VISUALIZATION AS A TECHNIQUE FOR PERSONAL CHANGE

by

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Abstract

This study examined the effectiveness of information about, and/or practice with, visualization in increasing: self-understanding, belief in one's ability to effect self change, positive themes in ongoing imagery, and internality of locus of control. A sample of 19 women and 11 men, ranging in age from 18 to 50 years, were divided into four groups which each received different amounts of information about, or practice with, visualization. All groups were tested before and after treatment on four measures, and the three experimental groups also completed a posttest-only measure. The measures used were the Personal Response Questionnaire (developed by the author), subscales from the Imaginal Processes Inventory, the Spheres of Control test, the Questionnaire on Imagery Control, and the Questionnaire Upon Mental Imagery. Results indicated that members of the experimental groups believed that visualization could contribute significantly to self-understanding, felt differently about themselves as a result of learning about visualization, felt it would be useful for personal development, and felt they would use it in their own future self-development. Vividness of imagery increased from pretest to posttest for those groups with most information about, and practice with, visualization. Increased internality on the sociopolitical control subscale of the Spheres of Control test was also found for all groups on the posttest. None of the other predicted effects were found to have occurred at a significant level. The failure to achieve the anticipated results was attributed partially to the short period of training and practice allocated, to the small number of subjects, and also to the lack

of appropriate and sufficiently sensitive assessment measures.

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Introduction

Recent research about visualization, or guided imagery, has suggested its applicability to many aspects of behavior change. It has been found to be useful in psychotherapy as well as in specific behavior modification programs for phobias, anxiety management, and weight loss. Clients who have learned to use visualization in these therapies have frequently reported a greater belief in their ability to effect self-change in other areas of their lives. Although such subjective reactions have been documented clinically, they have not often been tested systematically. It was hoped that this study would add empirical support to the notion that changes in some subjectively experienced aspects of the self take place after one becomes familiar with visualization.

This introductory section examines some of the literature dealing with visualization. It looks first at imagery as a means of processing information, and why it appears to be the preferred language of the emotions, and of some of the other essential aspects of the self. This discussion will lay the theoretical groundwork for an outline of the uses of imagery in psychotherapy and behavior change. Evidence for the contribution of visualization to subjectively experienced personal change is then reviewed, and the relationship of imagery abilities and contents to the ability to control self-change is discussed. Finally, the present study is described.

Imagery is one of the three major styles of information representation we possess (Horowitz, 1978). The other two are enactive and lexical representation. In enactive

representation, past events are represented through motor schemas. In imagery representation, perceptions and thoughts are represented by sensory images. Lexical representation is in terms of verbal or mathematical symbolism. Developmentally, enactive representation is the first and lexical representation is the last to develop. However, all three styles of representation apparently continue to develop throughout life; the forms developed earlier do not disappear or remain at primitive levels as the later ones are developed. Rather, they all continue to evolve. In the adult, all three forms may be used simultaneously in normal conscious experience, without clear-cut division between systems. What is represented in one system may be translated to the other modes of representation.

The imagery and verbal modes are the most accessible to conscious awareness and manipulation, and have been discussed at greater length in the literature about information representation. Paivio (1971) labelled them the dual coding system.

Langer (1942) has described two kinds of symbolism which correspond with the two different styles of information representation. The first, which corresponds with lexical representation, is discursive symbolism. The symbols are relatively neutral and precise units which have regularly assigned meanings and rules of combination. They are organized sequentially. They are also relatively abstract, usually conveying general categories of meaning. In contrast to this is nondiscursive symbolism, exemplified by visual and musical images. These symbols present whole packages of information simultaneously and the symbol conveys information by the

organization or spatial patterning of its elements. The meaning of each part is taken from its relation to the whole. Such symbols are often metaphorical, conveying meaning by analogy. A situation or feeling may be captured by a symbol which leads one to compare the "gestalt" of that situation to another, which may be from memory or fantasy.

The two types of information processing have been associated with separate cerebral hemispheres (Bakan, 1980; Korn & Johnson, 1983). The left hemisphere is said to have primary responsibility for language and analytic functions while the right has primary responsibility for visual, spatial, auditory and musical representation, as well as for such processes as fantasy, creativity, and the emotional components of ongoing thought (Singer, 1978a). Various writers have described the left hemisphere style of functioning as being linear, deductive, logical, operant, and used in focused, secondary process thinking. The right hemisphere mode is described as being synthetic, intuitive, respondent, imaginative, analogical, inductive, and used in primary process thinking (Bakan, 1980).

Many functions rely on both hemispheres (Korn & Johnson, 1983), so that it would be oversimiplifying to say that they resided exclusively in one hemisphere or the other. However, whether it is due to the dominance of separate hemispheres or some other mechanism, the evidence is that verbal thought and imagery appear to be composed of quite different thought processes. It is because of this difference that imagery appears to be able to provide us with different information about ourselves than do our analytical thought processes. Imagery appears to be the preferred "language" of the emotions,

and of various other intuitive and creative processes. Developing greater awareness of this other style of information processing, and learning how to access it better, may provide us with a new tool for self-awareness and self-change. Additional support for the belief that imagery is a preferable vehicle for the expression of the affective self is reviewed in the sections below.

Singer (1978a) suggested that the verbal coding system with its abstract, analytic properties is especially efficient for integrating diverse phenomena into one language label or formula that allows rapid retrieval later on. The more global, concrete quality of the imagery system has the special value of providing detail when no verbal label has been stored, as is the case with emotions and very early experiences.

> Imagery creates a context, a vivid immediacy of experience that allows the fuller expression of emotion, the re-creation of related but often unlabeled memories. In effect, context permits the emergence of what has been called the repressed but what may actually be better viewed as unretrievable experience because no distinct verbal encoding has occurred with the original event. Without the advantage of a concise verbal label a memory cannot be reinstated without re-establishing an appropriate context through visual or auditory or other imagery. (Singer, 1978a, p. 111)

Because of the greater ability of imagery to represent information within a complex context, and to represent information which cannot easily be put into words, both Horowitz (1978) and Singer (1978a) consider imagery to be the preferred vehicle for the representation of emotion. Emotions which may be difficult to bring to awareness because of the difficulty of finding verbal descriptions for them may more easily find expression through imagery. Conversely, images can also be

consciously chosen in order to generate certain emotions, which can be used to change previously conditioned responses (Horowitz, 1978). An emotional response may occur more easily in response to an image because imagery also appears to be more closely connected to physiological processes than is verbal processing. Gendlin (1980) has written about the immediacy of the connection between imagery and physiological sensations, and how that connection can be used to provide insight in therapy. According to Gendlin, a feeling or thought will have a "felt sense" in the body. When an image arises which represents that felt sense, Gendlin believes that it both expresses that bodily state and, at the same time, explores it further. This leads to a change in the body feeling itself, and as a result, a potentially therapeutic change in the individual. This is thought to be accomplished without any translation of either imagery or body sensations into words.

Jaffe and Bresler (1980) have argued that guided imagery is also a method of communicating with autonomic physiological processes which occur outside of conscious awareness. They believe that verbal thoughts most directly affect the somatic or voluntary nervous system, whereas the language of imagery directly accesses the autonomic nervous system, which regulates such body functions as breathing, heart rate, blood chemistry, and immune response. These are, once again, the physiological processes most involved in the experience of emotion. Imagery can be used to bring information to awareness about physiological processes for the purpose of diagnosis, and it can also be used to help consciously promote specific physiological changes. In a different use of the same processes, body

feelings can be focused on in order to generate images, which may enable further understanding of the emotions connected with those physical sensations.

There appear to be several kinds of imagery, arising from different thought processes and levels of awareness. Starker (1974) has discerned a continuum of imagery arrayed between two poles or modes: an active thought imagery and a passive, spontaneous mode. At the active pole, imagery is vivid, directed, voluntary, and reality oriented. At the passive pole, imagery is more fuzzy, spontaneous, involuntary, and fantasy-oriented. The two may be exemplified by the difference between the kind of imagery used to find one's way in a familiar department store, and that which emerges in a dream.

Bakan (1980) has suggested that this continuum might be considered a dimension from primary to secondary process imagery. Bakan has given the label "raw imagery" to that imagery which is spontaneous or unprocessed. Such imagery may appear under certain conditions such as sleep, muscular relaxation, free association, mind-wandering, and under the influence of certain drugs. Under these conditions it may have primary process qualities and may be described as regressive, primal, affective, and illogical.

There are, however, times when such raw imagery appears to be processed analytically, or "cooked" as Bakan describes it. For example, images may be consciously constructed for help in the solution of visuo-spatial problems. Another example is when a dream or daydream is recalled and analyzed. The creative process appears to be a prime example of interaction between primary and secondary processes. The creative process is most

often conceptualized as being the emergence of an insight, intuition, or creative flash, which is then refined with more analytical thought processes.

There are two main kinds of visualization procedures, each of which makes use of both poles of the imagery continuum, but in different ways. In the first, "spontaneous imagery," an image emerges spontaneously into consciousness, and it is then focused on analytically in an attempt to decipher its significance. In the second kind of visualization, "directed imagery," an image is consciously constructed and then rehearsed. This type of visualization is used to achieve specific goals in behavioral therapy. For example, an anxious person might practice visualizing a confident approach to a feared situation. In this type of process, the image is rehearsed consciously over a period of time until the behavior becomes automatic, or integrated with other unconscious processes. In both types of imagery, a greater integration of conscious and unconscious is thought to be achieved.

The Level of Symbolic Thought

In the above section, information supporting the idea that imagery is the language of emotion and of the primary processes was presented. The case will be made here that this enables the user of visualization to communicate with those parts of the self most important for behavior change--parts which are difficult to access analytically. This area of the self is what Lifton (1976) described as the formative zone of the psyche, or the psychic core, and he argued that symbolic transformations around the issues of the psychic core held the greatest potential for alterations in the self. He listed the core

issues as follows: (1) sexuality and personal bonds; (2) learning, working and making; (3) death, play and transcendence; (4) home and place; (5) relationship to society and environment; and (6) nurturance and growth.

Leary (1957) has described this aspect of the self as the level of symbolic thought or private perception. Leary believed that it is this level of the psyche that is the source of imagination, creative expression, wishes and dreams. Symbols at this level are seen as a form of communication with the self, as a private preconscious language. They are generated, not as a response to the challenge of the external environment, but in response to internal drives. Spontaneous productions from this level often represent important aspects of psychic organization in a succinct and elegant way, which words could suggest only with difficulty. They may express, with instantaneous clarity, psychic themes that have been pondered verbally without success. Leary believed that these images are of mythical themes, and deal with the self as a symbolic hero in a symbolic world. He considered these images to be the private symbolic counterparts of the real self and real world which are dealt with at the more conscious and public levels of the psyche. Leary noted that the symbols at this level are much more intense and closely linked with emotion than are symbols at more public levels of the self.

Knapp (1969) proposed that mythical thought precedes discursive thought in the development of the individual, and he believed that the child lives on in the man or woman:

> The primitive and mythical view, the presentational [i.e., nondiscursive] image linked to our emotional systems persists as our personal mythology. Much of memory has this mythical quality.... (O)ne's personal history tends to be largely a mythical, fantasy-tinged, symbolic presentation of a past self.

(Knapp, 1969, pp. 395-396)

The symbols produced at the mythic core appear to be universal or archetypal symbols, since the core issues themselves are universal issues. These are the symbols explored intensively by Carl Jung, Joseph Campbell, and Ernst Cassirer. The universal symbolic language is the language of myth, fairy tale and art. It appears to be the predominant symbolic style of early history and of early childhood. Fromm (1951) identified the universal symbol as one in which there is an intrinsic relationship between the symbol and that which it represents. Its meaning is "rooted in the experience of the affinity between an emotion or thought, on the one hand, and a sensory experience, on the other" (pp. 17-18).

Fromm also identified two other types of symbols: conventional and accidental. The conventional symbol is used by a restricted group of people who share a convention. Language and national flags are examples. The meaning is defined within the culture or group who share the symbol. The accidental symbol is a symbol that takes on personal, intrinsic meaning for the individual as a consequence of individual life experiences, yet the meaning is not shared with others. These symbols are comprised of associations of aspects of the self with particular objects, places or sounds. They frequently recur in the private image life of the person, as for example, in dreams. Fromm stated that only universal and accidental symbols truly express inner experience. It is these universal and accidental symbols which are being accessed through visual imaging.

In the preceding discussion, the sources of symbolic imagery and means by which it is processed have been described.

The relationship of such imagery to core aspects of the self-concept was also touched upon. These processes have been covered in order to provide a theoretical basis for the specific literature about the use of visualization in psychotherapy which is to follow. An understanding of the symbolic processes and their relationship to the self-concept will enable a greater understanding of how specific visualization techniques may operate. In the next sections, some of the ways in which visualization has been used to facilitate desired personal changes will be outlined.

Therapeutic Uses of Imagery

The potency of imagery as a tool for achieving behavioral change is demonstrated in the literature detailing its use in various forms of psychotherapy and behavior modification. Visualization is perhaps one of the few techniques used by both behavioral therapists and analytical therapists, who generally work from different theoretical frameworks. Behavioral psychologists have been forerunners in the use of imagery for achieving behavior change. Some examples of behavioral techniques using imagery are systematic desensitization, covert rehearsal, and symbolic or covert modeling. All of these techniques make use of directed imagery. Systematic desensitization, for example, involves first learning to achieve deep relaxation and then imagining situations that are progressively closer approximations to the one which is most threatening. The individual learns that he or she is able to remain relaxed while at the same time contemplating the feared situation.

In covert rehearsal, the individual may be assisted by the

therapist to construct an imaginal self dealing with a situation in a way which improves on the individual's usual behavior in a very specific way, such as in "assertiveness training." Alternative and more productive ways of responding to frustrating situations are suggested or developed by the individual and are rehearsed in fantasy. Possible contingencies can also be anticipated and explored in the same way. In Meichenbaum's (1977) "stress innoculation," rehearsal of imagery is combined with self-instructions for more appropriate behavior. Possession of a more successful response set helps the individual to modify both the interpretation of the situation and the perception of self.

Bandura (1977) has been a major proponent of symbolic or vicarious modeling techniques. He has demonstrated that visualization of other persons, who engage successfully in either acts of freedom from phobia or acts of self-control from unwanted impulsive behavior and are reinforced socially or psychologically for such actions, can lead to similarly effective behavior on the part of the individual in comparable circumstances.

Cautela (1977) has also made extensive use of imagery techniques, based on Bandura's work. In Cautela's covert modeling procedure, the client is instructed to first imagine another person involved in and then performing a desired behavior. The client then goes on to imagine him- or herself in the same sequence, and these images are repeated extensively. The imaging is meant to have the client approach the desired behavior gradually in imagination, in a kind of operant-shaping procedure.

This technique has received empirical corroboration, largely through a series of investigations by Kazdin (1978). His studies have demonstrated that covert modeling is effective in overcoming phobias and in developing assertive behavior. He has also determined the effectiveness of different kinds of image contents. A model who is coping with the situation with some effort is more effective than a model demonstrating complete mastery. This finding is compatible with another finding, that models with similar characteristics to the client are more effective than dissimilar ones. Perhaps this encourages greater identification with the model. Multiple models are more effective than a single model, but imagining oneself as a model is no more effective than imagining another person. Greater elaboration of the images tends to lead to greater behavior change.

Directed imagery is also being found to be effective in other areas of self-change and development. Visual imaging has been used to enhance empathy and understanding of relationships (Bry & Bair, 1978; Frank, 1978; Singer & Switzer, 1980). Visualizing the behaviors, thoughts and feelings of others has been found to lead to increases in understanding of those others. Certain types of guided fantasy, humor and other forms of positive imagery have been found to be beneficial in dealing with both psychological and physical distress (Singer, 1974, 1978b). Shultz (1978) found that visualization of different kinds of scenes led to a reduction of depression in clinically depressed adults. Cousins (1979) found that inducing a positive mental state, and especially frequent laughter, was a major factor in his recovery from a severe physical illness.

Simonton, Matthews-Simonton and Creighton (1978) have shown that vivid imaging of physical self-healing can enhance the immune capacities of people with cancer. These physical healing processes may be due to neurochemical consequences of particular types and patterns of thought (Singer, 1978b).

The above techniques have used directed imagery, that is, having the individual focus on images chosen consciously and then rehearsed. The reason for the effectiveness of this process was explained by Lang (1979). In the imagery procedure he used, the client was given a behavioral script, an elaborate description of the images to be constructed, and the affective responses to be experienced. In Lang's view, the behavioral script, along with training and instruction from the therapist, constitutes an important determinant of the image ultimately generated in the patient's mind. He emphasizes that

> such images are not merely shadow perceptual experiences; the emotional image is understood to be a response set. That is to say, the image is a kind of template for overt responding, and it is for this reason that modification of the image can be presumed to be a vehicle for broad change in the affective behavior of the patient. (p. 19)

Other therapies, with more emphasis on insight, make a point of working with spontaneous imagery, in order to access more emotional aspects of thought. In this type of therapy, it is the symbolic value of images which emerge into consciousness that makes them valuable in clarifying emotional conflicts, and demonstrating where their resolution lies. Singer (1974) has explored some of the uses of spontaneous imagery productions (e.g., dreams, daydreams, and fantasies) within the therapeutic situation. He has found that spontaneous imagery productions can be used as a reflection of the ways in which patients orient

themselves cognitively to the world--that is, their generalized expectancies, anticipatory schemas and assumptions about the world. Singer proposed that spontaneous imagery productions have the advantage of circumventing people's normal self-deceptions, and that they often reflect a broader sensitivity and awareness than that found in more task-oriented thinking.

Spontaneous imagery techniques in therapy are mainly of two types: purely spontaneous or receptive visualizations; and induced or guided visualizations. These latter are not the same as directed imagery. This point will be clarified further below.

Purely spontaneous fantasies are imagined sequences of images which are allowed to assume whatever content or direction is natural to them. They are not interfered with. Guided fantasies are structured to a certain extent by the therapist or the visualizer, either in terms of the situation in which the fantasy is to unfold, or in terms of how the individual is to react to the fantasy situations he or she generates.

Examples of the receptive technique are Freud's free association technique and Jung's technique of active imagination (Jung, 1959). In active imagination, the individual enters into a state of relaxed awareness and then invites images to appear; she or he attempts to watch them without interference. If the person wishes, she or he can interact with the images by talking to them or asking questions. The images are subsequently discussed with the therapist. Jung used active imagination to help people get in touch with images from the deeper aspects of the self. He suggested that by symbolizing unconscious

contents, one brings them into a relationship with consciousness. Ideas and emotions are personified in mythical or archetypal figures representing primordial aspects of the psyche.

In the recent literature, guided imaging techniques are used more frequently in therapy than purely receptive imaging. Such images appear to go more directly to the center of the individual's conflicts, and if carefully chosen, are likely to more clearly offer a means of effectively dealing with those conflicts. The individual is instructed to enter into specific imaginary situations which have been found to elicit significant emotional responses and to be of universal or archetypal symbolic significance. For example, Leuner (1969), a German psychiatrist, developed a technique called Guided Affective Imagery. In this method, the client first becomes deeply relaxed in order to achieve a meditative state of consciousness. She or he is then asked to visualize different imaginary situations. At a certain depth of meditation, these situations lose their ordinary meaning and their symbolic value is slowly revealed (Kretschmer, 1969).

The psychic conflict represented in a condensed symbolic form can be dealt with in that symbolic medium, a level closer to the source of the conflict than more analytical or verbal representation. According to Hammer (1967), most psychological maladjustment lies on an infantile or primitive and largely preconscious level. Since symbolic images appear to be the most suitable vehicle of representation for this level, such conflicts are perhaps best resolved through a dialogue of such images. The symbolic interaction need not be understood

consciously for alteration in affect and behavior to occur (Hammer, 1967; Klinger, 1980; Shorr, 1974). Klinger (1980) hypothesizes that by "operating on the symbol," one is producing changes in the psychological substructures that mediate both imaginal expression and overt behavior.

Leuner suggests to the client means of "managing" the symbolic figures that arise, and his techniques have proven highly effective for treatment. One method is to have the client be guided by one of the benign symbolic figures which have been generated. Leuner finds that there is a spontaneous inner psychic pacemaker which controls and influences each person's therapeutic process, and which is generally manifested as a benign symbolic figure. When more threatening figures are encountered, they may be dealt with by confrontation, feeding, reconciliation, exhausting or killing, depending on which method the therapist feels will be most effective in resolution of the conflict.

Others have developed similar techniques, and the premises on which they are based are much the same. In each case, the person enters into a state of relaxation which helps the conscious mind to interact with the unconscious and preconscious elements of the personality. Censorship is thus greatly reduced, and important creative potential for self-integration is released. Symbolic manifestations then become available as indicators of important psychic conflicts or issues, which may then be resolved through conscious manipulation of those same symbolic representations. Such a resolution has a profound impact, as it facilitates the integration of conscious material with preconscious or unconscious material in a way that more

analytical therapies cannot accomplish as easily.

The material presented in this section has outlined a wide array of means by which visualization can facilitate behavior change and personal development. Directed imagery acts as a response set for changes in overt behavior, while spontaneous imagery enables emergence into awareness and integration of previously unrecognized aspects of the self. Many people who have acquired visualization skills while undergoing one of these therapies have commented that the acquisition of the skill itself was valuable. It gave them a new tool for self-change that could be applied in many dimensions of their lives. This subjective response to learning about visualization is explored further in the next section.

Enhanced Self Concept

Many clinicians who have used imagery techniques with their clients have reported that familiarity with them enhances their clients' belief in their abilities to direct self-change. Singer (1978a) believed that the individual's sense of self-control was enhanced because imagery is so private, and he also suggested that the individual's self-efficacy is increased. Klinger (1971) stated that people who are well acquainted with their fantasy processes and have practiced modifying them have at their disposal a powerful tool for self-direction. He also believed that awareness of the meaning of one's inner life can greatly improve one's self-communication.

In a study of guided fantasy as a psychotherapeutic intervention by Blankman (1980), both clients and therapists believed that the guided fantasy technique had contributed to changes in the clients' mastery/self-concept, and in their

awareness/understanding. Clients and therapists rated clients' responses to a single guided fantasy session. The clients also rated their own responses to regular therapy sessions. In response to the guided fantasy session, clients reported an increased impetus to change and become more assertive, greater awareness of feelings, and a stronger sense of mastery. Blankman proposed that it may be that such covert self-actualizing experiences, stimulated by guided fantasy, are more important to therapeutic change in some cases than the particular imagined or overt events which elicited those experiences. Blankman also found that the clients' degree of affective involvement during the guided fantasy session, as reported by the therapist, was associated with the clients' ratings of the significance of attitude changes they experienced immediately after the therapy session. The clients rated the strength of the effects of the guided-fantasy session as greater than or equal to the effects of a conventional therapeutic encounter.

Enhanced self-feeling may be a result of acquiring better access to, and understanding of, one's inner symbols and of those aspects of the self responsible for emotional meaning. The symbolic representation of the self may be felt to be in some sense more truthful than verbal concepts or labels since imagery is considered to be more closely tied to physical and emotional sensations than is verbal description (Gendlin, 1980; Singer, 1978a).

Another source of satisfaction may be in learning how to identify situations when specific directed imagery might be effectively generated and focused on for a specific purpose.

The recognition of situations where this may be called for, and the identification of what sorts of imagery would be most effective would also contribute to a greater sense of control over one's own development.

Imagery Abilities and Imagery Content

There appear to be two components of learning about visualization which contribute to an enhanced sense of self. The first is an ability component--increasing one's ability to control and modify personal imagery. The second is a content component--learning to generate imagery which can maintain a positive or self-affirming point of view.

Research on imagery abilities has focused on two of its dimensions: imagery controllability and imagery vividness. However, vividness appears to be of less importance than controllability in impact on personality. The two factors have been found to correlate with behavioral change (Cautela & McCullough, 1978), with the best combination of the two being high levels of both vividness and controllability. The combination that has the lowest correlation with behavioral change is high vividness and low controllability. For example, even if a person has vivid imagery, if he or she lacks the ability to control the image, behavior change is unlikely. Such a person may be unable to maintain adaptive imagery, and may continue to revert to maladaptive images.

Studies of correlations between these two imagery abilities and personality variables have indicated that (a) high scores on neuroticism are associated with low control and clarity (vividness) of image; (b) high scores on extraversion are associated with high control and clarity of image; and (c) high

scores on state and trait anxiety are associated with low control and clarity of image (Euse & Haney, 1975). According to Lane (1974), the two dimensions of vividness and controllability are highly correlated and are not clearly differentiated. Euse and Haney (1975) suggested that they may be a unitary phenomenon, or may be affected by a common mediator.

In a recent study, Strosahl and Ascough (1981) found evidence that imagery abilities were increased in low imagery ability subjects over the course of therapeutic treatment for test anxiety. They pointed out that changing imagery ability must be considered a process variable during therapy, and that changes in imagery style and content may be related to the degree of therapeutic change. No measures of the subjective effects of such a change in ability were noted.

Research has also been conducted on the relationship of imagery and thought content to personality variables and to mood. Some of the literature exploring these relationships is outlined here. Jerome Singer and his associates have explored in some detail the content themes of daydreams, which are one dimension of personal imagery. Singer uses the term "daydreaming" to signify a shift of attention away from the external environment and toward an "unfolding sequence of private responses made to some internal stimulus" (Singer, 1975, p. 3). Singer and Antrobus (1972) regarded daydreaming and the stream of consciousness as ongoing manifestations of people's image-making capacities, and they inquired about the degree to which different features of structure or content of fantasy processes related to each other and to broader aspects of personality structure. In an earlier study, they had developed

a set of scales to tap diverse aspects of these inner processes. They had found that daydreaming patterns appeared to form a bipolar dimension in which the more fanciful aspects of imaginal behavior loaded at one pole and more controlled thoughtfulness at the other. These findings are compatible with Bakan's (1980) hypothesis about "raw" and "cooked" imagery. In a later replication and extension of their earlier study, Singer and Antrobus (1972) studied the daydream themes of a sample of 206 college students. They found three general daydreaming styles, which appeared to correlate with three general personality styles. The three styles are described as follows: (a) anxious/poor attentional control; (b) guilty/fear of failure; and (c) positive/constructive (Huba, Aneshensel, & Singer, 1981; Singer & Antrobus, 1972). People with the first two styles of daydreaming, anxious or guilty, do not enjoy or accept their ongoing inner processes, and also display a low sense of well-being and self-acceptance. Positive daydreamers, on the other hand, are highly accepting of their daydreams and have positive reactions to them. In addition, positive daydreamers appear to have greater personal self-control and control over their imagery than do either the anxious or guilty daydreamers.

Cautela and McCullough (1978) identified a group of people who they called "negative scanners." Such people evaluate almost everything in a negative way, with the worst consequences being imagined. Cautela and McCullough believed that such behavior is largely developed and maintained by covert thought processes, but they found that habitually negative thoughts could be altered by paying attention to when they occur and consciously modifying them by covert conditioning procedures

such as covert reinforcement or covert modeling.

McKim (1980) proposed that "worriers" are the passive victims of negative imaginative ventures which they cannot stop or direct. In contrast, he believed positive thinkers control their inner imagery, manipulate it, transform it, and move it along toward a desired goal. McKim has suggested that many people have an inability to contact their imagination consciously and to direct it productively. With time, however, he felt that directed imagination could be developed, and one could become more comfortable with it and gain freer access to it.

Schultz (1978) found that visualization of neutral or self-esteem enhancing scenes led to a reduction of depression in clinically depressed males. Sixty white veterans were randomly assigned to four treatment groups. In a 10-minute individual induction, each subject was asked to visualize one of four images: (a) aggressive imagery--recalling someone doing or saying something that angered; (b) socially gratifying imagery--recalling someone saying or doing something that made the subject feel pleased; (c) positive imagery--recalling a relaxing place in nature; or (d) free imagery--not consciously directing mental experience. In a series of cognitive, affective, and structural measures completed immediately after the induction, subjects were found to produce significantly lower levels of depression after directed imagery than after free imagery. Imagery of a more socially oriented nature contributed to greater reduction of depression. Different kinds of imagery were, however, more effective with different kinds of depression. For example, those subjects whose depression was

characterized by themes of dependency produced lower levels of depression after aggressive and socially gratifying imagery, whereas those depressives who tended to be more self-critical reported fewer signs of depression after socially gratifying and positive imagery. Interestingly, those who tended toward guilty-dysphoric themes in their daydreaming indicated more signs of depression after positive imagery than after other imagery conditions.

The above studies indicate that the contents of thought and of mental imagery in particular have a strong effect on personality and mood variables. The present study attempted to explore and quantify the extent to which learning about, and practicing, visualization would lead to an increased ability to control inner events. It was also of interest to explore whether or not increased ability to control inner events would be reflected in an increased belief in ability to affect outer events, as reflected in greater internality of locus of control. Locus of control is a construct signifying one's degree of belief in one's ability to have control over different aspects of the environment. Greater internality of locus of control indicates greater belief in personal ability to control external events. There is some evidence that learning about visualization may, in fact, affect locus of control. Stanton (1982) found that training in relaxation, positive suggestion and success imagery increased internality of locus of control in secondary school students. In three 30-minute sessions, 1 week apart, students were guided into a state of physical and mental relaxation. They listened to ego-enhancing suggestions which concentrated primarily on their power to change themselves in

ways they might desire. Suggestions were both general and specific, with emphasis on their ability to take more control of their own lives. Ability to modify one's own locus of control with the use of visualization would contribute to the changes in sense of self being explored in this study, and further empirical support for the fact that visualization can contribute to a change in locus of control would be valuable.

The Present Study

The research presented above makes it clear that visual imaging can be an effective tool for achieving behavioral change. However, there appears to have been no systematic study of the inner, subjective changes that may occur in those who have learned to use visual imaging for self-change. This study was conducted to investigate that issue.

A search of the literature could find no instruments designed to measure the subjective experience of inner change. A brief questionnaire was then developed to attempt to elicit information about this subjective experience from the participants in the study and was administered as a posttest to the experimental groups.

Another instrument relating to the effects of imagery on personality and mood variables was also used. Four subscales from the Imaginal Processes Inventory (Singer & Antrobus, 1972) were selected. The Imaginal Processes Inventory was devised to describe daydreaming themes, and as mentioned previously, was found to be useful for determining daydreaming and personality styles. All of the four subscales used in the present study have been found to be highly positively correlated with a positive daydreaming style. The four scales were: Positive

Reactions in Daydreaming, Acceptance of Daydreaming, Problem Solving Daydreams, and Visual Imagery in Daydreams. It was believed that learning about visualization would increase positive responses on these subscales.

Locus of control was measured by the Spheres of Control test (Paulhus & Christie, 1981). Two measures of imagery abilities were included: the Questionnaire on Imagery Control (Lane, 1974) which measures imagery control, and the Questionnaire Upon Mental Imagery (Sheehan, 1967; Richardson, 1969) which measures imagery vividness. Locus of control was measured by the Spheres of Control test (Paulhus & Christie, 1981).

Participants were divided into four treatment groups, each of which was exposed to a different amount of information about, and practice with, visualization. The groups were then compared on a series of measures completed before and 2 weeks after the treatment. The four groups were constituted as follows: (1) the control group received no further information; (2) a second group was given a brief presentation about visualization (the didactic treatment group); (3) the third group was given the same presentation plus a workshop to practice visualization and discuss the imagery experienced (workshop only group); and (4) the fourth group had the same treatment as the third group, and then practiced visualization over the following 2-week period (workshop plus practice group).

The study was intended to establish if changes in attitudes about the self would occur when participants were familiarized with visualization, and it also attempted to record the subjective experience of that change. Further, it was believed

that exposure to information about and practice with visualization would lead participants to experience an increase in positive qualities in their personal imagery themes, and an increase in internality of locus of control. Imagery controllability and vividness were also tested before and after treatment to see if any changes in these abilities correlated with changes in the above personality variables.

The hypotheses tested were:

(a) Visualization training would lead to enhanced ability to understand the self as assessed by the Personal Response Questionnaire.

(b) Visualization training would lead to an enhanced belief in personal ability to direct self-change as assessed by the Personal Response Questionnaire.

(c) Visualization training would lead to more positive themes in the participants' imagery as assessed by subscales of the Imaginal Processes Inventory.

(d) Visualization would lead to increased internality of locus of control as assessed by the Spheres of Control test. This change was anticipated to occur primarily in the personal achievement subscale.

(e) Visualization training would lead to increased vividness of the participants' imagery as assessed by the Questionnaire Upon Mental Imagery.

(f) Visualization training would lead to increased controllability of the participants' imagery as assessed by the Questionnaire on Imagery Control.

With regard to the differences between the groups, the following results were expected:

(g) The greatest changes from pretest to posttest were expected in the workshop plus practice group, with less change anticipated in the workshop only group and still less in the didactic treatment group.

(h) The workshop plus practice group was expected to express the greatest subjective sense of personal change while the workshop only and didactic groups would express progressively less of that sentiment.

Method

Subjects

The sample was composed of 32 adult volunteers from Calgary who were recruited by posters for a study on visualization. The majority were students at the University of Calgary. There were 19 females and 13 males. The subjects' ages ranged from 18 to 50, the mean being 26.3 years. No compensation was given for participation.

Procedure

The subjects were randomly assigned to four groups: (a) a no treatment control group; (b) a didactic presentation group; (c) a group which received a presentation and a workshop to learn about visualization (workshop only group), and (d) a group which received the same presentation and workshop, and also practiced visualization during the 2-week period between pre- and posttests (workshop plus practice group).

Originally, eight subjects were assigned to each of the four groups. However, two subjects failed to complete the study because of personal time constraints. In the final analysis, there were eight subjects in two groups (the control and the workshop only groups), and seven subjects in the other two groups (the didactic and the workshop plus practice groups). A total of 19 females and 11 males remained.

All groups completed a series of four tests, which were completed as both pretests and posttests, 2 weeks apart, with the experimental groups receiving their treatments immediately after the pretests. The control group completed only the four tests, whereas the experimental groups completed the same four tests, in addition to a posttest-only measure. Each set of

questionnaires took approximately 40 minutes to fill out. The control group received no other treatment.

The didactic treatment group, after completing the pretests, received a half-hour presentation, including information about how visualization can be used, verbal versus imagery processing of information, different styles of symbolism, receptive versus directed visualization, how to interpret symbols, and some examples of visualizations that have been effective for others.

The group which completed the workshop only went through the same pretests and a similar introductory discussion as did the didactic group, but then went on to experience a series of visualizations directed by the experimenter. This group was given a few basic principles to remember while visualizing, such as trying not to criticize themselves for any "silly" or negative images, not worrying about whether the image was vivid or not, et cetera. They were then led through a series of brief visualizations dealing with different aspects of the self and of self-change. Following the visualizations, everyone described their visualization experiences and interpreted them. Some of the further potential uses for visualization were introduced at this time. These included exploration of relationships, physical healing, goal-setting, problem-solving and memory recall. Creative application of the technique was encouraged. Another brief series of visualizations was then directed by the experimenter, which were again discussed and interpreted. The workshop took approximately 1-1/2 hours.

The workshop plus practice group experienced a similar workshop to that given to the workshop only group, and they were

also asked to visualize as frequently as they had time for in the next 2 weeks before the posttests. They recorded brief descriptions of the contents of their visualizations from that 2-week period, and submitted them to the experimenter at the time of the posttests.

Measures

Five measurement instruments were used, and a copy of each is included in the Appendix. The first four were used as both pre- and posttests, while the fifth was used only as a posttest. The first instrument was made up of four subscales from the Imaginal Processes Inventory (IPI) (Singer & Antrobus, 1972). The four subscales were Positive Reactions in Daydreams, Acceptance of Daydreaming, Visual Imagery in Daydreams, and Problem Solving Daydreams. These four subscales were selected because they are highly positively correlated with a positive-constructive style of daydreaming. There are 12 items in each scale and they were divided in half, so that half of each scale was administered as a pretest, and half as a posttest, for a total of 24 items in each test. Each form was used as a pretest for half of the subjects and a posttest for the remaining half. Each item on these scales makes a statement about daydreaming and is ranked on a 5-point scale, very true or strongly characteristic of me (5) to definitely not true or strongly uncharacteristic of me (1). Sixteen of the items on the two tests were worded negatively, and the subjects' ratings on these items were reversed before their scores were calculated. The subjects' mean scores for each subscale were calculated, as well as their mean scores for the test as a whole.

The second measure used was the Spheres of Control test (SOC) (Paulhus & Christie, 1981). The SOC is comprised of 30 items testing the subjects' locus of control in three different spheres: personal achievement, interpersonal control, and sociopolitical control. There are 10 items in each subscale. Each item is a statement about one's sense of control in one of these areas, and it is rated on a 7-point scale ranging from Disagree (1) to Agree (7). Half of the items in each subscale are worded negatively, and the scores are reversed before being totalled. Alpha reliabilities of .75 - .80 have been obtained for the subscales on cross-validation samples. Test-retest correlations at 4 weeks are above .90 and at 6 months are above .70 for all three subscales. In the present study, the subjects' mean scores for each subscale, and for the test as a whole were calculated.

The third instrument used in the study was Sheehan's shortened form of Betts' Questionnaire Upon Mental Imagery (QMI) (Sheehan, 1967; Richardson, 1969) which measures clarity of imagery in a variety of sensory modalities. It is comprised of 35 questions, with five questions in each of seven sensory modalities including visual, auditory, cutaneous, kinaesthetic, gustatory, olfactory, and organic (body feelings such as drowsiness). The test asks subjects to rate the clarity of a specified image item on a scale of seven, from perfectly clear and as vivid as the actual experience (1) to no image present at all, you only "knowing" that you are thinking of the object (7). The test was scored by summing the ratings and determining the mean for each subject.

According to Sheehan (1967), a single component appears to

be largely responsible for the variance of scores within each modality. All items load highly on this factor, and there do not appear to be significant differences in subjects' imagery abilities in different modalities. The validity of the test has been demonstrated repeatedly by high correlations obtained between scores on the test and the direct evocation of imagery in a wide variety of experimental settings.

The fourth measure used in the study was the Questionnaire On Imagery Control (QIC) which measures imagery control (Lane, 1974). The questionnaire, like the QMI, has 35 questions, five in each of the seven sensory modalities listed above. In each item, an image is suggested, and then a change in the image is described. The subject is asked to rate the item between 0 and 4 according to his or her ability to imagine each part of the item, ability to change the first to the second part of the image, and ability to hold the images in imagination. In Lane's original development of the instrument, the total score had an internal consistency reliability of .85. For this study, the mean score was used.

The final measure used was, as mentioned above, strictly a posttest, and it was given only to the three treatment groups. Called the Personal Response Questionnaire, it contained six questions. The first asked whether the participant had used visualization during the past two weeks, and how often. The other questions related to the participants' subjective responses to learning about visualization. The second question asked whether they felt that visualization could contribute to self-understanding. Answers ranged from Has the potential for interfering greatly with self-understanding (1) to Has the

potential for contributing greatly to self-understanding (7). The third question asked whether learning about visualization had left them feeling differently about an aspect of themselves. Answers ranged from I feel not at all different (1) to I feel very different (4). The fourth question asked whether they felt visualization would be useful in their own future personal development. The answers ranged from May be very harmful to personal development (1) to May be very useful for personal development (7). The fifth question asked the extent to which they felt they would make use of visualization in their own future personal development. Answers ranged from Not at all (1) to A great deal (4). Following each of these questions participants were encouraged to elaborate on their answers. The final question asked the participant what was the most valuable thing learned from the workshop or lecture attended. It was hoped that these open-ended questions would encourage them to put what they had experienced into their own words. Each of these questions was analyzed separately.

The workshop plus practice group was also asked to maintain a record of their visualizations for the 2-week period between pretest and posttest. The contents of these records were analyzed informally for diversity of topics, for complexity, for symbolic content, and for evidence of a progression in style or content of visual imagery.

Results

In response to the Personal Response Questionnaire, it was anticipated that those in the workshop plus practice group would answer most positively and those in the didactic group would answer least positively of the three groups which completed it. Of the didactic treatment group, five had used visualization in the 2-week interval between pre- and posttest, on average 2 to 3 times. In the workshop only group, five people had used visualization, for an average of 3 times. In the workshop plus practice group, who had all been requested to practice, all had done so, for an average of 7 times.

It should be noted here that the Personal Response Questionnaire had a strong component of social desirability which likely accounted for some of the results obtained. The experimenter was personally involved in recruiting, training and testing the subjects. Those who participated in the workshops spent several hours altogether in small group interaction with the experimenter, and the demand characteristics of the study were proportionately greater for these groups than for those in the didactic group.

A significant difference among the groups was found only for the question which asked the subjects to rank the extent to which they believed visualization had the potential for interfering or contributing to self-understanding, $F(2, 20) = 4.59$, $p<.03$. The scale ranged from Has the potential for interfering greatly with self-understanding (1) through Is likely to neither interfere nor contribute to self-understanding (4) to Has the potential for contributing greatly to self-understanding (7). In general, all of the groups felt that

visualization could contribute significantly to self-understanding. A Student-Newman-Keuls multiple comparisons test ($p = .05$) found significant differences between the didactic and workshop only groups, and between the workshop only and workshop plus practice groups on this question.

On the next three questions, all three groups responded quite similarly, and no significant differences between the groups were found in the analysis of their responses. The second question asked the extent to which the participants felt differently about themselves, ranging from Not at all different (1) to Very different (4). On average, the participants felt "a little different" about themselves as a result of learning about visualization.

The third question asked the subject to rank the extent to which she or he felt visualization might be useful for her or his own future personal development. Ranks ranged from May be very harmful (1) through Is likely neither harmful nor useful (4) to May be very useful for personal development (7). Most subjects felt that visualization might be moderately to very useful in their own personal development.

The fourth question asked subjects about the extent to which they felt they would make use of visualization in their own future personal development, ranging from Not at all (1) to A great deal (4). They indicated, for the most part, that they believed they would use it in "a moderate amount." Table 1 indicates the mean response for each group and for all groups, for each of the four questions on the Personal Response Questionnaire.

Table 1

Mean Scores for the Personal Response Questionnaire

Question	Understand Self	Feel Different	Useful for Development	Future Use
2 Didactic	5.50	1.63	5.50	2.63
3 Workshop Only	6.86	2.43	6.43	3.14
4 Workshop & Practice	5.88	2.25	6.13	2.88
Total	6.04	2.09	6.00	2.87

The question which asked the participants what was the most valuable thing they had learned from the lecture or workshop was answered with a whole range of responses. They were the same kinds of responses as those mentioned in the comments following the other questions. There was no clear pattern of "most important thing learned" in any of the groups, or for the participants as a whole. All of these comments will therefore be outlined here together.

Four people mentioned the effect that learning about visualization had on enabling them to relax, to become calmer, or to change their moods. Five people felt it had helped them to understand different aspects of themselves, and to gain greater self-awareness. Four felt it enabled them to understand personal emotions, and see the sources of those emotions, as well as increasing understanding of other people. Two participants felt it gave them a feeling of emotional stability and a sense of perspective, or conversely, that it reduced

isolation and aloneness. It was said by four participants to have contributed to a greater sense of self-esteem and self-confidence, as well as leaving three with a feeling of having greater future potential.

Visualization was seen by three people as having particular value for problem-solving, for attaining specific goals, or for preparing for future situations. Related to this, it was described by four people as being useful for achieving self-control, self-discipline, or for taking greater control over more aspects of life.

The workshop plus practice group kept a record of their visualizations for the 2-week period between pretest and posttest. They reported an average of 7 visualizations each, ranging from a low of 2 to a high of 11.

The content analysis of the visualizations of this group indicated some progression in terms of style and content of imagery, although the progression was not major, because of the short time involved. It was, however, clear that most of the participants had incorporated from the workshop sufficient knowledge about, and understanding of, visualization to enable them to apply it creatively in many aspects of their own lives. The primary themes of the visualizations were self-exploration, problem-solving, relationships with others, mood altering, exploring physical sensations, pure fantasy, and physical healing. Those who recorded the greatest number of visualizations tended to demonstrate a greater range of subjects touched on. In some cases, repeated visualizations about a single topic demonstrated greater resolution or "success" in later visualizations. For example, one participant who had been

in a box and unable to get out of it in one visualization was able to escape it in a subsequent visualization on another day. Visualizations to solve specific problems often met with success, and led to positive feelings about the self or the problem. Relaxing or humorous fantasies were often invoked in order to achieve a change in mood or attitude.

Symbolic or metaphorical images appeared in at least one of the visualizations of each member of this group. The symbolism in some cases was relatively transparent, while in others it was more obscure and was similar to a dream image. In some cases, such images might be called mythical in character. Some of the most powerful images appeared to occur when no predetermined agenda for the visualization had been set. In such cases, receptive images would come to mind, again much like a dream in nature. Many visualizations explored aspects of the self, usually metaphorically.

A preliminary analysis was done on the pre- and posttest scores for each of the other four measures to establish whether or not there were significant sex differences. The pretest of the Questionnaire on Mental Imagery (QMI) was the only measure on which a significant difference was found. The females reported a significantly greater vividness of imagery ($\underline{M}$ = 2.48) than males ($\underline{M}$ = 3.05), $\underline{t}(28) = -3.05$, $\underline{p}<.005$. This difference was no longer present at the posttest. Because of small sample sizes, sex was not included as a factor in subsequent analyses. For each of the four measures where pre- and posttests were administered, a two-way analysis of variance (4 groups x 2 tests) was conducted.

It was hypothesized that increased knowledge about

visualization would lead to more positive attitudes about imaginal processes, as measured by the four subscales of the Imaginal Processes Inventory (IPI). Recall that there were two forms of the IPI, one of which was administered as a pretest, and the other as posttest. The order was reversed for half of the participants. Preliminary analyses indicated no effect for the order of these two forms of the IPI ($p > .20$). A 4(groups) x 2(tests) ANOVA was then conducted for each of the four subscales of the IPI as well as the overall total. However, no effects were found to be significant. Table 2 provides the mean scores on the IPI.

Table 2

Mean Scores on the Imaginal Processes Inventory

Group	Pretest	Posttest
1 Control	3.52	3.54
2 Didactic	3.49	3.46
3 Workshop	3.37	3.33
4 Workshop & Practice	3.56	3.71
Totals	3.49	3.51

It was also hypothesized that increased knowledge about visualization would lead to increased internality of locus of control as measured by the Spheres of Control (SOC) test, and it was predicted that this change would be likely to occur primarily in the personal achievement subscale. A 4(groups) x

2(tests) ANOVA was conducted for each of the subscales and for the SOC as a whole. No significant effects were revealed on the SOC as a whole or on the personal achievement or interpersonal control subscales. However, a significant difference between tests on the sociopolitical control subscale was found, $F(1, 26) = 4.34$, $p = .05$, indicating an increased perception of control over social and political events and institutions. Table 3 lists the pre- and posttest means on the SOC as a whole, while Table 4 provides the means on the sociopolitical control subscale for the four groups.

Table 3

Mean Scores on the Spheres of Control Test

Group	Pretest	Posttest
1 Control	4.64	4.57
2 Didactic	4.44	4.56
3 Workshop Only	4.54	4.46
4 Workshop & Practice	4.63	4.98
Totals	4.56	4.65

Table 4

Mean Scores on the Sociopolitical Control Subscale of the Spheres of Control Test

	Group	Pretest	Posttest
1	Control	4.10	4.08
2	Didactic	3.44	3.55
3	Workshop Only	3.84	3.94
4	Workshop & Practice	4.15	4.88

Thus, this analysis indicated that greater exposure to information about and practice with imagery did not lead to increased internality of locus of control in a general sense, nor in the personal achievement sphere in particular.

On the QMI, there was a main effect of test, which was qualified by a significant interaction between group and time of test, $F(3, 26) = 3.17$, $p<.05$. Table 5 provides the mean scores for pre- and posttest in the QMI and Table 6 summarizes the analysis of variance on the QMI.

Table 5

Mean Scores on the Questionnaire on Mental Imagery

Group	Pretest	Posttest
1 Control	2.72	2.85
2 Didactic	2.57	2.48
3 Workshop Only	2.67	2.26
4 Workshop & Practice	2.81	2.34
Totals	2.69	2.48

Table 6

Analysis of Variance on the Questionnaire on Mental Imagery

Source	df	MS	F	p
Groups	3	.287	.417	.742
Error (between)	26	.690		
Test	1	.646	6.824	.015
Groups x Test	3	.300	3.173	.041
Error (within)	26	.095		

The locus of this interaction between groups and test was investigated by an examination of the simple main effect of test for each group. These analyses revealed no significant differences for the control or didactic groups, a difference approaching significance (p = .06) for the workshop only group

in the direction of increased vividness, and a significant increase in vividness for the workshop plus practice group (p = .003). As predicted, results indicated that greater exposure to information about and practice with visualization leads to greater increases in imagery vividness. This change was not found to be necessarily related to personal belief changes.

Increased knowledge about visualization was also anticipated to lead to increased controllability of imagery, as measured by the Questionnaire on Imagery Control (QIC). The 4(groups) x 2(tests) ANOVA on QIC scores found no significant effect for groups or test. Table 7 lists the pre- and posttest means for the QIC while Table 8 summarizes the analysis of variance on the QIC.

Table 7

Mean Scores on the Questionnaire on Imagery Control

Group	Pretest	Posttest
1 Control	2.58	2.59
2 Didactic	2.60	2.69
3 Workshop Only	2.91	2.95
4 Workshop & Practice	2.90	3.19
Totals	2.75	2.86

Table 8

Analysis of Variance on the Questionnaire on Imagery Control

Source	df	MS	F	p
Groups	3	.741	2.645	.070
Error (between)	26	.280		
Test	1	.166	3.516	.072
Groups x Test	3	.060	1.272	.305
Error (within)	26	.047		

Thus, this analysis failed to support the hypothesis that greater exposure to information about and practice with visualization would lead to greater increases in imagery controllability.

Discussion

It was hypothesized in this study that information about, and practice with, visualization would lead participants to increase their self-understanding, increase their belief in their ability to effect personal change, increase the positive qualities of their personal imagery, and increase the internality of their locus of control. Vividness and controllability of imagery were also expected to increase in relation to the above attitude changes. Only a few of the original hypotheses were supported.

On the Personal Response Questionnaire, the didactic, workshop only, and workshop plus practice groups demonstrated significant differences in the degree to which they felt visualization could contribute to self-understanding. Although all three groups felt it would contribute, those with most exposure and practice felt this most strongly. The PRQ also indicated that the three treatment groups felt somewhat different as a result of learning about visualization, felt that it would be quite useful for their own personal development, and most intended to use it at least periodically in the future. There were no significant differences among the groups on these latter three questions from the PRQ.

It must be conceded that the questions on the Personal Response Questionnaire had a high component of social desirability. To some extent, participants were urged to respond as they did by the nature of the questions and by the personal relationship to and presence of, the experimenter. The experimenter tried to avoid the bias in the questions themselves by offering bipolar questions in two cases, where the answers

ranged from very negative to very positive. The other two questions, which were unipolar, were given a 4-point spread to allow as much choice as feasible. The problem remains, however, of how to quantify the subjective reactions of people to personal change, in a few specific domains, without leading them to specific answers.

Some of the most interesting and relevant results of the study were obtained from the open-ended comments following each of the questions on the PRQ. It was here that the writer had hoped to capture the participants' subjective responses to having learned about a new tool for self-change. The participants did appear to be honestly enthused about visualization, and had found learning about it to be personally valuable. As mentioned in the previous chapter, it enabled some to better understand and control their moods and to achieve relaxation. It was found to contribute to greater awareness of specific aspects of the self, particularly emotions, and to lead to better understanding of others. For some it increased self-esteem, self-confidence, and sense of future potential, at the same time decreasing negative emotions such as loneliness. It was seen as being particularly useful for helping to achieve specific goals.

The content analysis of the visualizations of the workshop plus practice group showed that the participants had learned the essential principles of visualization within the short period of the workshop. They had gone on to apply visualization to many disparate aspects of their lives in the two week period following the workshop, demonstrating their abilities to apply what they had learned creatively to their own particular life

situations.

While social desirability was a component of the positive responses to the questionnaire, the content analyses demonstrated that there were in fact positive reactions exhibited experientially by the group who recorded their visualizations. This may be a preferable methodology for attempting to capture the effects of visualization on mental contents, because of its lesser susceptibility to socially desirable response sets. If participants had also had more training in visualization, and a more extended practice period, more demonstrable patterns of change in visualization contents might have been evident, which would have demonstrated ideation changes more concretely.

While such a method might more adequately illustrate ideational changes, it would not reveal the participant's subjective reaction to those changes, which we also sought here. No existing instruments were located in the present research which were suitable for tapping this dimension of experience. It was thought that such a measure might have been developed for use by therapists who wanted some measurable indication of their clients' responses to therapy. Klinger (1978) has explored a number of methods for obtaining reliable data on inner experience, including thinking out loud, descriptive thought sampling, and event recording (indicating whenever a certain kind of event occurs in consciousness). The use of one of these methods in this study might have led to richer data, and to a closer approximation to the subjective experience of inner change.

Perhaps it is because subjective experience has been

considered largely irrelevant to experimental psychologists that our techniques for capturing it are as yet relatively unsatisfying. Writers such as Carlson (1971), Neugarten (1973), Stolorow and Atwood (1979), and L'Ecuyer (1981) have called for less emphasis on objective investigations and a greater commitment to more phenomenological methods of psychological study. New emphasis on such methods may enable us to better capture the kinds of inner changes that were being explored in this study.

No significant changes were found for any of the groups from pretest to posttest on the subtests from the Imaginal Processes Inventory. The IPI was not intended for measuring the kinds of changes in attitudes to mental processes that had been anticipated to occur in this study, and is somewhat inappropriate and insensitive for this purpose. Most of the questions on it are fairly general and are intended to differentiate general personality types. Their reliability for this purpose probably precludes their validity for measuring short term change. As mentioned above, a more content-oriented approach would capture the flavor of this type of change more adequately than a questionnaire.

On the Spheres of Control test, a significant increase in perceived socio-political control (control over social and political events and institutions) was experienced from pre- to posttest. This was an unexpected phenomenon. It was hypothesized that, if any change occurred on the SOC, it would be found in the personal achievement subscale, since learning about visualization was expected to have the greatest effect on the individual's perceived ability to have more control over her

or his own personal skills and talents. The reason for the change in the sociopolitical arena is not known. However, it was primarily the workshop plus practice group which experienced this change, which is in line with the study's hypotheses that greater changes would occur in this group than in any other.

As predicted, vividness of imagery was found to have increased significantly according to amount of exposure to information about, and practice with, visualization. The workshop plus practice group demonstrated significant improvements in vividness of imagery from pre- to posttest.

Controllability of imagery was found to have increased for all groups from pre- to posttest, although not significantly. The measures of imagery vividness and controllability were originally included to determine whether attitude change was related to one or the other of these ability measures. It may be that imagery ability, particularly controllability, must be relatively high before it can be used to achieve attitude change. It may be only after a certain degree of controllability is achieved that it is possible to maintain more positive images of the self, and more positive attitudes to mental processes, locus of control, and self in general. In a study where the relationship between the two is being studied, a two-stage training might be more beneficial. The first could focus on the practice and strengthening of imagery abilities, while the second could deal with methods for using visualization.

More initial information about visualization and a longer practice period might also have contributed to a greater experimental effect. The information was presented in a very

short period of time, and it covered a broad range of topics. For someone unfamiliar with visualization it would probably have been relatively difficult to retain. Had more information been presented, over a longer period of time, it would undoubtedly have led to greater comprehension about the whole subject.

It is also likely that more practice with visualization after learning about it would have led to greater changes in some of the measures used. Imaginal processes and locus of control are probably relatively stable aspects of the self-concept and would be subject to change only over a longer term. For example, in a discussion of covert conditioning, Cautela and McCullough (1978) stressed that many daily repetitions of an imagery sequence are necessary for the technique to become a habit. It is probable that it would take extended practice of a new mental habit to break old patterns. If a person is a "negative scanner" (Cautela & McCullough, 1978), a "worrier" (McKim, 1980), or someone with an anxious or guilty style of imagery, it will take a relatively lengthy and concerted effort to change such habitual thought patterns.

The present study did not clearly differentiate between the attitude changes expected as a result of learning to control imagery, and those expected as a result of learning to construct and maintain positive imagery. These are quite probably different effects but were not explored separately. Learning about visualization would demonstrate to an individual that control of thought is possible, but it would not likely lead to greater ability to control thought unless it was practiced. Imagery controllability is likely a relatively stable aspect of personality as demonstrated by its relationship to neuroticism

(Euse & Haney, 1975).

The ability to select and maintain the imagery most beneficial to one's own personality may be a wholly different component of achieving behavior change with imagery. Meichenbaum (1976) noted that cognitive behavior modification was most effective when the imagery and self-instructions were very specific to the individual using it, and were not just general statements. Schultz (1978) demonstrated that people with depressions of different etiologies were most relieved by imagery which counteracted their particular depressive traits. Suggestion of imagery contents specific to each individual was not attempted in the present study. The participants were given a range of possible contents to select from on their own. Better results might be achieved by selecting participants on the basis of a particular quality they wished to modify, or on the basis of a personality test. The training could then be tailored to the participants' individual personality styles. Motivation might also be increased with this method, which could be expected to lead to greater behavior changes.

Finally, it should be noted that larger experimental group sizes than were used in this study are probably advisable. In many cases here results were in the hypothesized direction, although not significant. A more powerful test might be achieved by increasing the total number of subjects used.

While the results of this present study were not strong, they did offer some support for the notion expressed in the literature that visualization can enhance a number of dimensions of the self-concept. Blankman (1980) may have identified the key to understanding the power of imagery for enhancing

self-concept when he suggested that it is the covert self-actualizing experience rather than the actual content of the image which contributes to personal change. Because imagery leads to real emotional and physiological responses, events experienced in imagery have occurred in a real sense. As Lang (1979) pointed out, rehearsal of a new behavior in imagery acts as a template for the overt performance of that behavior. Visualization is a way of setting a goal and putting in motion the steps to attaining it all in one process. By having a "preview" of the desired state, one's belief that it can be accomplished is also strengthened. Experiencing a desired state of mind or achieving a valued goal in imagery is undoubtedly a strong motivator to go on to achieve it overtly. Feeling increased motivation may in itself contribute to greater self-esteem.

Imagery appears to be expecially useful for modifying behavior without the necessity for verbalizing about either the reasons for the present behavior or about the desired state. In some cases unwanted behavior is adequately understood, without this having led to any behavior change. Such behavior may come to seem inevitable. Visualization may, in a sense, short-circuit preoccupation with existing behaviors and attitudes and the negative self-evaluations which accompany them. By focusing on positive aspects of the present or future self, one reduces the attention given to negatively-evaluated aspects of the self and of present behavior, thereby lessening the weight they carry in overall self-evaluation.

In imagery, a desired state can be visualized in any number of ways, if the user is creative, and the process of generating

new, self-reinforcing images can in itself be gratifying. If successes are imagined in a wide variety of situations, one is theoretically laying down mental pathways for their achievement in a wide variety of real situations, and the resulting self-concept will become correspondingly generalized.

On the whole, this aspect of visualization appears to be a largely unexplored and potentially rewarding territory for further research. Visualization is one of a number of practices which is receiving a great deal of attention in an effort to unlock some of the unused potential of the human mind for self-control. Ongoing developments in fields such as this are radically altering our views of inherent human capabilities, and further discoveries are likely to continue to raise our expectations for human development.

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Appendix

Personal Response Questionnaire

1. Have you used visualization during the past two weeks since our previous meeting?

   Yes ____ No ____

   If you have, please indicate how often.

   _____

2. Visualization may or may not have the potential for contributing to self-understanding. In your opinion, which of the following best expresses the potential of visualization in this regard? Rank between "1" and "7".

   ( ) 1 Has the potential for interfering greatly with self-understanding.
   ( ) 2
   ( ) 3
   ( ) 4 Is likely to neither interfere nor contribute to self-understanding.
   ( ) 5
   ( ) 6
   ( ) 7 Has the potential for contributing greatly to self-understanding.

   Please explain your answer, and add any comments you may have.

   _____

   _____

3. Learning about visualization may or may not have left you feeling somewhat differently about an aspect of yourself. Which of the following best describes the extent to which this was the case for you? Rank between "1" and "4".

   ( ) 1 I feel not at all different.
   ( ) 2 I feel a little different.
   ( ) 3 I feel moderately different.
   ( ) 4 I feel very different.

   If you feel at all differently about yourself as a result of learning about visualization, please elaborate.

   _____

   _____

4. Visualization may or may not seem to be useful to you for your own future personal development. Which of the following best captures your feelings in this regard? Rank between "1" and "7".

( ) 1 May be very harmful to personal development.
( ) 2
( ) 3
( ) 4 Is likely neither harmful to nor useful for personal development.
( ) 5
( ) 6
( ) 7 May be very useful for personal development.

Please explain your answer, and add any comments you may have.

_____

_____

5. To what extent do you feel that you will make use of visualization for your own future personal development? Rank between "1" and "4".

( ) 1 Not at all
( ) 2 Very little
( ) 3 A moderate amount
( ) 4 A great deal

Please explain your answer, and add any comments you may have.

_____

_____

6. What was the most valuable thing you learned from the workshop or lecture you attended?

_____

_____

Imaginal Processes Inventory - Form A

This is a general questionnaire about your inner experiences, your images, dreams, and daydreams. There is no "official" definition for words like "daydream." Interpret these words in terms of their common meanings as they might apply to you. Be careful to distinguish between thinking about something you are doing at that moment and daydreaming about something else. Thinking about a task while working on it is not daydreaming, although having thoughts about the task at other times, such as while getting ready for sleep or on a long bus ride, could be daydreaming.

Instructions

Indicate to what extent each statement applies to you, or is true for you, by checking the box above the appropriate number.

5 stands for "very true or strongly characteristic of me".
4 stands for "moderately true or characteristic of me".
3 stands for "neither particularly characteristic nor uncharacteristic of me".
2 stands for "moderately untrue or uncharacteristic of me"
1 stands for "definitely untrue or strongly uncharacteristic of me".

1. I can be aroused and excited by a daydream.

( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

[Rating scale is omitted in the following questions due to space constraints.]

2. Daydreaming is normal for adults as well as for adolescents and children.

3. I can see the people or things in my daydreams as if they were moving around.

4. When faced with a difficult situation, I imagine that I have worked out the problem and try out my solution in my thoughts.

5. Daydreams are unreal and seldom come true.

6. A "happy" daydream helps me "snap out of" a spell of unhappiness.

7. I sometimes have a very clear, lifelike picture of what I am imagining.

8. In my daydreams, I solve the problems of my family and friends as well as my own.

9. Daydreaming in an adult is really childish.

10. My daydreams are often stimulating and rewarding.

11. The "scenes" in my daydreams are sort of fuzzy and unclear.

12. My daydreams offer me useful clues to tricky situations I face.

13. I feel badly about daydreaming because it may indicate a weakness in character.

14. My daydreams often cheer me up when I feel blue.

15. I can often "see" a large number of things or people in my fantasies.

16. My idle thoughts do not provide me many workable solutions to problems.

17. A really original idea can sometimes develop from a really fantastic daydream.

18. Sometimes a thrill goes up my spine as I reflect on a great moment of triumph and achievement.

19. I do not really "see" the objects in a daydream.

20. My daydreams are closely related to problems that come up during my daily life.

21. I feel guilty about my daydreams.

22. I often relive happy or exciting experiences in my daydreams.

23. My fantasies often consist of black-and-white or color images.

24. I imagine solving all my problems in my daydreams.

Imaginal Processes Inventory - Form B

(Identical instructions and rating scale to Form A)

1. Because daydreaming often takes me away from my work, I try to avoid it even when I have no specific task to complete.

( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

[Rating scale is omitted in the following questions due to space constraints.]

2. My daydreams often leave me with feelings of sadness.

3. My daydreams are mostly made up of thoughts and feelings rather than visual images.

4. Daydreams do not have any practical significance for me.

5. The fewer daydreams one has, the more time there is to really "live."

6. A daydream can bring a smile to my face.

7. Visual scenes are an important part of my daydreams.

8. My fantasies sometimes surprise me by suggesting an answer to a problem which I could not work out.

10. I usually feel content and quite excited after a daydream.

11. The "pictures in my mind" seem as clear as photographs.

12. I can get a fresh approach to an old problem almost at once during what begins as an idle daydream.

13. Daydreaming never solves any problems.

14. Daydreams are more likely to arouse pleasant than unpleasant emotions within me.

15. The scenes of my daydreams are never longer than brief flashes.

16. Sometimes an answer to a difficult problem will come to me during a daydream.

17. Daydreaming is a common experience for great scientists and artists as well as for the average person.

18. My daydreams often leave me with a warm, happy feeling.

19. The "scenes" in my daydreams are so vivid and clear to me that my eyes seem actually to follow them.

20. Daydreams I have often are about different ways of finishing things I still have to do in my life.

21. I find my daydreams are worthwhile and interesting to me.

22. My fantasies usually provide me with pleasant thoughts.

23. I can still remember scenes from recent daydreams.

24. My daydreams are always just sort of ways of passing time rather than attempts to solve my actual daily problems.

Spheres of Control Test

Following each of the statements below is a scale, ranging from "Disagree" to "Agree." Please check the number which you feel best represents your degree of agreement or disagreement with the statement.

1. When I get what I want it's usually because I worked hard for it.

( ) ( ) ( ) ( ) ( ) ( ) ( )
Disagree Agree

[Rating scale is omitted in the following questions due to space constraints.]

2. Even when I'm feeling self-confident about most things, I still seem to lack the ability to control social situations.

3. By taking an active part in political and social affairs we, the people, can control world events.

4. When I make plans I am almost certain to make them work.

5. I have no trouble making and keeping friends.

6. The average citizen can have an influence on government decisions.

7. I prefer games involving some luck over games requiring pure skill.

8. I'm not good at guiding the course of a conversation with several others.

9. It is difficult for people to have much control over the things politicians do in office.

10. I can learn almost anything if I set my mind to it.

11. I can usually establish a close personal relationship with someone I find attractive.

12. Bad economic conditions are caused by world events that are beyond our control.

13. My major accomplishments are entirely due to my hard work and ability.

14. When being interviewed I can usually steer the interviewer toward the topics I want to talk about and away from those I wish to avoid.

15. With enough effort we can wipe out political corruption.

16. I usually don't set goals because I have a hard time following through on them.

17. If I need help in carrying off a plan of mine, it's usually difficult to get others to help.

18. One of the major reasons we have wars is because people don't take enough interest in politics.

19. Competition discourages excellence.

20. If there's someone I want to meet I can usually arrange it.

21. There is nothing we, as consumers, can do to keep the cost of living from going higher.

22. Often people get ahead just by being lucky.

23. I often find it hard to get my point of view across to others.

24. When I look at it carefully I realize it is impossible to have any really important influence over what big businesses do.

25. On any sort of exam or competition I like to know how well I do relative to everyone else.

26. In attempting to smooth over a disagreement I usually make it worse.

27. I prefer to concentrate my energy on other things rather than on solving the world's problems.

28. It's pointless to keep working on something that's too difficult for me.

29. I find it easy to play an important part in most group situations.

30. In the long run we, the voters, are responsible for bad government on a national as well as a local level.

Questionnaire on Imagery Control

Instructions

This questionnaire is concerned with the ease with which you can control your imagery or imagination. For the purposes of this questionnaire, imagery means an experience that is like a sensation, perception, emotion or other feeling that occurs without any real, external cause. This experience is different from simply thinking about something. If you imagine that the sun is setting, you "see" it in your "mind's eye."

Some people find it quite easy to control their imagery, while for others it is quite difficult. For example, one person may be able to see in his mind's eye a friend performing impossible gymnastic feats, while another may find that when he tries to recall the face of a friend, he has an image of another person. Both types of experience are normal and occur frequently.

Each item of this questionnaire consists of two parts. After reading the item, close your eyes and try to call to mind the image suggested by the first part of the item. When you have the first image clearly in your imagination, try to change it as suggested by the second part of the item. Next, rate the ease with which you were able to change the image. Be sure to refer to the accompanying Rating Scale.

Record your answers in the brackets provided. Just write the appropriate number after each item. If you find that you cannot produce any image at all for the first part of a particular item, simply rate the item "0" and proceed to the next item. Try to rate each item independently of how you may have done on other items. Be sure to familiarize yourself with the different categories on the Rating Scale and to read the example before beginning on the questionnaire. Refer to the Rating Scale provided on each page as you judge each item.

Rating Scale

Unable to imagine the first part of the item.	Rating 0
Unable to imagine the second part of the item.	Rating 1
Able to change the image as suggested, but could not hold it steady in my imagination.	Rating 2
Able to change the image as suggested and to hold it in my imagination with some effort.	Rating 3
Able to change the image as suggested and to hold it in my imagination very naturally and easily.	Rating 4

(Due to space constraints, the Rating Scale will be shown only once.)

Example

Try to see the following scene with your mind's eye. Next, change the image as suggested by the second part of the item. Consider the image carefully, paying attention to the visual aspect of it. Rate the ease with which you were able to produce the change and to hold the new image in your imagination, as specified in the Rating Scale.

An elephant walking in a circus parade.
The same elephant performing a trick, standing on its hind legs. ( )

If you were unable to see the elephant walking in the parade, you would rate the item "0". If you experienced a fluctuating image of the elephant on his hind legs, you would rate the item "2", and so forth.

Now begin with the items below. Be sure to complete all items.

Try to see each of the following scenes with your mind's eye. Next, change the item as suggested by the second part of each item. Consider each item carefully, paying attention to the visual aspect of it. Rate the ease with which you were able to produce the change and to hold the new image in your imagination, as specified by the Rating Scale.

1. A close friend sitting in a chair.
   The same friend now riding a bicycle. ( )

2. The Canadian flag.
   The Canadian flag, with a green leaf. ( )

3. Watching a television screen that is very fuzzy and dim.
   Seeing a bright, sharp picture after adjusting the set. ( )

4. The sun shining in a cloudless sky.
   A dark cloud passing in front of the sun and hiding hiding it. ( )

5. A blind man with his cane walking down a sidewalk.
   The same blind man walking the tightrope at the circus. ( )

Try to hear each of the following sounds with your mind's ear. Next, change the image as suggested by the second part of the item. Consider each image carefully, paying attention to the sound-like aspect of it. Rate the ease with which you were able to produce and to hold the new image in your imagination, as specified in the Rating Scale.

6. Someone singing Oh Canada.
   The singing is now accompanied by a piano. ( )

7. The sounds of a wooded scene, including birds and the wind.
   The wind dies down. ( )

8. The sound of a faucet dripping as you try to sleep.
   The gradual stopping of the sound when you turn off the tap. ( )

9. The sounds of a thunder storm: heavy rain, wind, and thunder.
   The gentle patter of the rain as the storm dies down. ( )

10. A violinist playing in a large concert hall.
    He's now playing on the beach, with surf and sea-birds in the background. ( )

Try to feel each of the following sensations with your mind's touch. Next, change the image as suggested by the second part of each item. Consider each image carefully, paying attention to the touch-like aspect of it. Rate the ease with which you were able to produce the change and to hold it in your imagination as specified in the Rating Scale.

11. The texture of sand as you rub it between your fingers.
    The sand is now wet. ( )

12. The feel of a light rain and gentle breeze on your skin.
    The breeze stops. ( )

13. The feel of brushing your hair gently with a fine, soft brush.
    Now you are brushing vigorously with a stiff brush. ( )

14. The feel of a scratchy wool sweater next to your skin.
    You take it off and replace it with a soft cotton one. ( )

15. The feel of washing dishes in very hot water.
    Suddenly your hand closes around an ice cube in the water. ( )

Try to perform each of the following movements mentally. Next, change the image as suggested by the second part of each item. Consider each item carefully, paying attention to the movement-like aspect of it. Rate the ease with which you were able to produce the change and to hold the new image in your imagination, as specified in the Rating Scale.

16. You are jogging around a lake.
You come to a very steep hill and run up to it. ( )

17. You are speeding around a curve in an automobile.
The automobile is now going straight. ( )

18. You are coasting down a gentle hill on a bicycle.
The hill becomes much more steep and you speed up greatly. ( )

19. You are floating quietly on a rubber raft.
A large wave lifts the raft and sets it down again. ( )

20. You are riding up an escalator.
The escalator malfunctions, and you are suddenly going backward. ( )

Try to taste each of the following flavors with your mind's taste. Next, change the image as suggested by the second part of each item. Consider each image carefully, paying attention to the flavor-like aspect of it. Rate the ease with which you were able to produce the change and to hold the new image in your imagination, as specified in the Rating Scale.

21. You are eating a rich milk chocolate bar.
As you bite into the center, the taste of peanut butter blends with the chocolate. ( )

22. The taste of coffee with cream and sugar.
The taste of black coffee. ( )

23. The taste of a tender, juicy steak ruined by too much salt.
The taste of the same steak with the right amount of salt. ( )

24. The taste of raw onion.
The taste of onion sauteed in butter. ( )

25. The taste of the first bite into a Red Delicious apple.
You find that inside is a vanilla cream filling. ( )

Try to smell each of the following smells with your mind's nose. Next, change the image as suggested by the second part of each item. Consider each image carefully, paying attention to the smell-like aspect of it. Rate the ease with which you were able to produce the change and to hold the new image in your imagination, as specified in the Rating Scale.

26. The rich smell of coffee brewing.
Add the smell of frying bacon. ( )

27. The smell of gasoline and exhaust fumes at a service station.
The smell of gasoline alone. ( )

28. The strong smell of household ammonia as you first open the bottle.
The fainter smell of ammonia used in solution to clean windows. ( )

29. The stale, musty smell of a long-closed room.
The clean, fresh smell as you let in the night air by opening a window. ( )

30. The strong smell as you enter a freshly painted room.
In the next room, the smell of peppermint is in the air. ( )

Try to experience each of the following feelings in your imagination. Next, change the image as suggested by the second part of the item. Consider each image carefully, paying attention to the feeling aspect of it. Rate the ease with which you were able to produce the change and to hold the new image in your imagination, as specified in the Rating Scale.

31. Feeling totally relaxed.
At the same time you feel full of energy. ( )

32. Lying in a warm, snug bed, feeling very sleepy.
Lying in the same bed, but now wide awake. ( )

33. Feeling greatly elated at attaining an important goal.
Feeling mildly self-satisfied at attaining a similar, but less important goal. ( )

34. Feeling very thirsty.
Feeling very satisfied after drinking your fill. ( )

35. Feeling very much at peace and in love with the world.
Hating someone intensely. ( )

The Questionnaire Upon Mental Imagery

Instructions for doing test

The aim of this test is to determine the vividness of your imagery. The items of the test will bring certain images to your mind. You are to rate the vividness of each image by reference to the accompanying rating scale, which is shown below. For example, if your image is 'vague and dim' you give it a rating of 5. Record your answer in the brackets provided after each item. Just write the appropriate number after each item. Before you begin the test items, familiarize yourself with the different categories on the rating scale. Throughout the test, refer to the rating scale when judging the vividness of each image. A copy of the rating scale will be printed on each page. [Due to space constraints, the Rating Scale will be printed only once, immediately below.] Please do not turn to the next page until you have completed the items on the page you are doing, and do not turn back to check on other items you have done. Complete each page before moving on to the next page. Try to do each item separately independent of how you may have done other items.

Rating Scale

The image aroused by an item of this test may be:

Perfectly clear and as vivid as the actual experience	Rating 1
Very clear and comparable in vividness to the actual experience	Rating 2
Moderately clear and vivid	Rating 3
Not clear or vivid, but recognizable	Rating 4
Vague and dim	Rating 5
So vague and dim as to be hardly discernible	Rating 6
No image present at all, you only 'knowing' that you are thinking of the object	Rating 7

An example of an item on the test would be one which asked you to consider an image which comes to your mind's eye of a red apple. If your visual image was moderately clear and vivid you would check the rating scale and mark '3' in the brackets as follows:

Item	Rating
5. A red apple	(3)

When you have understood these instructions, begin the test.

Think of the some relative or friend whom you frequently see, considering carefully the picture that rises before your mind's eye. Classify the images suggested by each of the folllowing questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item		Rating
1.	The exact contour of face, head, shoulders and body	( )
2.	Characteristic poses of head, attitudes of body, etc.	( )
3.	The precise carriage, length of step, etc. in walking	( )
4.	The different colours worn in some familiar costume	( )

Think of seeing the following, considering carefully the picture which comes before your mind's eye; and classify the image suggested by the following question as indicated by the degree of clearness and vividness specified on the Rating Scale.

5. The sun as it is sinking below the horizon ( )

Think of each of the following sounds, considering carefully the image which comes to your mind's ear, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item		Rating
6.	The whistle of a locomotive	( )
7.	The honk of an automobile	( )
8.	The mewing of a cat	( )
9.	The sound of escaping steam	( )
10.	The clapping of hands in applause	( )

Think of 'feeling' or touching each of the following, considering carefully the image which comes to your mind's touch, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified in the Rating Scale.

11. Sand ( )

12. Linen ( )

13. Fur ( )

14. The prick of a pin ( )

15. The warmth of a tepid bath ( )

Think of performing each of the following acts, considering carefully the image which comes to your mind's arms, legs, lips, etc., and classify the image suggested as indicated by the degree of clearness and vividness specified on the Rating Scale.

Item	Rating
16. Running upstairs	( )
17. Springing across a gutter	( )
18. Drawing a circle on paper	( )
19. Reaching up to a high shelf	( )
20. Kicking something out of your way	( )

Think of tasting each of the following considering carefully the image which comes to your mind's mouth, and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item	Rating
21. Salt	( )
22. Granulated (white) sugar	( )
23. Oranges	( )
24. Jelly	( )
25. Your favourite soup	( )

Think of smelling each of the following, considering carefully the image which comes to your mind's nose and classify the images suggested by each of the following questions as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item	Rating
26. An ill-ventilated room	( )
27. Cooking cabbage	( )
28. Roast beef	( )
29. Fresh paint	( )
30. New leather	( )

Think of each of the following sensations, considering carefully the image which comes before your mind, and classify the images suggested as indicated by the degrees of clearness and vividness specified on the Rating Scale.

Item	Rating
31. Fatigue	( )
32. Hunger	( )
33. A sore throat	( )
34. Drowsiness	( )
35. Repletion as from a very full meal	( )