl Jung's personality typology. It consists of four scales: Extraversion-Introversion (E-I), Sensing-Intuition (S-N), Thinking-Feeling (T-F), and Judging-Perceiving (J-P), of which the first two (E-I and S-N) are of particular interest in the present study. The current version of the Indicator (Form F) was published in 1962, and has been used in more than 400 studies.

The aim of the MBTI is to determine habitual choices between opposites; thus, the questions are set up in a forced choice form. Each scored item has one answer weighted in favor of one of the eight preferences and the other answer weighted in favor of the opposing preference. Different weights have been assigned to certain answers in an attempt to offset social desirability bias.

The MBTI gives two separate types of scores for each person. It classifies respondents on four dichotomous type categories and it also gives eight numerical scores which can be transformed into four continuous scores.

MBTI scores may therefore be regarded as either dichotomous or continuous data.

It was decided to use the dichotomous scores for the sample of the present study. Jung's theory states that the preferences underlying psychological type "are dichotomies based on inner dispositions which cannot be thwarted without damage to the individual's well-being and effectiveness" (Myers, 1962). Although all persons have an extraverted and an introverted side, use both sensing and intuition, judge with both thinking and feeling, and can adopt both the judging and perceptive attitude, the theory states that those who prefer and develop one mode over the other become qualitatively different types of people.

The Personal Orientation Inventory (POI)

The Personal Orientation Inventory has been frequently used in studies involving counseling and psychotherapy research, both with individual clients and with groups. The Inventory is composed of 150 two-choice, paired opposite statements that deal with values, attitudes, and self-percepts. One statement that the subject believes is most true of him or herself is selected from each pair. Shostrum (1976) stated that the instrument is not a forced-choice one but rather the item format is better described as paired-opposites. The scores are

normative rather than ipsative; an individual can have all high scores or all low scores.

According to one method of scoring the POI, each item in the inventory can be scored twice. The first scoring is for each of the first two subscales (Inner Directed and Time Competent) with no item overlap. The second scoring is for the ten following subscales, each measuring a separate aspect of self-actualization. Since all of these subscales relate to conceptually different aspects of self-actualization, it was decided that the sums of the two major subscales would be used as a single, overall measure of self-actualization. This alternative method of scoring is commonly and widely used (Damm, 1972).

The first of the two major subscales is Time Competent (Tc with 23 items). This subscale measures the degree to which a person can live primarily in the present without regrets and resentments from the past and without idealized expectations and goals for the future. The second major subscale is Inner Directed (I with 127 items), measuring the extent to which one can be priamrily independent and self-supportive, guided by inner motivations rather than external influences.

It seemed appropriate to use the POI as an outcome measure in the present study because as an instrument, it places emphasis on mental health rather than clinical

pathology. The actualizing model, upon which the POI is based, is really an educational model where responsibility is gradually shifted from therapist to client in terms of movement and growth. It is an appropriate model for this particular university counseling center sample, which represents a wide range of developmental concerns, but not severe or pathological problems. The POI also tends to reflect short-term changes in self-actualization (Shostrum, 1976).

The Personal Orientation Inventory items are stated and scale constructs interpreted in a non-threatening language which stresses the positive effects of therapy rather than focusing on the absence of illness or clinical symptoms. The thirty minutes that it takes to complete the test made it a feasible instrument to use along with other instruments for pre- and posttesting. The normative data in the POI manual are geared to a college student population with the standard score profile sheet based on norms of 2,607 entering college freshmen.

Null Hypotheses

I. There will be no difference in ability to control visual imagery between individuals who have a tendency to exhibit Introversion and individuals who have a tendency to exhibit Extraversion as a direction of interest.

II. There will be no difference in ability to control visual imagery between individuals who have a tendency to exhibit Intuition and individuals who have a tendency to exhibit Sensing as a mode of perception.

III. There will be no difference in scores on a measure related to therapy outcome between individuals who exhibit controlled visual imagery and individuals who exhibit visual autonomous imagery.

IV. There will be no difference in the scores on a measure related to therapy outcome between individuals who exhibit controlled visual imagery and who are also working with a therapist with controlled visual imagery and individuals with autonomous visual imagery and who are also working with a therapist with autonomous visual imagery.

Research Design and Analysis of the Data

The designs used in this study are factorial designs, each with two factors. Basically, a factorial design is defined as having two or more variables in the same experiment which can be manipulated or not manipulated by the experimenter (Glass & Stanley, 1970). Not only is it possible to test the main effects of each of the variables but it is also possible to test the interaction effects between the variables.

Each of the factors in this study is fixed, that is, the levels of each variable are selected arbitrarily or the entire population of levels of the variable is

included. Each of the factors in this study has two levels of categories. The design variables are listed in Table 3.2.

Table 3.2

Description of Independent Variables

Variable	Number of Levels	Description of Levels
Client MBTI Type	2	Extraversion Introversion
Client MBTI Type	2	Sensing Intuition
Client Gordon Type	2	Controlled Autonomous
Therapist Gordon Type	2	Controlled Autonomous

The data analytic procedures for the null hypotheses are listed in Table 3.3.

Table 3.3

Data Analytic Procedures for the Null Hypotheses

Hypothesis	Procedure	Dependent Variable	Independent Variable(s)
I	ANOVA	Gordon Test	Client MBTI type on E-I dimension
II	ANOVA	Gordon Test	Client MBTI type on S-N dimension
III	ANCOVA	Adjusted POI score (POI pretest used as covariate)	Client Gordon type
IV	t-test	Adjusted POI score (POI pretest used as covariate)	Client Gordon type Therapist Gordon type

The first two hypotheses, which are concerned with the relationship of individual differences to the control of imagery, will be analyzed by a two-way analysis of variance. The design for these hypotheses can be diagrammed as follows:

	Introverts	Extraverts
Intuitors	$\bar{X}_{11}$	$\bar{X}_{12}$
Sensors	$\bar{X}_{21}$	$\bar{X}_{22}$

The dimensions of this design are the Introversion-Extraversion classification and the Intuition-Sensing categories. The symbol $\bar{X}_{ij}$ represents the respective group means on the Gordon Test. That is to say, $\bar{X}_{11}$ represents the mean score of individuals who were both Intuitors and Introverts and $\bar{X}_{22}$ represents the mean score of individuals who were Sensors and Extraverts. Standard two-way ANOVA techniques were used.

The last two hypotheses are interrelated; the design for both can be diagrammed as follows:

			MAIN EFFECT B: Therapist — Controlled Imagers	MAIN EFFECT B: Therapist — Autonomous Imagers
MAIN EFFECT A	Client	Controlled Imagers	$\bar{X}'_{11}$	$\bar{X}'_{12}$
		Autonomous Imagers	$\bar{X}'_{21}$	$\bar{X}'_{22}$

The dimensions of this design are the client categories of controlled imagers and autonomous imagers and the therapist categories of controlled imagers and autonomous imagers. The symbol $\bar{X}'_{ij}$ represents the average adjusted POI score.

Hypothesis III was tested by a two-way analysis of covariance. Because of differing degrees of seriousness of presenting problem, it is not reasonable to assume that groups were equal before therapy began. Hence, since improvement or gain is the dependent variable, consideration of these expected initial group differences were taken into account. Analysis of covariance (ANCOVA) is a statistical technique for handling this problem. This study used the initial POI score to adjust the ending POI score for the initial differences.

The test for the client dimension (controlled imagery vs. autonomous imagery) addressed Hypothesis III. Hypothesis IV was tested by comparing the adjusted POI scores of those individuals who were matched according to imagery type ($\bar{X}'_{11}$ $\bar{v}$s. X'_{22}) by use of a two-tailed t-test.

CHAPTER IV

ANALYSIS OF RESULTS

The purpose of this chapter is threefold: (1) to present the data collected from the subjects, (2) to present the results of the analyses of these data in accordance with the designs outlined in Chapter III, and (3) to interpret these data according to the hypotheses stated in Chapter III.

The organization of this chapter will be to analyze the first two hypotheses as a pair, and then to analyze the third and the fourth hypotheses individually. Within this framework, each research question will be presented followed by an appropriate translation into statistical notation. Tables and/or figures of the results of processing the data by the appropriate statistical technique will then be presented. The analyses use .05 as the level of statistical significance for each hypothesis test.

Abbreviations used throughout this chapter will be consistent with those used in Chapter II and Chapter III: Gordon or Gordon Test refers to the Richardson Revision of the Gordon Test of Visual Imagery Control; POI refers

to the Personal Orientation Inventory; and MBTI refers to the Myers-Briggs Type Indicator. The list of abbreviations used in stating the statistical hypotheses is presented below:

H_o = Null hypothesis

H_a = Alternative hypothesis

μ_I = Mean pretest Gordon score of Introverts as typed by the MBTI

μ_E = Mean pretest Gordon score of Extraverts as typed by the MBTI

μ_N = Mean pretest Gordon score of Intuitors as typed by the MBTI

μ_S = Mean pretest Gordon score of Sensors as typed by the MBTI

μ_C = Mean difference between POI pretest and POI posttest of clients with controlled visual imagery

μ_A = Mean difference between POI pretest and POI posttest of clients with autonomous visual imagery

$\mu_{C/C}$ = Mean difference between POI pretest and POI posttest of clients with controlled visual imagery who are working with therapists with controlled visual imagery.

$\mu_{A/A}$ = Mean difference between POI pretest and POI posttest of clients with autonomous visual imagery who are working with therapists with autonomous visual imagery.

Results of the Hypothesis Testing

The first two hypotheses motivating this study have been described in Chapter III. They are repeated here for ease in reading.

Hypothesis I

Individuals who have a tendency to exhibit Introversion as a direction of interest are more likely to exhibit controlled visual imagery than individuals who have a tendency to exhibit Extraversion as a direction of interest.

H_o: $\mu_I = \mu_E$

H_a: $\mu_I > \mu_E$

Hypothesis II

Individuals who have a tendency to exhibit Intuition as a mode of perception are more likely to exhibit controlled visual imagery than individuals who have a tendency to exhibit Sensing as a mode of perception.

H_o: $\mu_N = \mu_S$

H_a: $\mu_N > \mu_S$

Table 4.1 shows the means, standard deviations and frequencies of the groups involved in the first two hypotheses.

Table 4.1

Pretest Gordon Scores Selected for Analysis of the Extraversion-Introversion Dimension (n = 25)

Group	N	$\bar{X}$	SD
Extraverts	11	17.28	7.19
Introverts	14	18.71	4.88
Sensors	11	13.72	6.31
Intuitors	14	21.50	2.56

Figure 4.1 shows the design used for Hypothesis I and Hypothesis II with the appropriate cell and marginal means, standard deviations and frequencies. The analysis technique used to test these hypotheses is a univariate analysis of variance, the dependent variable being the pretest Gordon score. The results of this analysis are shown in Table 4.2.

	Extraversion (E)	Introversion (I)	
Sensing (S)	$\bar{X}_{E,S}$ = 9.0 SD = 9.54 n = 3	$\bar{X}_{I,S}$ = 15.50 SD = 4.2 n = 8	$\bar{X}_{S}$ = 13.72 SD = 6.31 n = 11
Intuition (N)	$\bar{X}_{E,N}$ = 20.38 SD = 2.77 n = 8	$\bar{X}_{I,N}$ = 23.0 SD = 1.26 n = 6	$\bar{X}_{N}$ = 21.5 SD = 2.57 n = 14
	$\bar{X}_{E}$ = 17.28 SD = 7.20 n = 11	$\bar{X}_{I}$ = 18.71 SD = 4.88 n = 14	$\bar{X}$ = 18.08 SD = 5.97 n = 25

Figure 4.1.--Gordon Pretest Means, Standard Deviations, and Frequencies.

Table 4.2

Results of the Two-Way ANOVA on the Gordon Test Scores

Source	SS	df	MS	F	p
Extraversion-Introversion	12.80	1	12.80	.73	.402
Sensing-Intuition	455.14	1	455.14	25.98	.0001
E-I and S-N Interaction	20.02	1	20.02	1.14	.297
Error	367.88	21	17.52		

A note of explanation should precede the analysis of Hypotheses I and II. Because the design of the study is non-orthogonal, estimates of each source of variation are not as straight-forward as might appear. To adjust for the unequal cell frequencies, an adjustment to the standard computational methods for the sums of squares was adopted. The approach used is referred to as the experimental design analysis method as mentioned by Overall and Klett (1972).

The logic of the hypotheses testing will proceed from the interaction to the main effects. Since there is no statistically significant interaction ($p = .297$), attention will be turned to the two main effects. Subjects

who were classified as Extraverts or Introverts did not differ significantly on their Gordon pretest scores ($p = .402$). Subjects who were classified as Sensors or Intuitors, however, did differ from each other ($p = .0001$). Since there are only two groups, inspection of the marginal means will indicate which group had the higher score. Individuals in this study who exhibited Intuition as a mode of perception scored significantly higher on the Gordon Test ($\bar{X} = 21.50$) than did individuals who exhibited Sensing ($\bar{X} = 13.72$).

In summary, the null hypothesis of no relationship between imagery control and the tendency to exhibit either Introversion or Extraversion is not rejected. However, the second null hypothesis, that of no relationship between ability to control imagery and a tendency to exhibit either Sensing or Intuition, is rejected.

Hypothesis III

There will be no difference in scores on a measure related to therapy outcome between individuals who exhibit controlled visual imagery and individuals who exhibit autonomous visual imagery.

$$H_o: \mu_C = \mu_A$$

$$H_a: \mu_C \neq \mu_A$$

Because Hypothesis III uses the increase between the POI pretest and the POI posttest as an indicator of therapy effectiveness, it is important to examine the correlation between the two tests. Table 4.3 indicates that there is a strong relationship between the POI pretest and the POI posttest scores. A relatively high correlation exists and these results indicate that the POI pretest is an acceptable covariate.

Table 4.3

Correlation Matrix of the POI Pretest and POI Posttest Scores

	POI Pretest	POI Posttest
POI Pretest	1.000	
POI Posttest	.697*	1.000

*$p < .05$

Figures 4.2 and 4.3 show the cell and marginal means, standard deviations, and frequencies for the POI pretest scores and the POI posttest scores, respectively.

Main Effect B

Therapist

Main Effect A: Client	Controlled (C)	Autonomous (A)	
Controlled (C)	$\bar{X}_{C,C}$ = 88.14 SD = 14.59 n = 7	$\bar{X}_{A,C}$ = 99.50 SD = 14.53 n = 4	$\bar{X}_{C}$ = 92.27 SD = 14.96 n = 11
Autonomous (A)	$\bar{X}_{C,A}$ = 85.75 SD = 12.46 n = 8	$\bar{X}_{A,A}$ = 98.00 SD = 17.01 n = 6	$\bar{X}_{A}$ = 91.00 SD = 14.31 n = 14
	$\bar{X}_{C}$ = 86.87 SD = 13.05 n = 15	$\bar{X}_{A}$ = 98.60 SD = 15.22 n = 10	$\bar{X}$ = 91.56 SD = 14.86 n = 25

Figure 4.2.--POI Pretest Means, Standard Deviations, and Frequencies.

Main Effect B

Therapist

Main Effect A: Client	Controlled (C)	Autonomous (A)	
Controlled (C)	$\bar{X}_{C,C}$ = 92.71 SD = 15.45 n = 7	$\bar{X}_{A,C}$ = 98.75 SD = 15.99 n = 4	$\bar{X}_{C}$ = 94.91 SD = 15.14 n = 11
Autonomous (A)	$\bar{X}_{C,A}$ = 88.75 SD = 8.23 n = 8	$\bar{X}_{A,A}$ = 90.00 SD = 20.07 n = 6	$\bar{X}_{A}$ = 89.29 SD = 13.85 n = 14
	$\bar{X}_{C}$ = 90.60 SD = 11.84 n = 15	$\bar{X}_{A}$ = 93.50 SD = 18.15 n = 10	$\bar{X}$ = 91.76 SD = 14.40 n = 25

Figure 4.3.--POI Posttest Means, Standard Deviations, and Frequencies.

The test of Hypothesis III involves an analysis of covariance, using the POI pretest as the covariate. Table 4.4 shows the POI posttest means, and the adjusted means which will be used in the ANCOVA.

Table 4.4

POI Posttest and Adjusted Means

Variable	n	Mean of POI Post	Adjusted Mean (using POI-Pre as Covariate)
Subjects with:			
Controlled Imagery	11	94.91	94.18
Autonomous Imagery	14	89.29	89.86
Therapists with:			
Controlled Imagery	15	90.60	93.97
Autonomous Imagery	10	93.50	88.45

The results of the analysis of covariance are presented in Table 4.5.

The method of analysis proceeds in a fashion similar to the analysis of Hypotheses I and II. An inspection of Table 4.5 indicates that there are no statistically significant effects. This translates as neither the therapist nor the client differ on the amount of gain as

Table 4.5

Results of the ANCOVA on the Adjusted POI Scores

Source	SS	df	MS	F	p
Client	113.81	1	113.81	1.02	.32
Therapist	153.12	1	153.12	1.38	.26
Client and Therapist Interaction	43.38	1	43.38	.39	
Error	2226.97	20	2226.97		

measured by the POI. It is noted that the scores on both the pretest and the posttest are in the normal zone relative to the standard interpretation of the POI. Because of the lack of statistically significant effects, the null hypothesis of no difference on the adjusted POI score between clients with controlled imagery and clients with autonomous imagery is not rejected.

Hypothesis IV

There will be no difference in the scores on a measure related to therapy outcome between individuals who exhibit controlled visual imagery and who are also working with a therapist with controlled visual imagery and individuals with autonomous visual imagery and who are also working with a therapist with autonomous visual imagery.

$$H_o: \quad \mu_{C/C} = \mu_{A/A}$$

$$H_a: \quad \mu_{C/C} \neq \mu_{A/A}$$

Hypothesis IV uses the mean difference between the POI pretest and the POI posttest for two specific cells of Figures 4.2 and 4.3 as the dependent measure. The relevant cells are (1) clients with controlled imagery working with therapists with controlled imagery, and (2) clients with autonomous imagery working with therapists with autonomous imagery. The results of a t-test for differences between these cells are presented in Table 4.6.

Table 4.6 shows that there is no significant difference between the groups of interest on the adjusted mean scores. Therefore, the null hypothesis of no difference on the adjusted POI score between controlled clients working with controlled therapists and autonomous clients working with autonomous therapists is not rejected.

However, Table 4.6 indicates that there is a noticeable difference between the two standard deviations.

Table 4.6

Results of the t-test on the Adjusted POI Scores

Variable	n	$\bar{X}$	SD	t	p
POI Difference					
Controlled client-Controlled therapist	7	4.57	6.5	1.60	.137
Autonomous client-Autonomous therapist	6	-9.00	19.6		

Therefore, an F-test was computed to test the following hypotheses;

$$H_o: \quad \sigma^2_{C/C} = \sigma^2_{A/A}$$

$$H_a: \quad \sigma^2_{C/C} \neq \sigma^2_{A/A}$$

The results of this F-test are reported in Table 4.7.

Since an $F_{5,6}$ value of 5.99 is needed to reject at the .05 level, it was found that the variances are significantly different (F = 9.09). Therefore, the null hypothesis of no difference on the variance of the adjusted POI score between controlled clients working with controlled therapists and autonomous clients working with autonomous therapists is rejected. It appears that the group composed of controlled clients and controlled

Table 4.7

Results of the F-test on the Adjusted POI Scores

Variable	n	S^2	F	p
POI Difference				
Controlled client-Controlled therapist	7	42.24	9.09	<.05
Autonomous client-Autonomous therapist	6	385.16		

therapists is a tightly clustered group that has adjusted POI scores in the desired direction, and that the group composed of autonomous clients and autonomous therapists has adjusted POI scores that are significantly more varied and showing a negative direction. The significant difference in variation may be a factor that contributes to the lack of significance between the adjusted mean scores.

Although not of major interest in this study, an investigation was undertaken to compare the performance on the POI of clients currently in therapy with the performance of a control group, composed of individuals on the Michigan State University Counseling Center waiting list. Table 4.8 shows the results of this investigation. The t value is not significant (p = .933) which suggests

that the experimental and control groups did not differ in the amount of increase in POI scores.

Table 4.8

Results of the t-test for Differences in the POI Pretest and the POI Posttest

Variable	n	$\bar{X}$	SD	t	p
POI Difference					
Client group	25	.20	11.41	.09	.93
Control group	18	-.06	6.66		

However, it is again observed that the standard deviations of these two groups differ. An F-test was computed to test the following hypotheses:

$$H_o: \sigma^2 \text{ clients} = \sigma^2 \text{ control}$$

$$H_a: \sigma^2 \text{ clients} \neq \sigma^2 \text{ control}$$

The results are reported in Table 4.9.

Since an $F_{24,17}$ value of 2.56 is needed to reject at the .05 level, it was found that the variances are significantly different (F = 2.93) at the .05 level. Therefore, the null hypothesis of no difference on the variance of the adjusted POI score between the client group and the control group is rejected. The client

Table 4.9

Results of the F-test for Differences in the POI Pretest and the POI Posttest

Variable	n	S^2	F	p
POI Difference				
Client group	25	130.18	2.93	<.05
Control group	18	44.35		

group has significantly more varied scores, possibly as a result of the members of the group being in therapy. It is possible that the significant difference in variation may contribute to the lack of significance in the t-test on the adjusted mean scores.

A second finding of interest, although not directly related to the hypotheses of this study, is the relationship of the Gordon pretest scores and the Gordon posttest scores of the client group. Table 4.10 indicates that there is a strong relationship between the Gordon pretest and posttest scores.

This data lends support to the findings of McKelvie and Gingras (1974) that the test-retest reliability of the Gordon Test is quite strong, and that ability to control visual imagery seems to be consistent over time. It is reasonable to assume that this measure appears valid.

Table 4.10

Correlation Matrix of the Gordon Pretest and the Gordon Posttest Scores

	Gordon Pretest	Gordon Posttest
Gordon Pretest	1.000	
Gordon Posttest	.911*	1.000

*p < .05

Summary of the Hypothesis Testing

Four major hypotheses related to the empirical investigation of imagery control as it relates to Extraversion-Introversion, Sensing-Intuition, and therapeutic outcome were tested. The results of the hypothesis testing were as follows:

Hypotheses	Results
Null Hypothesis I stated that no difference in ability to control visual imagery would exist between individuals who have a tendency to exhibit Introversion and individuals who have a tendency to exhibit Extraversion as a direction of interest.	Not Rejected
Null Hypothesis II stated that no difference in ability to control visual imagery would exist between individuals who have a tendency to exhibit Intuition and individuals who have a tendency to exhibit Sensing as a mode of perception.	Rejected

Null Hypothesis III stated that no difference in scores on a measure related to therapy outcome would exist between individuals who exhibit controlled visual imagery and individuals who exhibit autonomous visual imagery.	Not Rejected
Null Hypothesis IV stated that no difference in scores on a measure related to therapy outcome would exist between individuals who exhibit controlled visual imagery and who are also working with a therapist with controlled imagery and individuals with autonomous visual imagery and who are also working with a therapist with autonomous visual imagery.	Not Rejected

In addition to the four major hypotheses, two minor hypotheses were tested. The results of the hypothesis testing of the minor hypotheses were as follows:

Hypotheses	Results
Null Hypothesis V stated that no difference on the variance of the adjusted POI score would exist between controlled clients working with controlled therapists and autonomous clients working with autonomous therapists.	Rejected
Null Hypothesis VI stated that no difference on the variance of the adjusted POI score would exist between the client group and the control group.	Rejected

CHAPTER V

DISCUSSION OF THE RESEARCH RESULTS AND THEIR IMPLICATIONS FOR FUTURE RESEARCH

In this chapter, the study is summarized, and conclusions drawn from data analyses are explored. A discussion of implications for future research in the area of visual imagery control is also presented.

Summary

The purpose of this investigation was to determine the degree to which the ability to control visual imagery is related to habitual patterns of behavior as identified by C. G. Jung's theory of psychological types. An additional objective was to study the degree to which the imagery control factor can be related to psychotherapy outcome or improvement as measured by attitude and value changes.

Literature was reviewed which addressed the area of imagery in general and the variable of imagery control in particular. The importance of the control variable within imaginal thought has been widely reported but little empirical investigation has taken place. Gordon (1949,

1972) has been one of the few contributors to this area of knowledge.

Although the relationship of visual imagery control and specific personality characteristics has been relatively neglected as an area of research, some studies have shown that inner-directedness or introversion seems to be related to the ability to image and control images, and that extraversion seems to be related to an inability to control imagery. Other studies have indicated that imagery may be linked to predominantly right-hemisphere functioning, which is spacial, intuitive, imaginistic, and concrete. Imagery and the ability to control imagery also seem to be evidenced frequently in those persons labeled "creative."

The use of client imagery was examined across various schools of psychotherapy and was shown to relate to basic principles of human information processing and emotion. A number of therapists and researchers (Gordon, 1972; Horowitz, 1978; Singer, 1974) asserted that the closeness of images to sensory perception can evoke emotional responses and cognitive processes associated with real experience; thus enabling release of affect and circumventing defensive operations. Therefore, therapeutic outcome may depend in some measure upon the variable of imagery control.

The primary test of visual imagery control, the Richardson revision of the Gordon Test of Visual Imagery Control, was reviewed, as was the Myers-Briggs Type Indicator, and the Personal Orientation Inventory. The MBTI and the POI were chosen for use in this study because of their strong theoretical underpinnings and high degree of reliability. The Gordon Test was selected because it is the most widely used test of visual imagery control. Nearly all of the published research on imagery control has used the Gordon Test as the sole or primary instrument to measure visual imagery control.

The sample for this study consisted of 25 undergraduate and graduate clients who had requested help with personal concerns from the staff of the Michigan State University Counseling Center during the 1979/1980 academic year. The participating therapists were eight counseling psychology interns and one staff therapist, all of whom regularly saw clients at the Center.

The data gathered for the analyses consisted of scores on the following three instruments: (1) the Richardson revision of the Gordon Test of Visual Imagery Control, (2) the Myers-Briggs Type Indicator, and (3) the Personal Orientation Inventory. The Gordon Test, the MBTI, and the POI were all administered to the Counseling Center sample as part of a pretest battery. After ten

weeks of therapy, posttests, consisting of the Gordon Test and the POI, were administered.

Three statistical measures were employed: (1) two univariate analyses of variance where the independent variables were client MBTI type with two levels (Extraversion and Introversion) for one analysis and client MBTI type with two levels (Sensing and Intuition) for the second analysis of variance; (2) a two-way analysis of covariance where the independent variable was the client score on the Gordon Test with two levels (controlled imagers and autonomous imagers); and (3) a t-test on the adjusted POI scores (using the POI pretest as the covariate) where the independent variables were client score on the Gordon Test with two levels (controlled imagers and autonomous imagers) and therapist score on the Gordon Test with two levels (controlled imagers and autonomous imagers).

Conclusions and Discussion

Four major conclusions can be drawn on the basis of the results of the hypotheses tests. First, no relationship was found to exist between the ability to control visual imagery and the tendency to exhibit Extraversion or Introversion as a direction of interest. Second, individuals who had a tendency to exhibit Intuition as a mode of perception were more likely to exhibit

controlled visual imagery than individuals who had a tendency to exhibit Sensing as a mode of perception. Third, no relationship was found to exist between client adjusted scores on the POI and tendency to exhibit either controlled or autonomous visual imagery. Finally, no relationship was found to exist between adjusted scores on the POI and the pairing of clients with therapists of similar imagery type.

The major findings of this study will be discussed under the following sections: (1) Visual Imagery Control and Direction of Interest, (2) Visual Imagery Control and Perceptual Mode, and (3) Visual Imagery Control and Therapeutic Outcome.

Visual Imagery Control and Direction of Interest

In reviewing the literature on individual differences and their effect on imagery, it was noted that individuals who were defined as introverts (Costello, 1957; Sullivan, 1956) seemed to be more able to visualize images and control those images than were those individuals classified as extraverts. More recent research (Bakan, 1978; Meskin & Singer, 1974) has found that inner-attentive subjects were more likely to be right-hemisphere dominant, and therefore more visually imaginistic than other-attentive subjects.

The present study, however, found that no relationship seems to exist between the ability to control visual imagery and the dimension of Extraversion-Introversion as defined by Jungian theory and the Myers-Briggs Type Indicator. This apparent contradiction, however, has a possible explanation. The early studies of Costello utilized a largely neurotic or psychotic population, so that introversion was linked to obsessive-compulsive tendencies and extraversion was linked to hysteria.

The Extraversion-Introversion dimension of Jung has quite a different emphasis, however; both dimensions are seen as basically healthy, and that while each individual has the capability for using either polarity, most people have a tendency to exhibit one or the other as a preferred mode. It may be that the MBTI measures a qualitatively different construct than either the previously defined introversion-extraversion dimension of Costello and Eysenck or the inner-attentive/other-attentive paradigm used by hemispheric lateralization researchers.

Visual Imagery Control and Perceptual Mode

A review of the pertinent literature (Dimond & Beaumont, 1974; Kinsbourne & Smith, 1974) showed that right-hemisphere dominant people are intuitive, imaginistic, and oriented toward primary process. Individuals

who are left-hemisphere dominant, on the other hand, tend to be rational, analytic, and oriented toward secondary process. Other studies (Holt & Goldberger, 1959; Foulkes, Spear & Symonds, 1966) show that imagery is likely to be found in persons who have the most creative potential. The research seemed to establish a tentative link between an intuitive, creative approach and the ability to form mental imagery.

In research conducted using the Myers-Briggs Type Indicator, Intuitors were more likely than Sensors to be rated as imaginative (Ross, 1961), which was consistent with McKinnon's findings (1966) that over 90% of the creative architects, research scientists, and mathematicians in one study were Intuitors.

The present study found that a relationship does exist between the ability to control visual imagery and the dimensions of Sensing and Intuition. It would appear that this collaborative evidence strengthens the view that intuitive types, as measured by the MBTI, form and control visual imagery more readily than do sensing types.

Visual Imagery Control and Therapeutic Outcome

Literature was reviewed that indicated that the use of imagery is prevalent across many schools of psychotherapy and that the control of imagery is an important factor in the ability of a client to cognitively and

affectively access certain material (Gordon, 1972; Horowitz, 1978; Singer, 1974). Although much recent research has centered on the imagery phenomenon (Singer, 1974), very few studies have looked at the possible impact of imagery or imagery control within the ongoing therapeutic process.

The length of the therapy process itself has been the subject of much recent intensive study. In a review of nearly 400 controlled evaluations of psychotherapy and counseling, Smith and Glass (1977) found that the correlation between the duration of therapy in hours and the final outcome was nearly zero, -.02. In other words, they stated that virtually no difference in effectiveness was observed between various short-term modalities and longer-term therapies.

The Personal Orientation Inventory, a measure of self-actualization, was used in this study to determine therapeutic outcome. Validity statistics, and the internal consistency and test-retest reliability figures of the POI had been found to be acceptable; and numerous studies had shown the sensitivity of the POI to changes resulting from psychotherapy (Cooper, 1971; Shostrom & Knapp, 1966; Young & Jacobson, 1970).

This study found that no relationship existed between client adjusted scores on the POI and the tendency to exhibit either controlled or autonomous visual imagery.

In other words, clients with controlled visual imagery showed no measurable evidence of greater growth in therapy than did clients with autonomous imagery.

Several factors contribute to the discussion of this finding. First, the POI was used as the sole measurement of therapeutic outcome. It is entirely possible that significant differences between the two imagery groups were not detected by this instrument based on Maslow's self-actualization model. Perhaps a variation between sets of scores might have been picked up by a different instrument or set of instruments.

Second, factors not controlled for in this study may have reduced the possibility of finding any differences between the two groups. For instance, because of the relatively small size of the sample, the sex of subject was not controlled for in the research design. Singer (1974) suggested that women have more vivid imagery than men; if we conjecture that women might also have more controlled imagery, perhaps there would be a sex difference in the relationship of visual imagery control and therapeutic outcome.

This study also found that no relationship exists between adjusted scores on the POI and the pairing of clients with therapists of similar imagery type. The t-test for mean differences on the adjusted POI scores revealed no significant difference; however, an F-test on

the variances of the two matched (controlled-controlled, autonomous-autonomous) groups revealed that the variances were significantly different. This difference in variance may, in part, account for the lack of significance in the testing of the adjusted mean scores.

An examination of Table 4.6 shows that the controlled clients working with controlled therapists tended to have POI scores in the positive direction and that this group as a whole had scores that were fairly tightly packed. Autonomous clients working with autonomous therapists, on the other hand, had scores in the negative direction; the group as a whole showed a wide variance in scores. This latter group may have demonstrated a trend toward negative POI score direction because of the matching factor on autonomous visual imagery. Perhaps if the two matched groups had had similar variance scores, a significant difference in the adjusted POI mean scores might have resulted from the hypothesis testing.

Limitations

One of the most evident limitations of this study is its reliance upon self-report instruments for gathering information about the subjects. All three instruments utilized this method, and the opportunity that subjects had to manipulate their scores was sufficient to require that interpretations of the results be made with caution.

A related limitation is one which is practically unavoidable when conducting research with human subjects. That is the problem of ultimate reliance upon the willingness of people to volunteer their participation. There is no acturate method to determine whether those who were contacted and who failed to come in for testing did so because of any differences on the imagery control continuum or not. A conservative assumption is that the pool of subjects who finally agreed to participate was not a purely random sample of the Counseling Center population from which they were drawn.

A third set of limitations lies within the nature of the instruments used in this study. The Myers-Briggs Type Indicator's ipsative scoring system makes it impossible to discriminate between a person who has a limited response repetoire and can only utilize one function effectively (e.g., Sensing) and a person who has a full range of options available but still has a strong preference for one function. In addition, the limited range of dimensions on the MBTI renders most current statistical tests relatively powerless to detect statistically significant differences.

The Gordon Test, while the most widely used of the imagery control assessment tests, has been quite sparsely researched. However, if the assumption is made that self-report information on imagery control is indeed related

to corresponding conceptual properties, close attention must be paid to the problems of validity and reliability. While some supportive evidence (Juhasz, 1972; McKelvie & Gingras, 1974) has been reviewed in this study, it is necessary to question if reliability data might not result from the operation of one or more response sets and the validity data from the presence of some correlated cognitive or temperament factors (Richardson, 1929). Even if it could be established that scores on the Gordon are an accurate reflection of the imagery experienced by a subject, it would still be an advantage if equivalent methods of measuring imagery control, objectively, could be found.

Although the extensive reliability and validity data on the Personal Orientation Inventory are comparable to the majority of available personality measures, the separate constructs proposed to measure the more global phenomenon of self-actualization are not yet correlated with specific behaviors described by Maslow (1971) that are characteristic of self-actualized people. As was the case with the Myers-Briggs Type Indicator and the Gordon Test, the POI as a self-report instrument is also subject to limitations due to possible response distortions and inaccuracies that are both intentional and unintentional, consciously and unconsciously motivated.

The complexity of studying the nature of imagery is in itself a significant limitation. It is important to note that factors such as response sets and cognitive aspects of mental processing may contribute to the formation and control of various types of imagery. It is possible that self-report measures, however reliable, may not adequately tap the intrinsic function of imagery formation.

Suggestions for Further Research

In general, this study shows that there may be a positive relationship between the control of visual imagery and the tendency to exhibit Intuition as a mode of perception. It is hoped that this study will add to and encourage more research in the area of imagery and its relationship to individual differences. To enhance and expand upon the findings from the present investigation, suggestions for future research will now be made.

1. Since the results of this study are generalizable only to similar populations, it would be valuable to conduct further research using differing socio-economic and educational levels, ethnic groups, and age groups.

2. All three of the instruments used in the study were self-report instruments. The usefulness and veracity of these measures were contingent upon the subjects'

abilities to respond honestly and accurately. The MBTI and the POI have been widely researched measures; however, since relatively few studies have been conducted on the Gordon, further research efforts should be directed toward improving and developing reliable and valid measures of visual imagery control. The study should then be replicated using these improved and more effective instruments.

3. The POI measures a range of values and attitudes relating to self actualization, one indicator of therapeutic progress. It would be advantageous to use several measures of therapeutic progress to ascertain client change and growth.

4. This study investigated visual imagery control within a ten-therapy-session time frame. Additional studies should examine the relationship of individual differences and the control of imagery over a longer period of time. Such studies might help clarify how imagery usage occurs in different stages of therapy.

5. It may be beneficial to conduct intensive studies of single cases in which specific and varied individual differences as well as additional measures of both imagery control and therapeutic outcome can be more fully examined.

6. Since some evidence points to the fact that women may have more vivid imagery than men, it would be advantageous to replicate this study using separate samples of male clients and female clients.

In conclusion, our understanding of the effects of individual differences on visual imagery control is in its beginning stages. Equally nascent is our understanding of the degree to which the control factor may be related to psychotherapy outcome or improvement. While this investigation does suggest that Intuitors have greater control of their visual imagery than Sensors, further research will be of significant value in clarifying this relationship and exploring more fully the impact of personality variables upon imagery control.

APPENDICES

APPENDIX A

LETTER ACCOMPANYING PRETEST FORMS

APPENDIX A

LETTER ACCOMPANYING PRETEST FORMS

October 15, 1979

Thank you for your participation in this research project. The attached forms include a consent form and an imagery control inventory. The two other inventories which will be given to you are the Myers-Briggs Type Indicator (MBTI) and the Personal Orientation Inventory (POI). After you have completed all three inventories and signed the consent form, please return them to the person at the testing office desk.

I will be contacting you in about 10 weeks for a retake of the short imagery control inventory and the POI. At that time, if you wish, I would be glad to interpret your results on these inventories for you. Your scores, of course, will be kept completely confidential.

Thanks again for your cooperation!

Melissa Crider Andrea
Intern
Counseling Center

APPENDIX B

CONSENT FORM

APPENDIX B

CONSENT FORM

1. I have freely consented to take part in a scientific study being conducted by Melissa Crider Andrea under the supervision of Dr. Don E. Hamachek, Professor, College of Education.

2. The study has been explained to me and I understand the explanation that has been given and what my participation will involve.

3. I understand that I am free to discontinue my participation in the study at any time and that this would not affect the status of my counseling at the Counseling Center.

4. I understand that the results of the study will be treated in strict confidence and that I will remain anonymous. Within these restrictions, results of the study will be made available to me at my request.

5. I understand that my participation in the study does not guarantee any beneficial results to me.

6. I understand that, at my request, I can receive additional explanation of the study after my participation is completed.

Signed _____

Date _____

APPENDIX C

RICHARDSON REVISION OF THE GORDON TEST OF VISUAL IMAGERY CONTROL

APPENDIX C

RICHARDSON REVISION OF THE GORDON TEST OF VISUAL IMAGERY CONTROL

Read each question, then close your eyes while you try to visualize the scene described. Record your answers by underlining "Yes," No" or "Unsure," whichever is the most appropriate. Remember that your accurate and honest answer to these questions is most important for the validity of this study. If you have any doubts at all regarding the answer to a question, underline "Unsure." Please be certain that you answer each of the twelve questions.

1.	Can you see a car standing in the road in front of a house?	Yes	No	Unsure
2.	Can you see it in color?	Yes	No	Unsure
3.	Can you now see it in a different color?	Yes	No	Unsure
4.	Can you see the same car lying upside down?	Yes	No	Unsure
5.	Can you now see the same car back on its four wheels again?	Yes	No	Unsure
6.	Can you see the car running along the road?	Yes	No	Unsure
7.	Can you see it climb up a very steep hill?	Yes	No	Unsure
8.	Can you see it climb over the top?	Yes	No	Unsure
9.	Can you see it get out of control and crash through a house?	Yes	No	Unsure
10.	Can you now see the same car running along the road with a handsome couple inside?	Yes	No	Unsure
11.	Can you see the car cross a bridge and fall over the side into the stream below?	Yes	No	Unsure
12.	Can you see the car all old and dismantled in a car-cemetery?	Yes	No	Unsure

APPENDIX D

LETTER ACCOMPANYING POSTTEST FORMS

APPENDIX D

LETTER ACCOMPANYING POSTTEST FORMS

January, 1980

Thank you again for your participation in this research project. It would be helpful to me if you would fill out this data form, along with completing the Gordon Test and the Personal Orientation Inventory.

1. Age _____

2. Sex _____

3. School standing _____

   (freshman = 1)

   (sophomore = 2)

   (junior = 3)

   (senior = 4)

   (graduate = 5)

4. Major _____

Please check this box if you would like feedback on your results. If you so indicate, I'll be getting back to you in a few weeks to set up a time. ☐

Melissa Andrea

APPENDIX E

FIRST PROCEDURAL MEMO TO THERAPISTS

APPENDIX E

FIRST PROCEDURAL MEMO TO THERAPISTS

Thanks so much for helping me out on my dissertation. I would appreciate it if you would now begin asking clients if I might contact them about participating in the resarch project. Feel free to explain as much or as little as you wish about their role in the project itself. My main concern is your obtaining their permission for me to call them with more information. Their agreement to be contacted will in no way obligate them to participate.

If your clients desire, and you are agreeable, I can offer them an interpretation of their Myers-Briggs Type Inventory and Personal Orientation Inventory scores after the data collection is complete.

I am including a packet of cards with my name on them. Please give one to each client who is agreeable to being contacted. This will help them remember who I am and what I am contacting them about. At the risk of insulting your memory, I've enclosed the cards in a packet that will fit nicely--and visibly--on the table in your office. If you're in two buildings during the week, I'll enclose two sets of packets.

Please list the clients willing to participate on the enclosed card and periodically let me know what the names and phone numbers are (perhaps via my mailbox at SSB). If it would be easier for you, you could call the information to Maxine at Olin (355-4510, ext. 221). She will keep a central list for me.

I'm hoping to complete data collection for the pre-test period within the next two weeks; therefore, your promptness in bringing this research project to the attention of your clients and relaying their names to me is essential. Again, thanks for your cooperation and participation.

APPENDIX F

SECOND PROCEDURAL MEMO TO THERAPISTS

APPENDIX F

SECOND PROCEDURAL MEMO TO THERAPISTS

I completed the pretesting of all clients participating in my study before Thanksgiving and within the next few weeks will be administering the posttests. I want to thank you again for your help and cooperation in this research effort. Of the clients whom you referred to me, the individuals who agreed to participate are:

I have offered feedback to them on their test scores. If both you and your client wish, I would be happy to give you the scores to go over together. Otherwise, I'm planning to set up times (after the post-testing is completed) in which I will give individual feedback to those clients who request it. Please just let me know if you want to use the first option of interpreting the results yourself to your client(s).

APPENDIX G

MYERS-BRIGGS TYPE INDICATOR TYPE TABLE FOR 25 CLIENTS PARTICIPATING IN THE STUDY

APPENDIX G

MYERS-BRIGGS TYPE INDICATOR TYPE TABLE FOR
25 CLIENTS PARTICIPATING IN THE STUDY

	SENSORS		INTUITERS	
INTROVERTS	I S T J N = 4 % = 16	I S F J N = 2 % = 8	I N F J N = 3 % = 12	I N T J N = 1 % = 4
	I S T P N = 1 % = 4	I S F P N = 1 % = 4	I N F P N = 1 % = 4	I N T P N = 1 % = 4
EXTRAVERTS	E S T P N = 1 % = 4	E S F P N = % =	E N F P N = 1 % = 4	E N T P N = % =
	E S T J N = 2 % = 8	E S F J N = % =	E N J F N = 5 % = 20	E N T J N = 2 % = 8

E = 11, 44%
I = 14, 56%

S = 11, 44%
N = 14, 56%

T = 12, 48%
F = 13, 52%

J = 19, 76%
P = 6, 24%

IJ = 10, 40%
IP = 4, 16%
EP = 2, 8%
EJ = 9, 36%

ST = 8, 32%
SF = 3, 12%
NF = 10, 40%
NT = 4, 16%

SJ = 8, 32%
SP = 3, 12%
NP = 3, 12%
NJ = 11, 44%

TJ = 9, 36%
TP = 3, 12%
FP = 3, 12%
FJ = 10, 40%

(Form adapted from University of Florida, Typology Laboratory)

APPENDIX H

MYERS-BRIGGS TYPE INDICATOR TYPE TABLE FOR 9 THERAPISTS PARTICIPATING IN THE STUDY

APPENDIX H

MYERS-BRIGGS TYPE INDICATOR TYPE TABLE FOR 9 THERAPISTS PARTICIPATING IN THE STUDY

	SENSORS		INTUITORS		
INTROVERTS	I S T J N = % =	I S F J N = % =	I N F J N = 1 % = 11	I N T J N = % =	
	I S T P N = % =	I S F P N = 1 % = 11	I N F P N = % =	I N T P N = % =	
EXTRAVERTS	E S T P N = % =	E S F P N = % =	E N F P N = 2 % = 22	E N T P N = 3 % = 33	
	E S T J N = % =	E S F J N = % =	E N F J N = 1 % = 11	E N T J N = 1 % = 11	

E = 7, 78%
I = 2, 22%

S = 1, 11%
N = 8, 89%

T = 4, 44%
F = 5, 56%

J = 3, 33%
P = 6, 67%

IJ = 1, 11%
IP = 1, 11%
EP = 5, 56%
EJ = 2, 22%

ST = 0, 0%
SF = 1, 12%
NF = 4, 44%
NT = 4, 44%

SJ = 1, 11%
SP = 1, 11%
NP = 5, 56%
NJ = 2, 22%

TJ = 1, 12%
TP = 3, 33%
FP = 3, 33%
JF = 2, 22%

(Form adapted from University of Florida, Typology Laboratory)

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