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LISTENER EMPATHY AS A FUNCTION OF IMAGINATIVE INVOLVEMENT, SOCIABILITY, AND THE IMAGERY CONTENT OF THE MESSAGE

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# LISTENER EMPATHY AS A FUNCTION OF IMAGINATIVE INVOLVEMENT, SOCIABILITY, AND THE IMAGERY CONTENT OF THE MESSAGE

by

SUSAN SCHNEIER

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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LISTENER EMPATHY AS A FUNCTION OF IMAGINATIVE INVOLVEMENT, SOCIABILITY, AND THE IMAGERY CONTENT OF THE MESSAGE

by

Susan Schneier

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It was proposed that the imagery content of a message, in combination with the listener's imaginativeness and sociability, would predict emotional empathy.

Subjects listened to audiotapes of two scenarios: a person angry at a controlling mother, and a person sad for unhappy parents. Three versions of each had been taped by both a male and female actor: one containing low imagery words, one with high imagery words attributed to a fantasy, and another high imagery version attributed to an abstract color drawing of the feelings in the scenario.

A total of 421 subjects participated in 15 classes. Each class heard both scenarios: one by the male and one by the female. Imagery level was constant for each class but varied across classes; as did sex of actor portraying each emotion, and order of emotions.

Before the first tape and after hearing each tape, subjects completed a shortened Nowlis Mood Adjective Checklist (Nowlis and Greenberg, 1979), from which indices of Vicarious Empathy were derived; and a shortened version of the Empathic Concern Mood Index (Coke, Batson, & McDavis, 1978). After each tape, subjects also completed a

Rapport questionnaire indicating how much they liked, felt similar to, felt involved with, and wanted to meet the person expressing feelings.

Finally, subjects completed the Social Closeness Scale (Tellegen, 1982) and two measures of imaginative involvement: the Creative Imagination Scale (Wilson and Barber, 1978) and the Absorption Scale (1982).

Results were as follows. For each emotion, the Empathic Concern and Rapport measures were intercorrelated but were independent of Vicarious Empathy. Imaginative Involvement was related to Empathic Rapport and Vicarious Empathy but not to Empathic Concern. Sociability was related only to Vicarious Empathy. High-imagery influenced Empathic Rapport and one measure of Empathic Concern, but had no effect on Vicarious Empathy. Furthermore, it enhanced Angry Rapport, but decreased or had no effect on Sad Rapport and Concern. Drawings added nothing to the effect of high imagery tapes on empathy, except to diminish Sad Vicarious Empathy. Women scored higher than men in four out of six empathy measures, extending findings with children to adults.

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# CHAPTER 1: STATEMENT OF THE PROBLEM

The experiment presented in this dissertation was inspired by a naturalistic observation made by the author some years ago, while running an imagery exercise as part of teaching a course on the role of imagery in the personality. Students had been divided into small groups and asked to do abstract drawings of how they were currently feeling. They had then been asked to tell the group what images came to mind about the colors and shapes in their drawings, and how these images related to their current feelings.

As the exercise proceeded, the author was struck with the quality of rapport that developed rapidly within these small groups. Within approximately twenty minutes, these students who were relative strangers to each other at the time, became very absorbed in each other's feelings. Members of the groups were huddled together over the drawings, one person speaking while the others listened and nodded, in seemingly rapt attention. There was a tenderness and gentleness in these groups that seemed very unusual. The author had expected the exercise, which was a technique taken from art therapy, to be powerful in helping each student get in touch with his or her imagery. However, the unusual level of rapport in the groups was an unexpected phenomenon.

At the conclusion of the exercise as students were brought together again as a class, they seemed to be in a very different mood from when they had begun. Whereas

before the exercise, most had seemed alert, focused and active; they now seemed dreamy, quiet, and "emotionally moved". It was as if they had been hypnotized. They seemed to be in an altered state. Furthermore, whereas before they had been strangers, they now seemed bonded.

Years later when it was time to conceive of a research project, the memory of this experiment returned. Whatever had happened in those small groups, it seemed of considerable significance. Here was a technique which appeared to be particularly effective in facilitating rapport. If it could be replicated, such a technique could be of tremendous use in furthering communication among couples, families, even workgroups. How could this naturalistic event be translated into a meaningful experiment? What theory and research already existed to help understand the phenomenon and guide the research effort?

In the first stages of the literature review, the author's task was to identify the lines of research which were relevant to the problem. Coming up with the appropriate index terms in the Psychological Abstracts was, in itself, a search. Was it rapport? nonverbal communication? emotional expression? empathy? dyadic interaction? group behavior? mutual hypnosis? imagery? self-disclosure? After months of meandering through Psychological Abstracts and recent issues of the major psychological journals, the task had narrowed to a

comprehensive review of five key areas: emotional empathy, imaginative involvement, nonverbal emotional expression, imagery and emotion, and the graphic arts as a means of emotional expression.

Not a single study in any of these areas was focused on the same phenomenon observed by the author. There was no research tradition on which this study could confidently stand. However, within each of the five key areas, theory and research offered a piece of the puzzle. Placed together, these different pieces presented a coherent picture. They provided both a way of understanding the phenomenon observed in the small groups, and suggestions for a research design by which the phenomenon could be put to experimental test.

From the review on emotional empathy, the first clues for understanding the small group experience were offered. Empathy had been traditionally defined as the "imaginative transposing of oneself into the thinking, feeling and acting of another and so structuring the world as he does" (Dymond, 1949).

Throughout the research, the intertwining of empathy and imagination was apparent. The tendency to become involved in the characters of books, movies, and plays was the best predictor of empathic behavior in the experimental setting (e.g., Stotland, Mathews, Sherman, Hansson, & Richardson, 1978). Subjects instructed to imagine themselves into the position of a person receiving painful

heat treatments, shocks or other negative stimulation, experienced more emotional arousal than those who were instructed to simply "watch" the other (e.g., Stotland, 1969; Krebs, 1975). Women tended to score higher in empathy than men and to be more likely to spontaneously try to imagine themselves in the other's position, perhaps because of their "expressive" socialization (Hoffman, 1977). All told, there was considerable evidence that imagining oneself into the other's situation triggers empathy.

Based on this review of emotional empathy research, the author speculated that the enhanced "rapport" in the groups could be described as enhanced emotional empathy, and that the drawings and free-association technique used may have aided group members in imagining themselves into each other's situation, thereby evoking more empathy.

While the empathy research pointed to the significance of imagination in generating emotional feelings, it did not focus on the cognitive abilities involved in imagining and provided no further insight into the state of mind which generates the empathic response. Since the students emerging from the small group experience seemed to be in a mild trance-like state, the author turned next to the literature on hypnosis--hoping to gain some insight into the cognitive abilities involved in becoming hypnotized.

There a fortuitous discovery was made. While no other personality trait or cognitive ability had been found to correlate with hypnotic susceptibility, something called

"imaginative involvements" did. Looking more closely into this literature, the author discovered that the most effective way to identify a person who was going to be a good hypnotic subject was to ask them about their involvements in reading, acting, nature, music, etc. (Hilgard, 1979). Of all the possible imaginative involvements, one of the most powerful in predicting hypnotic susceptibility was an ability to identify intensely with the characters in books, plays and movies! The very same behavior was being used to predict both empathy and hypnotizability. Was there any truth to the old saying: "you hypnotize me"?

Further investigation into the research on hypnotizability revealed evidence of a positive, vivid, and absorptive imaginal style which was held to be the basis not only of an ability in hypnosis, but also in creativity, daydreaming, and vivid imagining (e.g., Crawford, 1982). Furthermore, various theorists had argued that all of these abilities were characteristic of a "receptive" mode of consciousness, to be distinguished from an "active" mode characteristic of ordinary waking consciousness (Deikman, 1971). Some had even suggested that this receptive mode was a function of the right cerebral hemisphere (Bakan, 1978).

This literature made sense out of the author's observation that her students seemed hypnotized as they returned to meet as a class. If these theories were right, perhaps the drawings and imagery association technique

triggered an active to receptive mode shift for many of the students in the groups. The descriptions of active and receptive mode certainly did seem to fit the "before" and "after" of the groups. While before they had seemed alert, talkative, relatively unemotional and at a conventional social distance, afterwards they were dreamy, quiet, emotional and intimate with each other.

If so, the problem still remaining was to explain the power of the drawings and the imagery-association technique to trigger this shift in at least twenty different people, probably differing in their imaginative-empathic abilities. Reflecting further on the exercise, the author concluded that what was particularly unique about it in addition to the presence of the drawings themselves, was probably a shift in the words spoken. Asked to free-associate to the colors and forms of their drawings, students generated self-descriptive narratives which were probably much higher in descriptions of images than is usual in ordinary conversation. Was it perhaps the imagery itself, which was responsible for the mode shift and the rapid development of empathic rapport?

At this point, the problem narrowed to finding theory and research which would explain the relationship between imagery and emotion. (The issue of mode shift was left aside.) Here a number of pieces from different research literatures fell into place. Beginning with the research on emotional expression, the author first developed a theory of

nonverbal empathy. This theory then suggested a way to understand the relationship between imagery and emotion, as a covert form of nonverbal empathy.

As a first step in understanding nonverbal empathy, the author found that there was considerable consensus among researchers in emotional expression that there are universal, biologically-based, facial expressions, body postures and expressive movements characteristic of each of several primary emotions (Weitz, 1979). Furthermore, it had been shown that a person who is <u>not</u> emotionally aroused, who mimics these expressive behaviors, will experience that emotion (e.g., Clynes, 1978; Laird, 1974). In addition, there were studies showing that people in rapport tend to adopt the same body postures and to mirror each other's movements (e.g., La France & Broadbent, 1976).

From these three lines of research, it seemed reasonable to propose that nonverbal empathy occurs when one person mirrors the expressive behaviors of another, thereby generating within him/herself the other's feeling state.

But do people have to see the behavior to mimic it and experience the emotions? What if the situation is described in very high imagery terms and the listener imagines himself into the situation? The answer was found in theories that an image is not a faded percept but an internalized action (e.g., Piaget & Inhelder, 1971). A rapidly developing pocket of theory and research on "emotional imagery" was found which lent considerable support to this notion (e.g.,

Lang, 1979).

Lang and his colleagues had found that persons who listened to a taped emotional narrative showed not only emotional arousal, but also activations in the muscles, sensory organs and viscera which paralleled the actions described in the narrative. Thus, while they were not overtly moving about, covertly (but measurable with electronic amplification) they were mirroring the actions described in the narrative. These researchers argued that an image is a logical program containing stimulus propositions (sensory information about the situation), and response propositions (information about the body's reaction to that situation). They were able to show (e.g., Lang, Kozak, Miller, Levin, & McLean, 1980) that the more response propositions in a narrative, the more the listener's body responded, and the more emotional arousal.

Based on this theory and research, the author felt justified in concluding that images do involve internalized actions, and that when a speaker describes his/her emotional situation in high imagery terms, the listener experiences those images not only visually but also muscularly. In other words, the sharing of images, is the sharing expressive behaviors. Expressive behaviors would then generate feelings. Thus, the same mechanism that generates nonverbal empathy would operate when a person imagines herself into the other's situation.

This explained the power of the high-imagery narratives

generated by group members to promote emotional empathy, but what was the role of the drawings themselves? The final piece fit into place as the author reviewed research and theory on the role of art in expressing and generating emotional states. Clynes (1978) presented evidence that emotional states are dynamic patterns in space and time--presumably part of our neurological programming--which can be expressed either as a physical movement, or as a movement in line, music, or dance.

The author found preliminary research on the power of lines to communicate emotional states (e.g., Rhyne, 1979) which supported this contention. In addition, research on color was found which demonstrated that different colors are associated with different arousal levels (e.g., Sharpe, 1975). From these studies, the author concluded that drawings encoded emotional states: the expressive movement was encoded in line, while the emotional arousal was encoded in color. This suggested that the drawings themselves were serving as a graphic "response" code, cueing group members on the relevant expressive behaviors associated with the speaker's experience, and thereby further promoting emotional response.

With this final piece, the research and theory from all these different areas coalesced into a reasonable "mini" theory: empathy is imaginative involvement in another's emotional experience. It is an altered state, a function of the "receptive" mode of consciousness, characterized by

absorbed attention and vivid imaging involving full body arousal. During empathic involvement, an individual is mirroring, either overtly or covertly, the expressive behaviors of the speaker. Drawings, by encoding emotional expression in line and color, and by serving as a "prompt" for the generation of high imagery narratives, enhance empathic involvement.

Encouraged by this reasoning, the author translated this mini-theory into the following experimental hypotheses:

1. Individuals who score high on measures of imaginative involvement will experience more emotional empathy when listening to an emotional narrative than those who score low in imaginative involvement.

2. High-imagery narratives will generate more emotional empathy than low-imagery narratives.

3. High-imagery narratives accompanied by drawings which represent them will generate more emotional empathy than high imagery narratives alone.

4. Women will score higher than men in behavioral tests of emotional empathy involving the presentation of low imagery narratives, but this gap will close with increasing imagery content in the message.

In the next chapter, the research and theory which has been touched on lightly here, will be reviewed more closely. In Chapter Three, the experimental design and methodology used to test these hypotheses will be presented in considerable detail.

## CHAPTER 2: REVIEW OF THE LITERATURE

On the following pages, the research and theory discussed briefly in the preceding chapter, will be examined in closer detail. This review is organized into three topics: (a) emotional empathy and its relationship to imagining oneself into another person's experience; (b) imaginative involvement as a cognitive style conducive to empathy; and (c) the process of empathic communication.

Under each topic, the author reviews research from a number of different areas in order to develop a coherent theory of a particular aspect of the empathic process.

The section on emotional empathy is the simplest of the three, consisting mostly of a review of the literature on empathy, but briefly mentioning mood research which uses films to generate different feeling states in the viewer and to investigate physiological reactions to psychological stress.

The section on imaginative involvement reviews research on hypnotizability and its relationship to previous imaginative involvements and to absorbed attention; the relationship between imagery, imagination, daydreaming and hypnotic susceptibility; and theories of bimodal consciousness and cerebral specialization.

The section on empathic communication reviews literature on nonverbal expression of emotions, self-generation of feelings by mimicking emotional gestures, postural congruence as a measure of rapport, the

relationship between imagery and emotion, and research and theory on the ability of line and color to express emotional states.

## Emotional Empathy

The only body of literature in which the feelingful interaction between individuals has been directly addressed is the research on "empathy". However, despite the fact that some 1200 books and articles were cited in Psychological Abstracts under this title in the last fifteen years, very little direct research has been done, even within this field, on the kind of feelingful rapport which the author observed in her small groups.

Partly this is a result of the way empathy has been operationalized. While empathy was originally defined as "imagining oneself into the thoughts, feelings, and actions of another (Dymond, 1949), attempts to measure empathy resulted in a split in the research between "cognitive" and "emotional" empathy.

Cognitive empathy was defined as an ability to understand another's feelings and often to predict his or her behavior, without any implication regarding sharing in or being concerned about those feelings. Unfortunately, the situations of most interest to this study--those most like an ordinary conversation--have been operationalized as cognitive empathy.

For example, there has been extensive research on a

therapist's "accurate empathy" for the client, however this empathy has been operationalized as an observer's judgement of the therapist's ability to understand and communicate understanding of the client's feelings. Similarly, while there has been research in which subjects observed other people interact in a small group context, the reaction that was then assessed was the observer's ability to accurately predict each group member's self-description (e.g., Dymond, 1949; Bernstein & Davis, 1982).

Leaving these cognitive empathy studies aside, the author will review only the research on "emotional empathy". In addition, two research areas often cited as precursors to empathy research will be reviewed: studies of mood shift and physiological arousal to viewing emotionally activating films, and studies of "vicarious instigation" which demonstrate that physiological reactions to viewing another person in pain can be classically conditioned.

Even within the area of emotional empathy, there is considerable disagreement on how to define and measure the phenomenon. Research may be roughly divided into three areas which for the purposes of this paper will be referred to as "emotional contagion", "vicarious feeling", and "empathic concern".

Emotional contagion refers to a mindless, visceral, perhaps instinctual response to another's feelings, lacking any distinction between self and other. By comparison, vicarious feeling also refers to assuming the other's

feelings, but presumably with some cognitive mediation and with awareness of self-other differentiation. Finally, empathic concern which is meant to be synonymous with compassion or sympathy, refers to a feeling-for the other's emotional state without necessarily sharing those feelings.

Hoffman (1981) has suggested that the kind of empathy which the author refers to as empathic concern, develops out of the more primitive forms of empathy represented by emotional contagion. In making his argument for this developmental viewpoint, Hoffman cites McLean's (1958, 1967) theory that the limbic system of the paleo-mammalian brain is the site of a primitive empathic response which gradually becomes subject to cognitive controls as the child matures into an adult.

Hoffman does not imply that as adults we experience only the empathic concern type of response. Indeed, he argues both for the presence of emotional contagion responses in extreme situations (Hoffman, 1981) and for "regression in service of empathy" (Hoffman, 1977) to induce vicarious feeling.

The author observed that students in her small groups were both feeling each other's emotions and feeling concern for those feelings. However, to the author's knowledge, there is no research measuring all three types of empathy, or even vicarious feeling and empathic concern within one experiment.

## Experimental Paradigms for Studying Emotional Empathy

### Emotional Contagion

Emotional contagion has been studied among infants and very young children. Typically, the measure of empathy is the subject's display of the same or similar emotional behavior as the stimulus child. Studies with newborns and infants a few days old have demonstrated that infants respond with crying to another infant's cry (Simner, 1971; Sagi and Hoffman, 1976; Martin and Clark, 1982). This response has been shown to be specific to hearing another infant's cry rather than being a generalized reaction to disturbing sounds. Similarly, Martin and Clark (1982) have cited research with very young children (ten months to four years) which has demonstrated that they also become distressed in the presence of another child's distress (e.g., Yarrow & Waxler, 1977).

Research with adults is necessarily less clear-cut since normal adults are aware of the self-other distinction, and have the language skills with which to think about the other's situation. Nevertheless, there are reactions which verge on emotional contagion. Thus, Coke, Batson, & McDavis (1978) have studied "personal distress" reactions in adults.

People who score high on measures of personal distress react to other people's negative experiences with extreme upset and characteristically try to avoid such experiences. Davis (1980) has speculated that this reaction is due to

insufficient differentiation of self from other, and has shown that scores on measures of personal distress correlate with scores on measures of social dysfunction.

Vicarious Feeling

Vicarious feeling has been operationalized in several different ways. With children, an observed match of the empathizing child's and stimulus child's facial expression has sometimes been the measure. With older children and adults the measure has been self-report and/or physiological arousal. Self-report measures have included spontaneous comments, responses to questionnaires, and responses to mood adjective checklists (often the Nowlis, see Nowlis, 1965). Typical measures of physiological arousal have been heart rate, GSR, palmar sweat, and respiration rate.

A wide range of stimulus situations have been used to evoke vicarious feeling. Some are so extreme, that it seems likely that they must be triggering some mixture of emotional contagion and vicarious feeling. For example, among the film studies mentioned previously there were a few using a film of Australian native boys undergoing crude surgery on their genitals (e.g., Lazarus, Speisman, Mordkoff, & Davison, 1962; Speisman, Lazarus, Mordkoff, & Davison, 1964), and also a film of a series of accidents in a wood mill (e.g., Lazarus, Opton, Nomikos, & Rankin, 1965). Subjects watching these films showed emotional and physiological arousal as measured by both Nowlis mood ratings and physiological indicators. However, it is not

clear whether this arousal was emotional contagion or vicarious feeling.

Similarly, research on "vicarious instigation" has shown that subjects viewing another receive apparently painful electric shocks react physiologically (GSR increase) and that this reaction can be classically conditioned to a light-dimming-and-buzzer signal (Berger, 1962; Bandura and Rosenthal, 1966; Tomes, 1964; Craig & Lowery, 1969). Many of these studies did not assess subjective emotional reactions and the arousal may have been due to other states (e.g. fear, sadism). However, in the cases where it was empathy, again it is not clear what the mixture of vicarious feeling and emotional contagion might have been.

Much of the research on emotional empathy has used similarly extreme circumstances as in these initial studies. This is largely because psychologists have studied empathy within the primary context of research in altruism. Triggered by incidents such as the murder of Kitty Genovese in New York City while 38 people watched and did not help, this research focuses on empathic arousal as a motivator for helping behavior.

Thus, Stotland and his associates have studied vicarious feeling both by self-report questionnaires and physiological reactivity in subjects watching another receive supposedly painful heat treatments from a diathermy machine (Stotland, 1969; Stotland, Mathews, Sherman, Hansson, & Richardson, 1978). Stotland et al. (1978) have

also studied vicarious feeling in nurses watching a film in which a patient is neglected and dies abruptly. Krebs (1975) studied vicarious feeling using a classical conditioning paradigm with subjects viewing another receive painful shocks as a consequence of playing a roulette type game.

In all these studies the reality of vicarious feeling has been demonstrated for negative feelings. When demonstrated, however, it was subject to the influence of many different variables which will be discussed in the next section.

In contrast with these studies (and others not reviewed here) which present the observer with a stimulus person who is grimacing, jerking, and vocalizing in pain, there are other studies which measure vicarious feeling under circumstances which more nearly approximate everyday life. Presumably these studies explore a kind of vicarious feeling which has considerably more cognitive mediation than the situations described above.

Perhaps the most important studies conducted on vicarious feeling in terms of relevance for this dissertation, are the researches of Feshbach and her colleagues with children ages, 4-10 years old. Feshbach and Roe (1968) developed an empathy test which consists of four slide sequences with accompanying taped narratives. In contrast with the previously discussed research measuring empathy under extraordinary circumstances, these slide

sequences show children in fairly typical life situations, depicting happy, sad, angry and fearful situations. For example, happiness is depicted either by a "birthday party" or "winning a television set"; sadness with a story of a "lost dog" or "social rejection"; anger by a "toy snatcher" or "false accusation"; and fear by a "lost child" or "frightening dog".

Children view the slide sequences and then both empathy and comprehension of the situation are assessed. Vicarious feeling is measured by asking the child "How do you feel?" and scoring only affect matches (e.g. reported sadness for a sad sequence) as empathic responses. Social comprehension is measured by asking "How does this child feel?" and then scoring for accuracy.

In a review of this research, Feshbach (1978) reported that by age six or seven, all children were able to recognize the stimulus child's feelings, but not all were empathic. (Empathy depended on a number of individual and situational variables to be discussed later.) Happiness was the emotion most readily empathized with, sadness the next, while anger and fear competed for last place.

To the author's knowledge, no such research has been done using ordinary situations to study empathy in adults. However, there are a few studies which measure empathy for more psychological as opposed to physical distress situations. There are a few film studies, for example, focused on measuring mood change, in which subjects have

been presented with predominately happy, sad, or angry situations and have demonstrated the appropriate mood shifts (e.g., Nowlis and Green, 1964). However, these studies are primarily research in mood shifts. They presented complicated film material and did not attempt to narrow the problem to an assessment of empathy for a particular person in the film.

A number of other paradigms have been used to study vicarious feeling in situations which clearly require cognitive mediation. For example, Stotland and Dunn (1963) and Stotland and Walsh (1963) demonstrated vicarious feeling as measured by palmar sweat and self-report in subjects watching a person do poorly on a test of logical thinking which was purportedly a predictor of college success. Similarly, Aderman and Berkowitz (1970) demonstrated mood shifts appropriate to the outcome of a taped interaction between two college students, one who needs help and the other who could help. Vicarious feeling was measured using the Nowlis Mood Adjective Checklist. Using still another experimental paradigm, Archer, Foushee, Davis, & Aderman (1979) demonstrated vicarious feeling for the defendant in a mock jury trial, again by using the Nowlis.

Empathic Concern

A line of research on empathic concern has recently been initiated by Coke, Batson, and McDavis (1978). While these researchers have written about an "empathy-sympathy" complex (Batson, Darley, & Coke, 1978), they have only

studied sympathy. More specifically they have constructed an adjective checklist consisting of items such as "touched", "moved", "concerned", "compassionate" which they refer to as an index of "empathic concern".

In studies investigating empathic concern, college students are presented with "broadcast" audiotapes, purportedly prepared as pilots for a new TV series. Typical of these tapes is the "Katie Banks" tape which has been used in a number of these studies. "Katie" is supposedly a college senior who is being interviewed because she just lost both her parents in a tragic auto-wreck and must now somehow support herself and her younger siblings while she completes college. While the focus of much of this research is on help offered Katie, empathic concern is also assessed using the Empathic Concern Mood Index. As might be expected, college students do indeed experience empathic concern for Katie and other taped "students" in need of help (Archer, Diaz-Loving, Gollwitzer, Davis, & Foushee, 1981; Davis 1979/1980, Coke, Batson, & McDavis, 1978). Once again, a number of variables affect this empathic response and these variables will be discussed below.

## Variables Which Affect Emotional Empathy

The studies discussed in the preceding section represent the basic research paradigms that have been used to investigate emotional empathy. While the reality of the phenomenon has been demonstrated under a variety of experimental circumstances and with different operational

measures, the brief review given above is somewhat misleading for empathy is, by no means, a given. In many of these studies, empathic arousal was found to be dependent on one or more of the following subject variables: a) perceived similarity to the stimulus person; b) predisposition to behave empathically; c) sex; and d) cognitive set. Let us examine each of these variables.

Perceived Similarity

Perceived similarity has been defined and studied in a number of different ways including: same sex, same ethnicity, same personality traits, or common fate. Feshbach and Roe (1968) and Kaluk (1971) report that children empathize more with other children of the same sex. Klein (1970) demonstrated that black and white children empathized more with those of the same race as themselves.

Neither sex nor ethnicity has been studied in research on similarity and empathy in adults. Krebs (1975) and Stotland, Shaver, & Crawford (in Stotland, 1969) have demonstrated greater empathy for stimulus persons believed to have similar personality traits. Stotland and Dunn (1963) and Stotland and Walsh (1963) have shown greater empathy for a person believed to have participated in the same task as subjects participated in.

The research conducted by Stotland and his associates has studied perceived similarity in conjunction with birth order. Stotland (1969) reports that the relationship between perceived similarity and empathy holds only for

later-born subjects. He reasons that this is due to social schemas formed during childhood. Later-borns, Stotland argues, have ample opportunity to observe their fellow siblings in circumstances similar to their own and have come to expect other similarities. By contrast, first-borns and only children grow up in a social situation emphasizing differences in power, status, independence and knowledge and would be prone to empathize with those above or below them in authority.

Predisposition to Respond Empathically

Several researchers have developed measures of dispositional empathy in an effort to identify the people most likely to empathize under a wide variety of circumstances. There are currently four scales of emotional empathy which have been validated and used extensively in the research literature: Mehrabian and Epstein's (1972) scale of emotional empathy (EE); Stotland et al.'s (1978) Fantasy Empathy Scale (FE); and Davis' (1980) Interpersonal Reactivity Index subscales of Empathic Concern (EC) and Fantasy (FS). The items comprising these scales and research investigating their intercorrelations as well as correlations with other personality measures will be discussed in a subsequent section.

Research investigating the relationship between high scores on these scales and vicarious feeling and helping behavior in an actual empathy-evoking situation has led to some unexpected results. As expected, Archer et al. (1979)

in their mock trial in which subjects served as jurors found that subjects scoring high on the EE scale tried harder than low scorers to imagine themselves in the defendant's position when instructed to do so by the counsel, and felt more sad for the defendant as well as more contemplative and less skeptical than low empathy subjects. Similarly, Mehrabian and Epstein (1972) found that subjects scoring high on the EE scale delivered less shocks to learners who were doing poorly on a task than did low scorers.

However, in both of these studies, there was an unusual twist. In Archer et al. the high empathy subjects who were instructed to "pay attention to the facts" rather than imagine the defendant's feelings, found the defendant to be more guilty than the low-empathy subjects. In the Mehrabian and Epstein study, high-empathy subjects delivered less shock, but only when they were within sight and sound of the learner, and not when the learner was seated in another room and could only be heard. Low-empathy subjects showed no such variability.

Similarly, Stotland et al. (1978), using their FE scale, found that while high scorers did indeed show more physiological and self-report empathic arousal in their diathermy experiment, in three other studies high scorers exposed to another in distress who they could do nothing to help (e.g., terminally ill patients, an abrupt death, suicide callers) either avoided the situation and/or reacted less emotionally than low scorers (Stotland and Mathews, and

Mathews and Stotland in Stotland et al., 1978).

These results were moderated by birth order such that it was the first born high-empathy subjects who were most likely to avoid potentially arousing situations. Stotland reasoned that first borns, trained to depend on authority for help, tend to avoid situations in which they feel unable to act effectively, whereas later-borns taught to rely on their own resources are more likely to stay with such situations.

Hoffman (1981) in reviewing these studies has suggested that the high-empathy person may have an optimal range of empathic arousal past which he or she will avoid any further emotional stimulation. Thus, high scores on empathy tests may predict empathic arousal only in circumstances which are not too extreme.

In addition to these studies investigating the relationship between vicarious feeling and predisposition to respond empathically, Davis (1979/1980) has demonstrated a consistent relationship between high scores on the FS and EC scales and experienced empathic concern for "Katie Banks".

Sex Differences

A consistent finding in the research on situational empathy in children and on predisposition to empathy in adults, is that females score higher than males. Sex differences between adults in situational empathy has rarely been studied.

Hoffman (1977) in a review of the research literature

on emotional empathy reported that in "16 out of 16" independent studies, (mostly with infants and young children) females were shown to be more empathic than males. Similarly, Feshbach (1978) has concluded from her research with children: "an overall pattern is evident, reflecting greater empathic responsiveness in girls than boys".

Probably because the introduction of sex into the experimental design was expected to be such a potent variable, many of the adult studies of situational empathy discussed on the preceding pages held sex constant while investigating other variables such as perceived similarity or instructional set. Typically, they have used subjects of the same sex. In addition, to the author's knowledge, no study has compared empathic response, in the same experimental situation with stimulus persons of different sex.

In one of the only studies to investigate male-female differences in adults, Davis (1979/1980) used the Katie Banks tape and demonstrated that women score higher than men on empathic concern for Katie. Archer et al. (1979) in their mock jury trial showed the opposite: males were more empathic than females. However, this may have been a study-specific effect. The defendant was a male who had engaged in a barroom brawl which may have been seen as "macho" behavior, and the difference may have reflected male/female cultural attitudes toward violence rather than differences in empathic tendencies.

While there have been few studies of adult male/female differences in situational empathy, measures of dispositional empathy have consistently revealed sex differences. Thus Mehrabian and Epstein (1972) found women significantly higher in their empathy measure: the correlation between empathy and sex was .42 in a sample of 202 subjects. Foushee, Davis, & Archer (1979) also testing the EE scale, found that in 571 subjects, females exhibited significantly higher empathy scores than males: the average score for females was 39.6, while the average for males was 16.6, a difference significant at less than the .001 level. Davis (1980) reported on testing over 500 males and 500 females with his Empathic Concern and Fantasy Scales, and finding that females scored significantly higher than males on both scales. Finally, Stotland et al. (1978) reported that on their Fantasy Empathy scale, as well as four other empathy scales of an earlier, more comprehensive empathy measure, females scored significantly higher than males.

Cognitive Set: Imagine Her Versus Watch Her

One of the most robust findings in the empathy literature is the importance of the subject's cognitive set in determining whether or not he or she will experience empathy for the stimulus person.

In the early film studies on psychological stress, the importance of cognitive set was demonstrated by varying the narrative that accompanied the films. Thus, Speisman, Lazarus, Mordkoff, & Davison (1964), using the genital

operation film mentioned earlier, showed more arousal with a sound track emphasizing the danger and pain of the operation than one making anthropological comments, or another denying that the operation was painful or dangerous. Similarly, Lazarus et al. (1965) showed more arousal to a silent film of the accidents in a wood mill, than to one saying the events were a dramatization and not real, and one suggesting an impersonal orientation to the film.

In these studies, cognitive set was manipulated by portraying the stimulus situation as more or less real, more or less dangerous and painful. Other studies have manipulated cognitive set more directly, by asking the subject to adopt a particular style of listening/observing the stimulus person.

For example, Stotland and Sherman (reported in Stotland, 1969) presented imagine-self, imagine-him and watch-him instructions to subjects before they participated in their diathermy experiment. In the imagine conditions, subjects were instructed to imagine how they would feel or how the stimulus person feels in the situation. In contrast, watch-him instructions asked subjects to carefully watch the other person's body movements, bearing and posture, and <u>not</u> to imagine his feelings.

In this experiment, subjects showed significantly more arousal under "imagine" than "watch" instructions. Stotland et al. (1978) noted that instructions must be quite specific to affect empathy. They cited earlier research in which

subjects were simply asked to empathize without being given instructions on how to do so (Mitchell, Stotland, & Mathews in Stotland, 1978). Apparently this intervention was not effective: there was no difference in scores between subjects instructed to "empathize" and those receiving no instructions.

A number of other studies have either used Stotland's (1969) "imagine" and "watch" instructions verbatim or slightly modified in experiments measuring vicarious empathy (e.g., Aderman and Berkowitz, 1970; Aderman, Brehm, & Katz, 1977; Archer et al., 1979; Brehm & Aderman, 1977) and in experiments measuring empathic concern (Davis, 1980). In all of these studies, instructions to imagine produced more empathic arousal than instructions to watch or observe the stimulus person.

## The Relationship Between Emotional Empathy and Imagination

In the preceding section, we have seen that perceived similarity, subject sex, predisposition to respond empathically, and cognitive set, all affect emotional empathy.

In this section, it will be argued that the power of these variables to influence empathy derives from their common root in the relationship between imagination and empathy.

### A Cognitive Set to Imagine

The research on cognitive set has revealed that a

person who is in an impersonal, observant state will not necessarily experience empathy for another in distress. In addition, a subject who believes the situation is not real, or not as painful as it appears, etc., will not experience empathic distress. In order to experience another's pain, a person must be willing to imagine himself into the other's situation. High-empathy subjects, as measured by self-report scales, seem to have a special ability, not only for turning this faculty on, but also for turning it off (e.g., Archer et al., 1979; Mehrabian and Epstein, 1972).

Predisposition to Fantasy

The items included on measures of predispositional empathy offer further insight into the relationship between imagination and empathy. While several of these measures contain a wide range of items pertaining to feelingful responses to another, questions measuring a person's tendency to become involved in the experiences of characters in books, movies and plays are disproportionately represented. The EE scale of Mehrabian and Epstein includes such fantasy items, in addition to others inquiring into tendencies to experience empathic concern, emotional contagion, and vicarious feeling. While Stotland et al. (1978) began their attempts to devise a measure of empathy with a similar grab-bag of items, they found that only one of their scales--the fantasy empathy scale--correlated consistently with both physiological and self-report measures of empathy. Thus, they ended up discarding such

intuitively obvious measures as "When a friend gets engaged or married, I am very happy", while preserving items such as "When I'm reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me".

Similarly, one of Davis' emotional empathy scales, the Fantasy Scale, consists of questions measuring a subject's tendency to "transpose...imaginatively into the feelings and actions of fictitious characters in books, movies and plays".

As we have seen in the preceding section, high scorers on the EE, FE, and FS scales have displayed greater empathic arousal than low scorers in a variety of research situations, although this phenomenon seems to be limited to conditions which are not over-arousing. The ability to become absorbed in fantasizing about another's life thus seems to be predictive of both empathic concern and vicarious feeling.

What kind of person is this high-empathy fantasizer? As we have already noted with the mock-jury trial and the shocked learner experiments, research with subjects who score high on the EE scale, suggests that high-empathy subjects are highly influenced by other's expectations and by the situation, and seem to have the ability to turn empathy on and off. Both Stotland et al. (1978) and Hoffman (1981) have suggested, in view of such findings, that high empathizers are more emotionally vulnerable and have

therefore learned to develop defenses against this empathic tendency.

Foushee et al. (1979) investigated the relationship between scores on the EE scale and scores on the F, M, and M-F scales of the Personal Attributes Questionnaire of Spence and Helmreich (1978). High empathy subjects scored higher on the F pole of the M-F scale. (This pole measures emotional vulnerability and contains items such as "excitable in a major crisis", "cries easily", "feelings easily hurt".) They also scored lower on the M pole than low empathy subjects. (This pole contains items such as "aggressive", "dominant", and "worldly".) In addition, high empathy subjects scored higher on the F scale which contains items such as "emotional", "able to devote self completely to others", "aware of the feelings of others", and lower on the M scale which consists of items such as "independent", "self-confident", "stands up well under pressure".

Foushee et al. concluded that high scorers on the EE scale:

> ...may be indicative of a personality profile quite different from the more literal conception of the empathic individual as a concerned, socially responsible individual. The present research suggests that persons characterized by high levels of empathic tendencies may be prone to suggestibility, excitability, and uncertainty in emotional situations."

They further cite Spence and Helmreich (1978) who concluded on the basis of the same data: "a low degree of aggression and dominance, coupled with emotional vulnerability and strong empathic reactions to another's emotionality is

associated with lower self-regard".

A number of studies, reported in Stotland et al. (1978), have investigated the personality correlates of Stotland's Fantasy Empathy Scale. In one study, Hansson found that high FE scorers "believed people to be more trustworthy, having more strength of will and rationality, more altruism, independence, complexity and understandability as well as variability than low empathy subjects". In the second, Hansson found high empathizers were less willing to ascribe negative characteristics to persons racially dissimilar to themselves than low empathizers. Mathews found that high FE scorers saw more difference between themselves and dissimilar others, and whether they subsequently accepted or rejected the dissimilar other depended on birth order. Finally, Hansson, Chernovetz and Jones (1975) found in comparing FE scores with scores on subscales of Bem's Sex Role Inventory (Bem, 1974), that high FE scorers tended to be less sex-typed.

Davis (1983a) has reported on personality traits which correlate with his Empathic Concern and Fantasy Scales. First, the two scales were correlated significantly with each other ($r = .33$). Both scales showed small but significant tendencies toward emotional vulnerability (measured once again on the M-F scale of the Personal Attributes Questionnaire). Both scales correlated with the EE measure of Meherabian and Epstein (FS scale at .52, EC scale at .60).

The Fantasy Scale was positively correlated with sensitivity to others and to other's attitudes toward the self, and to verbal intelligence. It was unrelated to measures of social functioning except for a tendency for males to be more socially anxious, shy, and lonely. By comparison, the Empathic Concern Scale, which contains sympathy-related items, was positively associated with measures of emotionality and non-selfish concern for others. It was also positively associated with some shyness and anxiety, but negatively related to an undesirable interpersonal style characterized by boastfulness and egotism. Little relationship with verbal intelligence was evident.

An important finding is that both the Fantasy Scale and the Empathic Concern Scale had near zero correlations with Davis' Personal Distress Scale. This scale identifies individuals who become extremely upset at another's emotionality and is based on the research by Coke et al. (1978) on a personal distress mood index, mentioned earlier. Davis found that scores on the Personal Distress Scale correlated with a tendency toward chronic fearfulness, insecurity and emotional vulnerability. The fact that it did not correlate with the Fantasy Scale provides evidence that high fantasizers are experiencing vicarious feeling, not merely emotional contagion.

Taken together, these studies on Mehrabian and Epstein's EE scale, the Stotland FE scale, and the Davis EC

and FS scales present a fairly cohesive picture of the highly empathic individual. They suggest that the high empathizer is both emotionally vulnerable and emotionally open, capable of experiencing both vicarious feeling and empathic concern for the other. High empathizers seem to have a special ability to imagine themselves into the other's situation. As a result, they view human nature as complex and variable, are sensitive to the differences between themselves and others, are less willing to stereotype others, and are less sex-typed. They have a tendency to be highly influenced by others, can be somewhat socially anxious and insecure although not extremely so, and are generally not particularly aggressive, dominant, or self-confident.

All this suggests that the high empathizer is a very feelingful and involved individual, but not necessarily one to be relied on to "take charge" in an emergency. Such an individual might become overwhelmed by everyone's feelings in a crisis and either become disorganized, shut down feelings, or leave. While this may disappoint the researchers interested in helping behavior, the high empathizer has a skill of great use in more ordinary interactions with people. Hopefully, few of us will ever be placed in a situation in which we watch another person tortured or assaulted. However, in our day-to-day lives we are frequently called upon to appreciate the emotional states of others. This appreciation is a subtle state,

involving a sensitivity and responsiveness to another's flow of feelings which is neither very dramatic on the part of the speaker or of the listener, and which calls for little overt action.

It is clear from the preceding review that the high empathizer imagines himself into the world of the other, but what more can be said about this particular cognitive skill?

Davis (1980) has argued that the split between cognitive and emotional empathy is incorrect and that empathy should be viewed as a multi-faceted phenomenon involving both cognitive and emotional aspects. His Interpersonal Reactivity Index which includes the Empathic Concern, Fantasy, and Personal Distress Scales mentioned earlier, also contains a scale called "Perspective-Taking". Davis has proposed that the Fantasy and the Perspective-Taking scales measure the two "cognitive" aspects of empathy, while the Empathic Concern and Personal Distress scales assess the emotional aspects.

A comparison of the two "cognitive" scales--Fantasy and Perspective-Taking--is helpful in further clarifying the state of mind involved in each of them. On first inspection, the items of the two scales, seem very similar. Both seem to depend on the "imagination". Thus the Fantasy Scale contains items inquiring into a subject's tendency to become identified with characters in books, movies and plays. The Perspective-Taking Scale also contains imagining-into items, for example a typical item on this

scale is: "I sometimes try to understand my friends by imagining how things would look from their perspective".

While the two scales look similar, research on their personality correlates and on their relationship to behavior in an empathy-evoking situation, reveals their differences. In the preceding section it was noted that Davis (1983a) found the Fantasy Scale to be correlated with measures of emotional empathy--both the EE scale of Meherabian and Epstein and Davis' Empathic Concern Scale. The Fantasy Scale was <u>not</u> strongly correlated with the Hogan Test of Empathy, a measure of "cognitive empathy". In addition, it was correlated with measures of emotional vulnerability, sensitivity to other's feelings and to other's feelings about the self, and showed slight positive correlations with measures of fearfulness and insecurity, while being mostly unrelated to measures of social competence.

By comparison, the Perspective Taking Scale showed a very different pattern of correlates. While it also correlated positively with the Empathic Concern scale, it was only barely correlated with the EE measure, but was correlated with the Hogan Test of Cognitive Empathy. Also in contrast with the Fantasy Scale, the Perspective-Taking Scale correlated positively with measures of social competence while being essentially unrelated to emotionality or to sensitivity toward others, and showing a small negative correlation with fearfulness.

Not only do the two scales show different patterns of

correlation with other personality measures, they were barely correlated with each other (r = .13, significant at the .05 level only because of the huge sample size). Thus while both scales correlated with the Empathic Concern Scale which measures sympathy for another's feelings, the Fantasy Scale and the Perspective-Taking Scale seem to measure different cognitive abilities.

This difference has been born out in research. While Fantasy Scale scores and Empathic Concern scores are related to experienced empathic concern and helping behavior for "Katie Banks", perspective-taking scores are less so (Davis 1979/1980, 1983b). However, Perspective-Taking has been shown to be an excellent predictor of the ability to judge another person accurately (Bernstein & Davis, 1982). In commenting on the difference between the two abilities taped by the scales, Davis (1979/1980) has suggested that while Fantasy scores may identify an enduring personality trait, Perspective-Taking scores may reflect a cognitive ability that can be employed or not.

How can these differences be accounted for? It seems to the author that they refer to two very different internal experiences. Becoming involved with the characters in a novel is a very intense, absorbing experience. When a person is the type to become "lost" in a book, he or she becomes totally absorbed in it and may not notice other surrounding events. She may wince at a described blow, cry over a death, experience the touch of a breeze. At the

movies such people watch with rapt attention, while emotions "play" over their faces. When the hero runs desperately from the villain, these people strain in their seats, barely able to keep themselves from running too. Indeed, their involvement is much like that of a child's: it has a "let's pretend" quality to it.

By comparison, the high perspective-taker who has just said something which has offended a friend, might step back and think to himself: "Why is this person so upset?...Let's see, if I were in his position, I guess I would feel upset too...After all, he just lost his job, probably is feeling insecure...That comment I made about the house being unfinished must have made him feel still more incompetent...Yes, I can easily imagine how he's feeling. I'll have to say something to reassure him."

Implied in the two descriptions given above is the author's opinion that fantasy empathy is a much more vivid and absorbing experience than perspective-taking. It may be that this difference is related to the quality of imaging involved in both processes. The fantasizer would seem to be emotionally absorbed in very vivid imagery of all modalities--kinaesthetic, auditory, tactile, and visual. By comparison, the perspective-taker would seem to be "seeing" the other person's situation and talking to himself about it, reasoning it out rather than feeling it emotionally and physically.

Hoffman (1977) as well as several psychoanalytic

writers on empathy (e.g., Greenson 1960) have proposed that emotional empathy of the vicarious feeling type involves a "regression in service of empathy". Like the psychoanalytic notion of regression in service of the ego proposed by Kris (1952) to explain the creative process, this implies that a person with an intact ego temporarily suspends secondary process functioning and allows primary process to take over. Using this theory, one can argue that fantasy empathy is a primary process phenomenon, while perspective-taking is a secondary process phenomenon.

Sex Differences in the Use of Imagination

In a preceding section, it has been shown that females score consistently higher than males in measures of emotional empathy. Hoffman (1977) has suggested that this difference is the result of socialization: while women are socialized to assume an "expressive" role, men are socialized to perform an "instrumental" role. He suggests that these different socializations result in different reactions to another's display of feelings. While males may attempt to solve the problems which they perceive to be causing the feelings, women may be more likely to imagine themselves into and empathize with the feelings. Hoffman cites research showing that boys spontaneously offer more problem solutions when presented with slides of children in difficult situations than girls (Hoffman and Levine, 1976).

Davis (1980) has found some interesting sex differences in research with the four subscales of his Interpersonal

Reactivity Index. Scores on the Empathic Concern, Perspective-taking, Fantasy, and Personal Distress scales were compared with subsequent measures of experienced warmth and compassion for "Katie Banks".

For women, there was a consistent positive correlation between scores on the Empathic Concern scale and experienced feelings of compassion for Katie, irrespective of fantasizing ability. However, for men, this correlation was much weaker, unless fantasizing ability was high. Similarly, fantasy scores were a much stronger predictor of compassion in women than in men, when no "imagine-her" instructions were given. However, when instructions to imagine were given, the relationship between fantasy and reported compassion was quite similar for both sexes. Davis concluded that "males seem to require some extra 'boost' to produce mood effects similar to females" (p. 162).

Similar results were obtained by Stotland, Shaver, and Crawford (in Stotland, 1969) who reported that prior to imagination training, women scored higher than men in empathy. However, with training (asking subjects to give a written description of what it would feel like to be the subject in a pain-inducing experiment), the differences were eliminated. Stotland (1969) concluded that to get men to empathize, it may be necessary "to give them some, even if only symbolic or imaginary, experiences, similar to the other's experience".

Finally, Frank (1978) has reported on an empathy

training experiment which provides additional evidence for the differing socialization of males and females with respect to imaginative abilities. While Frank's training was focused on the development of cognitive empathy it involved instruction in the use of both the rational skills of observing and predicting another's behavior, and the fantasy skills of maintaining a non-analytic, passive state of mind and watching the images triggered by listening to another speak. In the course of this study, Frank noted some important male/female differences:

> ...females, usually found to be more fanciful and to have more vivid fantasies and images than males...presumably increased their skills in reality-oriented modes of observation as a result of training in behavioral techniques. Males, who typically interpret their experience in a more reality oriented way, through training in reflective daydreaming, probably became more skilled in imaginative modes of observation. It is possible that having recourse to both modes is more effective than recourse to only one in making accurate predictions.

Perceived Similarity

In view of the strong relationship between imagination and empathy the observation that perceived similarity enhances emotional empathy makes considerable sense. Two mechanisms may be involved. First, perceived similarity may lead to more trust in the other and consequently a softening of interpersonal boundaries and a greater willingness to imagine oneself into the other's situation. Second, assuming that the other is similar to oneself might be more likely to amplify their statements with imagery from one's own life.

## Summary

From this review of the research on emotional empathy, the most important point to emerge is that both vicarious feeling and empathic concern are related to an ability to imagine oneself into another's emotional situation. Furthermore, this imagining is characterized by an absorbed, vivid imagery experience different from the more rational experience of the high "perspective-taker". Theorists have proposed that it is a "regression in service of empathy" which involves a temporary suspension of rational judgement and normal ego boundaries, and an allowing of primary process mentation. This process is not to be confused with a more primitive emotional contagion, or "personal distress" response which appears to be correlated with serious social dysfunction, and chronic negative emotionality.

Studies of the personality correlates of high-fantasy empathizers suggest that they are emotionally open and vulnerable, appreciate the complexity and variability of human nature, are more likely to be cross sex-typed, are sensitive to other's feelings and to other people's reactions to them, suffer from some insecurities, and are not likely to be particularly self-confident, aggressive or dominant. While they appear to be especially feelingful individuals, they may at times have to close down that sensitivity, when they become overwhelmed by it.

Finally, it has been shown that females tend to be more empathic than males. While this may have some

constitutional tendency at its base since infants show sex differences in emotional contagion, it is likely to also be the result of differing socialization of the sexes. More specifically, females trained in the "expressive" role may be more willing to use their imaginations to enter another's emotional reality, while males taught to assume the "instrumental" role, may be more inclined to solve the problems that generated the emotional situation. There is evidence, however, that with instructions to imagine the other's situation, or with training to do so, males increase their empathy scores and the differences between the sexes is lessened.

## Imaginative Involvement: The Cognitive Style of the Empathizer?

One of the primary conclusions to emerge from the preceding review on emotional empathy research is that the ability to imagine oneself into the experience of another is a central capacity of the high empathizer. Furthermore, this ability is more than a rational shifting of perspective, but seems to involve a capacity to totally immerse oneself in another's body states, emotions and thoughts in an absorbed, perhaps dream-like way.

What are the cognitive abilities which high empathizers draw upon in their episodes of imaginative involvement? The research on emotional empathy offers little insight.

Preoccupied with emotional empathy as a motivator to helping, researchers on empathy have not investigated the cognitive abilities and internal subjective experiences of the empathizer. However, in what may prove to be a fortuitous coincidence, in the last nine years, a search to identify the personality characteristics of the highly hypnotizable individual has led to the development of a new research area called "imaginative involvement". Published in the journals on hypnosis, this line of research has developed independently of empathy research but bears fruitful possibilities for the clarification of the cognitive states characteristic of empathic individuals.

What is remarkable about this line of research is that the very same questions inquiring into the ability to lose oneself in the characters of books, movies and plays which have proved to be predictive of empathy, have become the nucleus of measures predicting hypnotic susceptibility. The overlap between the two fields suggests to this author that the ability to be deeply empathic and the ability to be hypnotized may both depend on a common cognitive capacity. While research on emotional empathy has not focused on the cognitive capacities of the empathizer, research on hypnotic susceptibility has been quite focused on identifying these capacities. In this section, the insight that has been gained from this research will be reviewed with an eye toward understanding emotional empathy.

The following review will cover four areas: (a)

Hilgard's interview studies (1965, 1974, 1979) which established a relationship between imaginative involvements and hypnotic susceptibility; (b) Research with experience batteries which assess the tendency to have hypnotic-like experiences in daily life, particularly the Absorption Scale of Tellegen and Atkinson (1974); (c) Evidence for a positive vivid imaginal style from studies relating imaginative involvements and hypnotic susceptibility to skills in imaging, guided imagining, self-hypnosis and daydreaming; (d) Theories of bimodal consciousness and hemispheric specialization which suggest that empathy and hypnotizability may share in a common mode of information processing, perhaps characteristic of the right hemisphere.

## Imaginative Involvements

While hypnotic susceptibility has been shown to be a very stable personality trait, attempts to find correlated personality traits using a wide variety of scales, have been singularly unsuccessful (see Deckert & West, 1963). However, a promising line of research opened when investigators began to look for experiences within daily life which seemed related to hypnotic phenomena.

Josephine Hilgard (1965, 1974, 1979) has conducted extensive interviews with subjects participating in Stanford University's hypnotic susceptibility studies. She found that individuals who scored high in hypnotizability had a history of involvement in one or more imaginative areas: sensory experiences, drama, reading, religion, nature,

music, physical or mental adventures. Speaking of the nature of these experiences Hilgard (1979) noted:

> This involvement is one of the things the existentialist is talking about when he speaks of the breaking down of the distinction between the subject and object of his experience; it is what those seeking expansion of consciousness mean by their all-embracing experiences; it is something like Maslow's (1959) peak experiences. (p. 5)

Particularly interesting for the purposes of this study, Hilgard (1974) found that among the highly hypnotizable subjects she interviewed, 93% reported an involvement in either reading or drama, as compared to 20% of the low hypnotizables. Thus of all the different types of imaginative involvement, reading and drama stood out as some of the most universal of interests.

Hilgard (1979) described the kind of reading experience that qualifies as an imaginative involvement:

> ...there is a special kind of involvement in reading, in which the very "being" of the person is swept emotionally into the experience described by the author (p. 23).

She cites "John" as an example of a highly hypnotizable person with an involvement in reading:

> I identify myself with the character in 1984, with Winston Smith...His head was in a cage and he felt he would have to submit. I <u>felt</u> the fear that he felt as it came closer, closer. Walking back ... after finishing the book I had a problem relating myself to my present environment, to the stuff around me, for I was so entangled in the story that I had become exhausted. (Hilgard, 1979, p. 23)

Hilgard (1979) summarizes the characteristics of the involved reader as: "1) He is greatly influenced by the power of words..."; "2) He is actively receptive and open,

not merely passive..."; "3) He intensely cherishes the experience of the moment..."; "4) He engages in vivid imagery..."; "5) He suspends critical (reality-testing) processes..."; and "6) He can distinguish between reading experience and normal routines of his life..." (pp. 33-34).

She distinguishes between this kind of intense and emotional reading and two other kinds of attentive reading: one which is purely intellectual in interest, and the other which is a kind of reading addiction, in which the person consumes book after book, racing through them but not savoring the experiences along the way.

In addition to this investigation into the reading experience, Hilgard (1979) discussed the involvement with drama, both acting and watching, which is characteristic of the highly hypnotizable. She noted, regarding actors, that there seems to be two types: technical and method. The technical actors carefully simulate emotionality, while the "method" actors use the technique of Stanislavsky (1950) to vividly imagine themselves into the full feelings of the person they are portraying. As might be expected, it was the method actors who were likely to be highly hypnotizable, not the technical actors. Similarly, regarding dramatic watchers, she noted that some involve themselves emotionally in the experience, while others interest themselves in the plot, the acting techniques, etc. As with actors, it is those who involve themselves in the experience on a feeling level who are the high hypnotizables.

In contrast to these, and other, imaginative involvements which are predictive of hypnotizability, Hilgard (1979) noted that there are involvements which do not lend themselves to developing a facility for hypnosis. Three types of involvements of this nature that she cites are competitive sports, science, and work-recreation projects. According to Hilgard, all three share a close attention to specific, concrete, details of reality, a goal-directedness, and an analytic mental set.

As a result of her careful and extensive interviewing of these highly hypnotizable subjects, Hilgard (1979) suggested that imaginative involvements identify a "previously ignored personality attribute" (p.289), having wider significance for psychology than just in the area of hypnosis. Indeed, she argued that imaginative involvements point toward an innate human capacity, which can be encouraged and developed by parents and teachers, or seriously discouraged and inhibited.

In addition, she noted that in contrast with earlier predictions that the highly hypnotizable subject might be overly hysterical, suggestive, or acquiescent, that: "The typical high subject in our experiments has a 'strong ego' by any measure, a firm hold on reality when he wishes and adds a flexibility of adjustment in which the <u>temporary</u> setting aside of his reality orientation plays a large part".

Hilgard's work bears obvious relevance to the work with emotional empathy showing that high scorers on fantasy-empathy scales are the most likely to be empathic in the experimental setting. One might easily speculate that high fantasy empathizers would turn out, in most cases, to be the highly hypnotizable. If so, it seems justified to suggest that the highly empathic are individuals with an unusual facility to enter into imaginative activites with an especially intense immersion. (In a subsequent section, the importance of a personality trait of sociability will be added to this picture.)

Absorption: The Attentional Style of the Highly Hypnotizable

At approximately the same time that Hilgard was developing her interviewing studies for identifying the highly hypnotizable, a related method developed of using self-report experience inventories to assess a subject's tendency to have hypnotic-like experiences in daily life. A number of these inventories, using a wide range of items, were developed, and it was found that high scores on these measures correlated with hypnotic susceptibility (Shor, 1960; Shor, Orne, & O'Connell, 1962; As, 1962; Lee-Teng, 1965).

A very wide range of unusual experiences were assessed in these original batteries, and the data were then analyzed to identify underlying factors. These early investigations have been criticized on methodological grounds (Tellegen & Atkinson, 1974), and will not be discussed here in detail.

However, in passing, the observations of As, O'Hara, & Munger (1962) are particularly relevant to this study and therefore worth mentioning.

As et al. (1962) subjected their Experience Inventory to a factor analysis and identified two major factors: Role Absorption and Tolerance of Unusual Experiences. Looking more closely at the items composing the Role Absorption factor, As (1963) wrote:

> A closer study of these items showed that there is a greater degree of involvement and absorption in these experiences than is implied in the concept of role taking...There is a fading of the differentiation between self and role, as it were, so that the experience takes on a new reality or results in a perceived alteration of mental state, suggestive of the cognition of being in the peak experience as described by Maslow (1959).

Other researchers have also zeroed in on this "role-absorption" ability as being especially powerful in predicting hypnotic susceptibility. Thus Lee-Teng (1965) found that a role-playing factor, much as As had defined it, had the highest correlation with the overall score on her experience battery, and with hypnotic susceptibility. It may well be that this role-taking skill identified in these experience inventories is the empathic ability to assume another's feelings, and the role-taking it is being distinguished from is what was called "perspective-taking" by Davis (1980) and others.

Tellegen and Atkinson (1974) reviewed these various studies, concluding that there were serious methodological difficulties in most of them and constructed their own 71-

item scale taking items from many of the batteries developed earlier. They then administered this new scale to 481 college students along with the Block (1965) measures of stability-neuroticism and introversion-extraversion, and tests of hypnotizability. A factor analysis of the matrix of scores revealed three main factors of which one was named Absorption and consisted of items assessing a tendency toward reality and fantasy absorption, dissociation and openness to experience.

Of the three factors so identified, only Absorption was correlated with measures of hypnotizability (correlations ranged from .27 to .43 with the different measures). What was even more striking is that these measures of hypnotizability were not, on cross-validation, superior to the Absorption Scale in predicting hypnotizability. Since these measures consist of actual samples of hypnotic behavior, this result is quite impressive.

In reflecting on their results, Tellegen and Atkinson noted that the Absorption Factor had the properties of a major dimension or in Eysenck's terms, a "combinatorial" trait (Eysenck & Eysenck, 1969).

They suggested that it measures an ability to enter a "state of 'total attention' during which the available representational apparatus seems to be entirely dedicated to experiencing and modeling the attentional object, be it a landscape, a human being, a sound, remembered incident, or an aspect of one's self" . Or stated even more succintly,

it is type of attention, "involving a full commitment of the available perceptual, motoric, imaginative and ideational resources to a unified representation of the attentional object".

Absorption is considered by these authors to be a "cognitive-motivational trait". Two cognitive abilities involved in Absorption were defined: (a) an ability to "operate diverse representation modalities synergistically so that a full but unified experience is realized". (They suggest that this ability is "reminiscent of the Freudian mechanism of 'condensation' and may be an important ingredient of creativity...".) (b) an "empathic quality and versatility of the representations" or stated another way, this is an ability to "realize diverse states of being" which could be "cultivated and elaborated into role-playing skills". They describe the motivational aspect of this "trait" as a "desire and readiness for object relationships, temporary or lasting, that permit experiences of deep involvement".

Delving further into the quality of this experience, Tellegen and Atkinson suggested that a wide variety of absorbed experiences may be understood as a heightened sense of the reality of the object of one's attention coupled with an altered sense of the self, especially when the object of one's attention is another person, e.g.:

> Absorbed attention can also result in an altered self when the attentional object is <u>someone else</u>. Full representation of someone else's activities and experiences often involves the enactive or 'body-

> english' component of absorbed attention. The resulting kinesthetic feedback enhances empathic participation and an experience of equivalence of the attentional object and one's self.

While these authors go no further in developing this notion of the role of absorbed attention in empathy, their comments seem especially pertinent to this study. They are proposing that deep absorption in another involves using all one's representational systems to model the other's experience, including kinesthetic sensibilities. These ideas will be supported in the third section of this review and will form the nucleus for a theory of emotional empathy.

Tellegen and Atkinson proposed that this kind of attention may be rendered to inanimate objects as well, and noted that "objects of absorbed attention acquire an importance and intimacy that are normally reserved for the self, and may therefore, acquire a temporary self-like quality. These object identifications have mystical overtones". In this manner, they explain the wide range of experiences that typically make up an experience inventory, from enraptured experiences of nature to entrancement with music: all are instances of this temporary identification with the object of the experience.

The authors noted that while phenomena of this kind have been overlooked by contemporary academic studies of attention, memory and perception, they have been discussed and described widely in the literature on meditation, expanded awareness, peak experiences, mysticism, aesthetic experience, regression in service of the ego, altered states

of consciousness, and drug effects. They cited Maslow's (1968) writing on the "fascination" and "complete absorption" that characterize peak experiences, and Schachtel's (1959) discussion of the "allocentric" perceptual mode involving a "totality of interest and openness to the object in all its aspects, with all one's senses, including one's kinaesthetic experience".

In subsequent research reported in Tellegen (1982) the intercorrelations between the Absorption Scale and other personality scales on their Differential Personality Questionnaire have been studied. These intercorrelations shed further light on the Absorption Scale. Small positive correlations were obtained between the Absorption and the Wellbeing and Social Potency Scales reflecting positively on the healthiness of the absorbed individual's personality. Small positive correlations were also obtained with the scales of Positive and Negative Affectivity, pointing toward the emotional nature of the absorbed individual. Slight positive correlations were obtained for men with Stress Reaction and Alienation, and for women less so, a pattern similar to that of the high-fantasy empathizer. Finally, there were negative correlations between Absorption and the scales of Control, Harmavoidance, and Traditionalism.

All told, this pattern of correlations is quite similar to the pattern for the high fantasy empathizer: emotional vulnerability, slight positive correlations with social competence, but some alienation especially for males.

This latter result is not surprising since in our culture, emotional vulnerability is a trait of questionable value for males.

Perhaps the most relevant finding for this research was that there was no correlation between a scale of Social Closeness which measures how much people like to be with and around others, and Absorption. In a telephone conversation with the author, Tellegen suggested that high empathy individuals might be those scoring high on both Absorption and Social Closeness. That is, they might be people who have the ability to enter this absorbed state, who chose other people as one of their favorite "objects" of attention.

Subsequent studies have further examined the correlates of the Absorption Scale. The relationship between hypnotic susceptibility and the Absorption Scale was confirmed in Spanos and McPeake (1975), Finke and MacDonald (1978), and Yanchar and Johnson (1981). O'Grady (1980) administered the Absorption Scale, plus the Repression-Sensitization Scale, the State-Trait Anxiety Inventory, the Norwicki-Strickland Locus of Control Scale, and the Marlowe-Crowne Scale of Social Desirability to 148 subjects. Once again, a factor analysis of the data showed the Absorption Scale to be an independent factor which according to O'Grady: "offers strong support to the notion that the Absorption Scale is tapping a relatively new personality dimension".

The hypothesis that hypnosis involves a focused,

absorbed attentional style has been researched in a number of studies examining the relationship between hypnotizability and performance on attention tasks. These studies have led to an important distinction between two types of attention: a concentrated, vigilant, alert attention which is willful; and a more spontaneous, effortless and passive attention which has an absorbed quality.

For example, tests of waking vigilance, digit span, mental arithmetic and similar tasks have characteristically either shown no relationship or a negative relationship to hypnotic susceptibility (e.g., Das 1964; Anderson, 1963; Roberts, 1964; Reilley & Rodolfa, 1981). On the other hand, tests which require a solution to "pop" into one's mind, or for an attentional object to come into focus effortlessly, have shown a relationship with hypnotizability. Thus, Wallace, Knight and Garrett (1976) found a relationship between hypnotizability and the number of illusory shifts to visual illusions; Crawford (1981) found a relationship with the ability to close gestalts; Karlin (1979) with the ability to sort out one of two overlaid messages; Graham and Evans (1977) with the ability to generate random numbers; and Van Nuys (1973) with the ability to eliminate intrusive thoughts during meditation.

Taken together, these studies with hypnotic-like experience inventories, the Absorption Scale, and attention deployment, bring the observations by Hilgard on imaginative

involvements into sharper focus. Hilgard has argued that there are "multiple pathways" into hypnosis. She has suggested that one could develop hypnotic ability through reading, adventures in nature, interests in music, art, drama, etc. Research with the Absorption Scale, and research on attention explains why. All these involvements help an individual to sustain a natural, child-like ability to engage in an absorbed, effortless, vivid attentional style.

Is this then, the attentional style of the high empathizer? Everything points to the confluence of these two lines of research, but the test would be to see if individuals who score highly in empathy-evoking situations also score high on the Absorption Scale. Again, an individual's tendency toward sociability might influence this relationship and this variable should figure into such an experimental test of the relationship between empathy and imaginative involvement.

## Evidence for a Positive, Vivid Imaginal Style

In the preceding section, research suggesting that an absorbed style of attention is a cognitive ability of the highly hypnotizable has been reviewed. In this section, research on the relationship between imagery, imagining, and hypnosis will be discussed which further develops the picture of the cognitive abilities of the highly hypnotizable, and perhaps the highly empathic.

Imagery and Hypnotizability

An obvious starting point for the investigation of the abilities essential to hypnotizability is the capacity to image vividly. Self-report questionnaires, particularly the Betts (1909) questionnaire and Sheehan's (1967) revision of it, have been used to assess imagery vividness and to investigate its correlation with hypnotic susceptibility scales such as the Stanford Hypnotic Susceptibility Scale (Weitzenhoffer & Hilgard, 1959), as well as experimenter assessments of a subject's hypnotic depth. The Betts questionnaire and its Sheehan derivative assess imagery in all modalities (visual, olfactory, kinesthetic, gustatory, cutaneous and organic). However, one overall vividness score is computed.

Research with the Betts test has repeatedly shown a small positive correlation between vividness of imagery and hypnotizability (Sutcliffe, 1965; Shor, Orne, & O'Connell, 1966; Sheehan, 1967; Sutcliffe, Perry, & Sheehan, 1970; Hilgard, 1979; Sheehan, 1972; and Diamond & Taft, 1975), although a few studies report an insignificant or near zero correlation (Morgan & Lam, 1969; Van Dyne & Stava, 1981; Perry, 1973).

Closer investigation of the relationship between hypnotizability and imagery vividness reveals that it is non-linear. While highly hypnotizable subjects are nearly always high in imagery and low hypnotizables are almost always very low in imagery, there are subjects who have

vivid imagery but who are not hypnotizable. Thus, vivid imagery appears to be a necessary, but not sufficient condition for hypnotic susceptibility (Sutcliffe et al., 1970; Hilgard, 1979; Perry, 1973).

Creative Imagining

E. Hilgard (1977) has commented on the low correlations obtained between the Betts measure of imagery vividness and hypnotic susceptibility suggesting that this imagery measure may not assess the type of imaginative experience most relevant to hypnotizability. Typically, items on the Betts questionnaire consist of statements such as "Rate the vividness of your image of the sun as it is sinking below the horizon" which require the subject to create a brief, relatively static image. Hilgard suggests that there is a difference between the ability to generate such an image and the ability to generate the ongoing stream of imagery which is characteristic of a hypnotic fantasy.

He then goes on to note that the Marks (1973) scale provides a somewhat more developed measure of imagining by asking subjects to image a series of events. For example, a subject is asked to picture a storefront from across a street, the items in the store window as he moves in closer, and a particular item up close.

Hilgard reports that positive correlations have indeed been obtained between scores on the Marks scale and hypnotizability by McKenley and Gur (1975), and t'Hoen (1977).

While the Marks scale does provide an assessment of a series of images unfolding in time rather than static images, it does not measure the kind of imagery characteristic of an absorbed state. Richardson (1969) in his extensive review of the research on imagery to that date, made an important distinction between "memory" and "imagination" imagery which is relevant here.

Richardson defined memory imagery as "the common imagery of everyday life, which accompanies recall of events from the past, ongoing thought processes of the present or anticipatory actions and events of the future". He noted that memory imagery occurs as the spontaneous accompaniment of much everyday thought, is more amenable to voluntary control than other forms of imagery, and is "usually like a hazy etching, often incomplete, usually unstable, of brief duration and indefinitely localized".

By comparison, Richardson defined imagination imagery as "novel, substantial, vividly colored when in the visual mode and involving concentrated and quasi-hypnotic attention [author's emphasis]". He noted that imagination imagery arises in a wide variety of contexts: in subjects falling asleep and passing through the hypnogogic state; in meditators; in subjects who have ingested hallucinogenic drugs; in those who have been sleep deprived, and in those who have been exposed either to perceptual isolation or to photic or pulse current stimulation.

By these criteria it may well be that the Betts and the

Marks scales are measuring a particularly strong ability to have vivid memory imagery, but do not assess the ability to have imagination imagery which is the type of imagery characteristic of hypnosis. Indeed, J. Hilgard (1979, p. 276) has said: "Imagery as such must not be confused with what has been called imaginative involvement...It is possible to have vivid images without becoming engrossed in them. Rich fantasies with emotional overtones of involvement go beyond simple sensory images, no matter how vivid".

In one of the only studies to investigate the relationship between imagination imagery and hypnotizability, Palmer and Field (1968) added yet another important distinction to the relationship between hypnotizability and imagery. They were able to show a correlation between hypnotizability and amount of imagination imagery evoked by sensory restriction and by photic stimulation. However this relationship was obtained only for directed and not for spontaneous imaging. Thus when a subject's spontaneous report of imaging was assessed, there was no correlation with hypnotizability, but when a subject's ability to generate imagination imagery to suggestions made by the experimenter was assessed, there was a positive relationship. The researchers concluded that in addition to the ability to image vividly, the willingness to experience a directed fantasy was important in predicting hypnotizability.

To summarize, it has been suggested that imagery which is moving and develops over time; imagery which is characterized by vividness, spontaneity, and a quasi-hypnotic quality; and imagery which occurs at the suggestion of another, are predictive of hypnotizability.

Until 1976, there was no test of imaging which measured all these abilities. However, psychotherapists were using "guided daydream" techniques (e.g., Assagioli, 1965; Leuner, 1969; Desoille, 1965) which called upon the client to generate imagination imagery at the direction of the therapist, although researchers studying hypnosis were not making use of these techniques in their experimental designs.

In 1974, Spanos and Barber reviewed the then current theories of hypnosis and concluded that there was an increasing convergence toward viewing hypnosis as a shift away from a pragmatic orientation and toward one that involves imagining. Wilson (1976) and Wilson and Barber (1978) brought this convergence into clear focus by designing a test known as the Creative Imagination Scale (CIS) which draws upon the guided daydream techniques of the psychotherapists.

When preceded by a standard hypnotic induction, the CIS is considered to be a test of hypnotic susceptibility. Otherwise, it is considered to be a test of imagining. It consists of ten brief (1-2 minute) guided fantasies. Incorporated into these fantasies are many of the standard

experiences used to sample hypnotic behavior including arm raising and lowering, feelings of deep relaxation, numbness in the fingers, and age regression. Other items suggest sensual experiences that might easily be part of a hypnotist's repertoire: eating a juicy orange, listening to beautiful music, relaxing on a beach, etc. For this reason, it serves as a sample of hypnotic behavior and therefore a test of hypnotic susceptibility. (See Appendix 4 for the complete transcript of the CIS Scale.)

However, in format, the CIS resembles a guided daydream narrative. Rather than simply suggesting the experience, it provides a one to two minute narrative describing the experience in much detail and involving all imagery modalities, including the kinesthetic. For example:

> Picture yourself picking up an orange, and imagine that you're peeling it. As you create the image of the orange, feel yourself peeling it and let yourself see and feel the orange skin on the outside and the soft-white pulp on the inside of the skin...let yourself smell it and touch it and feel the juiciness of it...

Self-report measures of imaginative activities have been shown to have positive correlations with scores on the CIS. Thus Barber and Wilson (1979) reported that their imagination inventory, consisting of three subscales including Predicted Imagining (a subject's assessment of their imagining abilities), Play History, and History of Involvements was significantly correlated with the CIS ($r=.45$, $p<.001$). Similarly, Singer and Pope (1981) reported on an unpublished study by Singer which yielded evidence

that a positive-constructive daydreaming style as assessed by the Singer-Antrobus Imaginal Processes Inventory (Singer & Antrobus, 1972) was associated with high scores on the CIS.

Convergence in the Research on Hypnotizability, Absorption, Imaging, and Imagining

In the last five years, research on all the different areas discussed above--imaginative involvements, absorption, hypnotic-like experiences, hypnotic susceptibility, imagery vividness, imagination, and daydreaming--has begun to converge. Increasingly. researchers are suggesting that a vivid, absorptive, imaginal style underlies abilities in all these areas.

For example, Hilgard, Sheehan, Monteiro, & MacDonald (1981) and Monteiro, MacDonald, & Hilgard (1980) have analyzed the data taken from two earlier studies (Sheehan, McConkey, & Law, 1978; McConkey, Sheehan, & White, 1979) in which subjects took the CIS, the Absorption Scale, The Betts Test of Imagery Vividness, and measures of hypnotic susceptibility. Hilgard et al. (1981) reported that a factor analysis of the data revealed an "absorption/imagination factor represented by the CIS, the Betts, and the Absorption Scale. Monteiro et al. (1980) also reported on a factor analysis which yielded an absorption/imagery factor on which the Absorption Scale, the Betts and the CIS were loaded. However, in this study, the CIS was mainly a factor in its own right.

These studies were supported and extended further by Crawford (1982) who studied the interrelationship between two measures of hypnotic susceptibility, the Marks scale of imagery vividness, the Absorption Scale, and the Imaginal Processes Inventory, a measure of daydreaming. Factor analysis revealed a factor she labeled "positively vivid and absorptive imaginative style" which accounted for 55.4% of the variance. High loadings on this factor were found for all vivid-imagery daydreaming subscales and for daydreaming subscales associated with positive affect. In addition this factor was loaded with the Absorption Scale, the measures of hypnotic susceptibility, and the Marks measure of imagery vividness.

From the intercorrelations among these different measures, and from Hilgard's interviews, a picture emerges of the highly hypnotizable individual as a person who is open, interested in other people and the world, emotional, willing to follow another's feelings and images, and capable of becoming deeply absorbed in them. Such individuals seem to have a cognitive ability to use all their representational systems to model the object of their attention, and to experience very vivid, spontaneous, streams of imagery while listening to another speak.

It seems more than likely to the author that these individuals are the very same people who score highly on scales of fantasy empathy and that the same imaginal style underlies both hypnotizability and emotional empathy.

However, a word of caution, is required. There may be highly hypnotizable individuals who devote their mental energies to solitary pursuits--art, religion, nature--and not to other people. A positive and absorbed imaginal style may be a necessary, but not sufficient condition for emotional empathy. Also to be investigated is the relationship between different types of emotional empathy and this imaginal style. To feel compassion for another's feelings, e.g. empathic concern, may not require an ability to become absorbed in them, while vicarious feeling is more obviously related to this absorbed imaginal style.

Bimodal Consciousness: The Organizing Perspective?

Hilgard (1979) wrote after her intensive studies of the highly hypnotizable: "...the capacity for imaginative involvement, or absorption in fantasy...represents a unique characteristic of the personality previously overlooked in personality inventories. The study of imaginative involvements is thus shown to be important for an understanding not merely of hypnotic responsiveness but of personality" (p. 23). Calling for further research on this newly identified personality attribute, she noted: "In the present period of emphasis on creativity, the fulfilling of human potential, the discovering and celebrating of values, we need new studies on the deeper meaning of human experiences" (p.24).

What might be the larger perspective from which these researches on the empathic individual and on the

hypnotically susceptible person could be understood?

In the past fifteen years, there has been a resurgence of interest in "consciousness" and the study of internal thought processes through phenomenological methods (see Pope & Singer, 1978). Using computer information processing as a model for thinking, several theorists have proposed that consciousness is organized into two different "modes" of information processing, each serving a unique function for the personality.

The first mode, called "active" (Deikman, 1971), "rational" (Ornstein, 1972), "deficiency-cognition" (Maslow, 1957), "left hemisphere" (Bakan, 1978), "digital" (Schneier, 1980), is said to be verbal, linear, more logical, etc. The second, known as "receptive", "being-cognition", "right-hemisphere", "analog", respectively is presumed to be less verbal and more focused on imagery, to involve parallel rather than linear processing, and to be more emotional and intuitive.

Schneier (1980) reviewed the many writings on bimodal consciousness including those mentioned above and others, and suggested that the two modes could be understood as shifts in three aspects of the experience of the self: in symbolic mode, experience of the body, and experience of the self in relationship to the world, such that:

> In digital mode, words, which have no inherent similarity to the experience they encode, carry the thought process. Images are relegated to the periphery of awareness. Thinking is experienced as localized in the head. The body is held rigidly with the muscular tensions characteristic of each

> individual. The self is experienced as a separate entity, localized in space and time.
>
> In analog mode, images, which are an analogy to the experience they encode and which involve activation of the whole body, are the mechanism of thought. Words are used only to convey the experienced images. Chronic muscle tensions are temporarily released or lessened and the body is experienced as more flexible and mobile; often feeling like an "energy field". The self is felt to be in intimate connection with the world, and time and space seem less relevant.

In her discussion of the imagery characteristic of each mode, Schneier suggested that imagination imagery is characteristic of the analog mode, while memory imagery is a function of the digital mode.

Commenting on the functions of the two modes, Schneier speculated that the digital mode is "world sustaining", i.e., it is specialized for survival within and maintenance of consensus social reality. She suggested that it is the mode of daily life, work, school, and ordinary social interactions. By contrast, she suggested that analog mode is specialized for "world-breaking" and "world-making". It is the mode of breaking out of ordinary reality, the mode of dreams, fantasies, creative insights, religious experiences, and extraordinary connections with other people (love, mystical union).

If the theory of bimodal consciousness proposed by Schneier and so many previous writers is accurate, one would expect convergences in the research in a wide variety of areas including: hypnosis, creativity, empathy, meditation, peak experiences, imagery, and emotion. More specifically, one would predict that modest correlations would be obtained

between measures of an individual's ability in each of these areas.

The author has already traced, in considerable detail, the convergence between research on empathy, imaginative involvements, absorption, hypnotic susceptibility, imagery vividness, guided imagining and certain types of positive and vivid daydreaming. She has already noted that several researchers have argued for the existence of a positive, vivid and absorbed imaginal style which underlies all these experiences.

Similar convergences are also showing up between other areas attributed to the analog mode. Thus Bowers (1978) reviewed the literature on hypnosis and creativity and concluded that there was a moderate correlation between hypnotic susceptibility and creativity as assessed by a variety of different creativity tests. She suggested that the link between hypnosis and creativity was an ability to experience a fantasy process characterized by an effortless experiencing of tasks requiring imagination.

Singer and Pope (1981) have noted a convergence of research on daydreaming, imagery skills, and self-hypnosis; and Fromm (1979) has suggested that self-hypnosis, daydreaming and other altered states of consciousness are based in a shift from secondary to primary process characterized by an increase in imagery, ego receptivity, and free-floating attention.

Yet other studies have pointed to a correlation between

hypnotic susceptibility, the ability to meditate, and high scores on the Absorption Scale (e.g., Spanos, Rivers, & Gottlieb, 1978; Van Nuys, 1972).

Crawford (1981) after finding a relationship between hypnotic susceptibility and an ability to close gestalts suggested: "A possible common thread is that high hypnotizables can more easily shift into a passive, holistic, associational mode of thought processing when appropriate".

Recently, a number of researchers have suggested that the analog mode is a function of the right hemisphere, while the digital mode is a function of the left hemisphere. Thus, Ley (1979) has reviewed studies suggesting that the right hemisphere has greater involvement in processing emotional and imagic material. Bakan (1978) has reviewed the controversial research on left and right eye shifters presenting evidence for the theory of bimodal consciousness, and suggesting that individuals may be typed based on a relative preference for using one or the other hemisphere. E. Hilgard (1977) has pointed to studies which relate hypnotizability and right hemisphere processing. Pope and Singer (1978) have pointed to research relating daydreaming and imagery to the right hemisphere.

The literature on right-left cerebral specialization is too vast to be reviewed here, and recent evidence may suggest far more interweaving of the two hemispheres in most tasks than suggested by the above writers. However, the

repeated call for a theory of bimodal consciousness, which finds its most recent advocates among the writers of cerebral specialization, would seem to indicate the validity of two modes as a phenomenological finding.

If empathy, along with hypnotizability, creativity, and a facility to enter altered states are all functions of the proposed analog mode, the author's observation that her students seemed to be in a hypnotic trance as they returned from the drawing exercise, would make some sense. The process of drawing their feelings and then speaking about them may have triggered a digital to analog mode shift, thereby releasing an empathic reaction in group members.

The bimodal theory of consciousness also makes some sense out of the distinctions proposed earlier between the experience of the high fantasy empathy individual and the high perspective-taking individual. One could argue that the high fantasy-empathizer is analog mode dominant, and experiences the other's situation in imagination imagery. By contrast, the high perspective-taker would be digital mode dominant and would be relying mainly on memory imagery to "imagine" the other's situation.

## Summary

In this section, the literature on imaginative involvements, absorbed attention, and hypnotic susceptibility has been reviewed in relationship to the literature on imaging, imagination, and a proposed bimodal theory of consciousness. It has been suggested that a

positive, absorbed, and vivid imaginal style characteristic of a proposed analog mode of consciousness underlies both the ability to be hypnotized and the ability to be deeply empathic. In addition, it has been suggested that this ability may be a necessary, but not sufficient condition for empathy; and that a tendency toward social closeness may also be required to identify a highly empathic individual.

## Rapport: The Process of Empathic Communication

In preceding sections the literature on emotional empathy has been reviewed, the overlap between research on the highly empathic and the highly hypnotizable individual has been studied, and it has been suggested that empathy is based in an absorbed imaginal style, characteristic of a proposed "analog" mode of consciousness. From this review, it seems reasonable to propose that the students who participated in the art therapy exercise which inspired this research, were triggered into an absorbed, receptive state of mind in which they were vividly imagining each other's experience.

But what was it about the exercise that facilitated this occurence? What was it about the communication itself--the message generated by the speaker, and the response in the listener--that resulted in such a rapid development of rapport?

Clearly, the small group discussions were a complex

interpersonal situation affected by a large number of variables potentially relevant to emotional empathy. There was the unknown, and probably powerful, influence of the group; there were the actual words spoken; and there were the emotional cues coded both in the way in which the words were spoken and in the accompanying non-verbal behaviors including facial expression, body posture, and emotional gestures.

Of all these variables, what seems most unique about the exercise in addition to the drawings themselves, was a shift in the imagery content of the words spoken. Students were asked to free-associate to the colors and forms of their drawings. In so doing, they generated emotional narratives which were much higher in descriptions of images than is usual in ordinary, conventional conversation.

It is the author's contention that it was the imagery--both the graphic images of the drawing itself, and the high-imagery narrative--which was responsible for the rapid development of rapport in the small groups. Although it also seems likely that each group member's increased awareness of his/her imagery led to the expression of more feeling through voice modulation and nonverbal expressions, these variables will be controlled in this research, and are not the focus of this review.

On the following pages a theory of the role of imagery in evoking emotional empathy will be presented. This theory will evolve out of the review of three separate

literatures as follows:

1. Nonverbal empathy. It will be proposed that nonverbal empathy results when one person mirrors the facial expressions, body postures and movements of another, thereby generating within him/herself the same feelings as the other is expressing. The research on emotional expression, on the self-generation of feeling through expressive movements, and on postural mirroring between people in rapport will be used to make the argument for this theory.

2. Imagery: The language of empathy. It will be argued that much the same sharing of behaviors occurs when one person describes his/her images to another and the other experiences those images vividly. Research showing that imaging is accompanied by activation of the muscles, sensory organs and viscera that would be activated in actually living the situation imagined will be used to make the argument that sharing images is sharing expressive behavior on a "covert" level.

3. Drawings: A code for the expression and communication of feelings. It will be argued that drawings are a visual analogy to emotional states and that they encode both the expressive movements and the emotional arousal of that state. Research on the ability of line drawings and color to communicate feelings will be reviewed to support this assertion.

## Nonverbal Empathy

Rapport involves the expression of and response to, feeling states. Darwin (1872) was among the first to propose that there is a universal language of emotional expression and that human emotional communication evolved out of earlier patterns of animal expression. Recently, research in nonverbal communication has found increased support for this contention. Evidence for universal facial expressions, body postures and body movements characteristic of each primary emotion has accumulated from studies with adults in our culture, with infants and children, with people of differing cultures, and with animals--particularly primates.

For example, Izard (1971) has repeatedly demonstrated that there are patterns of muscular tension characteristic of the facial expression of eight "innate" affects. Eibl-Eibensfeldt (1972) has shown that even blind and deaf children, who have had no chance to learn these expressions, show the same facial patterns when expressing particular emotions. In addition, he has shown through cross-cultural studies that there are specific facial and whole-body gestures for anger, for grief, etc., which are universal. Ekman and Friesen (1971) add to this work by noting that people from pre-literate cultures match facial expressions to stories in the same way as members of literate cultures. All told, the opinion that there are innate, biologically-based gestures for the communication

of emotion is "on the ascendant" among researchers in nonverbal communication (Weitz, 1979).

While the preceding research establishes that there are universal patterns of emotional expression, it does not explain how the expression of emotion is processed by the observer or how the observer might come to share in the same emotional state.

Beginning with the theory of Lipps (1906), and continuing to the present in the German expressionist movement, numerous psychologists have proposed that nonverbal empathy involves a process of imitating another person's posture and gestures, and in so doing, coming to an understanding of their emctional state. (e.g., Klages, 1950).

Recently two lines of research on nonverbal behavior have lent some support to this reasoning: the one focusing on the ability of postures and gestures to generate emotion, and the other on the tendency for persons to assume each other's postures when in intimate communication.

First, it has been demonstrated recently that manipulating a person into assuming the body posture, facial expression, or movements characteristic of an emotional state, tends to induce that state within the person. For example, Laird (1974) instructed subjects to contract certain muscles of their faces without letting them know that he was getting them to assume either a smile

or a frown. He then had them rate their emotional state on a pretense, and showed that the emotional expression influenced the self-report of emotion on the Nowlis Mood Adjective checklist in the expected direction: more anger was reported when subjects were frowning and more happiness when they were smiling.

Similarly, Riskind and Gotay (1982) placed people in slumped-depressed, upright-expansive, or hunched-threatened physical postures, and was able to show predicted shifts in emotional attitudes toward subsequent cognitive tasks.

Finally, Clynes (1978) reported that persons asked to express emotional states by pressing on a finger rest, experience the emotion while making the movement, even if they were not initially emotionally aroused. Furthermore, with practice, they become increasingly more capable of summoning up the emotional state simply by pressing the finger rest with the appropriate expressive movement.

These studies, in contrast with purely cognitive theories of emotion, suggest that, at the minimum, there is a feedback loop between the physical expression of emotion, and the experience of emotion. Thus the theoretical debate about the seat of emotion: the James-Lange versus Cannon-Bard controversy of mind versus body, reaches some compromise in recent theories of emotion (e.g. Izard, 1971; Tomkins, 1963) which support the notion that feedback from the face and body do play a role in the generation of feelings.

If this is so, one might predict that if a person takes the posture of another, in so doing, he or she will generate some of the same emotions in him/herself. While there is no direct test of this hypothesis, there is naturalistic evidence that people in rapport do tend to assume each other's postures.

Recent studies show that people in rapport tend to hold their bodies, especially their extremities (head, arms, hands, legs and feet) in the same position. Scheflen (1963, 1964, 1966, 1973, 1974) who first noted this phenomenon suggested that this "congruence" is most often observed among people who know each other and are engaged in some common objective.

Several studies support the reality of this phenomenon. Charny (1966) studied a single psychotherapeutic interaction and found that as psychotherapy sessions progressed, more time was spent in client-therapist congruent postures and the client's verbal correlates of congruent postures were "consistently positive, interpersonal, specific and bound to the therapeutic situation". By comparison, the verbal correlates of postural congruence were more self-centered, negational, and nonspecific and tended to be self-contradictory and non-referenced. Similarly, Trout and Rosenfeld (1980) found that judges rated posturally congruent client-therapist interactions as higher on rapport than interactions characterized by postural non-

congruence.

These findings have been extended to other social situations. For example, La France and Broadbent (1976) and La France (1979) showed a relationship between student-teacher congruent postures and student ratings of their involvement in class interaction, rapport with the teacher, and the "togetherness" of the class.

More recently, La France and Ickes (1981) have studied the occurence of postural mirroring among strangers engaged in brief interactions. These investigators have found that in this non-intimate context, mirroring was correlated with social anxiety. It seemed to occur in dyads which had not yet managed to set up a satisfactory verbal interchange and seemed to be an attempt to establish rapport.

Some interesting sex differences were also observed by these researchers. Sex-typed male dyads were the least likely to engage in mirroring while sex-typed female dyads were the most likely. However, androgynous males were more likely than androgynous females to engage in mirroring. These researchers speculate that identification with the feminine "communal" aspect of interaction predicts mirroring, but that in the case of androgynous individuals, the males are attempting to overcome socialization by mirroring, while the females are attempting to overcome it by not mirroring.

In summary, the research on nonverbal expression of feeling suggests a simple mechanism for empathy, on the

nonverbal level. The speaker expresses emotion--through facial expression, body posture, and expressive gestures. Simultaneously, the listener assumes a muted version of these expressive behaviors, and thereby self-generates the other's feelings.

## Imagery: The Language of Empathy

While nonverbal empathy is not a primary topic of interest for this study, the foregoing discussion is important in that it draws attention to the definition of empathy as a sharing of expressive behaviors.

Recently, research and theory on imagery has supported the conclusion that an image involves not only stimulus properties--how something looked or sounded, or smelled, etc.--but also response properties--how the person reacted physically to that situation. This research has demonstrated that while imagining a situation, a person's body--muscles, sensory organs, viscera--reacts in the same way as it would in the actual situation, but at a muted level.

Thus an image can be understood as an enactment--a covert behavior. One can argue, based on this research, that high imagery speech would evoke empathy by the same mechanism as postural congruence: by the sharing of emotional expressive behaviors. In the first case, the behavior is covert, but measurable with electronic amplification, in the second it is overt and more obvious.

On the following pages, the research which supports

this argument is reviewed.

Imagery as Internalized Action

In contrast with the view that an image is a faded percept, several theorists have proposed that an image is, at least in part, an internalized action (e.g., Piaget & Inhelder, 1971; Sarbin, 1972; Berlyne, 1965). Typically these theorists propose a developmental sequence by which actions become internalized as images. They would argue, for example, that first a child learns to push a cart around; next to play "pretend" and walk about pushing an imaginary cart; and finally the behavior becomes "muted" so that the muscular activations involved in pushing no longer result in overt behavior but the child continues to covertly "push" the cart. In this view, the covert physiological reactions are the image.

McGuigan (1978) has recently reviewed hundreds of studies in cognitive psychophysiology which demonstrate that a wide range of bodily responses do indeed accompany most cognitive processes, including imaging.

Based on this approach, Lang (1979) has proposed a theory of "emotional imagery" which defines an image as a propositional structure, containing both stimulus and response properties.

In developing the basis for this theory, Lang (1979) reviewed some of the key studies in cognitive psychophysiology which have demonstrated that subjects asked to imagine certain actions show slight activations,

as measured by electronic equipment, in the muscles and sensory organs relevant to the action imagined (e.g., Jacobsen, 1931; Shaw, 1940; Deckert, 1964; Brady & Levitt, 1966).

For example, Jacobsen (1931) demonstrated that subjects asked to visually imagine bending an arm showed electrooculogram activation, while subjects asked to muscularly imagine bending an arm showed less electrooculogram activity, plus more electromyograph activity in the biceps of the relevant arm.

Lang (1979) also reviewed research showing that high imagery narratives of emotional situations produce more physiological activation appropriate to the emotion, than high-imagery narratives of non-emotional situations (e.g., Rowland, 1936; Grossberg and Wilson, 1968; Lang, Melamed, & Hart, 1970; Van Egeren, Feather, & Hein, 1971; Marks and Huson, 1973). For example, Rowland (1936) demonstrated greater heart and respiration rates in hypnotized subjects imagining being attacked by a leopard than in those imagining a flock of grazing sheep.

Based on this foundation of research, Lang (1979) proposed that (a) an image is a logical program of information containing not only stimulus information (how the situation is registered by the senses), but also response information (somatic and visceral reactions to the situation plus affective statements); (b) when an image is activated, the stimulus and response propositions in it are

expressed in covert physiological reactions; (c) the more response propositions activated in an image, the more vividly the image will be experienced.

In a series of experiments reported in Lang (1979) and Lang, Kozak, Miller, & Levin (1980), reactivity to two different kinds of emotional narratives was measured: to "stimulus" scripts which contained only descriptions of the situation, and to "response" scripts which contained both stimulus information and information about the body's reaction to the situation.

For example, for one of the "fear" situations--"being locked in a sauna"--the stimulus script presented vivid visual detail:

> Thick clouds of white mist swirl around you...The wooden door is tightly closed, swollen from the steam...(Lang, 1979)

By comparison, the response script included actions and visceral reactions:

> You sweat great buckets of perspiration...take deep rapid gulps...Your heart pounds wildly as you pull with all your strength on the door...(Lang, 1979)

Typically, responses to these emotional scripts were compared with two controls: a neutral script which was emotionally neutral and had only stimulus information, and an action script which was also emotionally neutral, but had response information.

Results offered strong support for most of Lang's hypotheses. First, response scripts (emotional or action) clearly generated more physiological activity than stimulus

scripts. Furthermore, the type of activity was appropriate to the content of the script. The appropriate muscles were activated, and the pattern of heart rate, respiration, etc. was appropriate to the situation imagined. Second, the emotional narratives produced more emotional arousal than the neutral scripts. Third, the response scripts generated more reported emotional arousal than the stimulus scripts.

However, these effects were <u>not</u> observed in naive subjects. Prior to test runs, subjects were first taught to relax deeply, using Jacobsen's progressive relaxation technique. They were then presented with training response scripts and asked to image the situation. Following imaging, subjects were asked to describe their experiences and were positively reinforced for reporting behaviors during imaging, e.g., "I felt myself running". Subjects were run through the experiment proper only after several training scripts had been administered in this way.

In a conversation with Scott Vrana of Lang's laboratory, the author was informed that the apparent lack of reactivity to both stimulus and response scripts in untrained subjects was held to be the result of insufficiently sensitive mesurement techniques and not an indication that such reactivity is not present in untrained subjects. Rather, the training was viewed as a means of amplifying this response.

In addition to this training issue, vividness predictions were not completely supported: there were no

differences in reports of imagery vividness for stimulus and response scripts. However, response trained subjects reported their imagery as more vivid than did untrained subjects.

Lang (1979) has suggested that response training functions as an imagery vividness training, saying:

> ...like the "good" imagers of the perceptual and hypnosis studies, response trained subjects report their images to be more vivid. They also react more strongly to the response content of the instructions, showing substantial efferent outflow during imagination.

Yet another important finding from the research of Lang and his associates concerns an observed difference between male and female subjects. This finding is reported in Lang (1979) and is a summary of results from four different studies as follows:

> ...we have found that untrained or stimulus trained women tend to be more responsive than men to imagery instructions. Furthermore across the four experiments reported above, women showed a substantial positive correlation between scores on a questionnaire measuring snake phobia...and their heart rate response in phobic imagery...In contrast, male subjects yielded a near zero correlation...for the same two variables...However, with response training, the relationship increased for males to the level of the women...As a direct function of training, the males came to generate a physiology more concordant with their verbal report on the questionnaire.

This research on "emotional imagery" suggests the mechanism underlying imaginative involvements and provides the basis for a theory linking emotional empathy and imagery.

As we have seen in the preceding section, imaginative involvements are characterized by an intense, absorbed,

vivid experiencing. In contrast with the grey, fuzzy, and peripheral quality of memory imagery; imaginative involvements are characterized by the quasi-hypnotic, vivid, spontaneous and intensely real quality of imagination imagery. Furthermore, it has been proposed that imaginative involvements are a function of an "analog" mode of consciousness which is different from ordinary consciousness, not only in the quality of imaging, but also in the experience of the body. More specifically, it has been suggested by Schneier (1980) that in analog mode, chronic muscular tensions are relaxed and the body is experienced as more mobile and resembling an "energy field".

Lang's research provides an objective basis for making sense out of these phenomenological reports. Drawing upon Lang's research, the author speculates that the difference between memory and imagination imagery lies in the degree of physiological arousal of the body, and that the high absorption person who experiences vivid imagination imagery is the equivalent of a response-trained subject.

Thus, when an absorbed reader reports that he or she "feels" everything happening to the character in a novel, this may be--quite literally--true. It seems likely that a person capable of high involvement covertly re-enacts the described experiences of the characters in a novel, self-generating through feedback, the purported emotions of the characters. In other words, when the hero "crouches and

trembles", so indeed does the absorbed reader.

Such a person listening to a friend describing a car accident, would visualize the harrowing details, experience his or her own body swerve to the side to avoid the collision, feel the jolt of the car and the sickening pain and nausea of a broken limb. Indeed, such a person would be quite vulnerable to the pain of the other person and in need of defenses to limit empathic involvement when it becomes too upsetting.

By comparison, a less absorbed and empathic listener, might simply be visualizing the scene, minus the behavioral responses; or perhaps barely imaging at all, but rather talking to himself about the recent statistics on car accidents, or the braking characteristics of his friend's Toyota.

Phenomenological studies suggest that a special experience of the body is associated with vivid imagining. Lang's research also provides insight into this report. In preparing subjects for the emotional imagery training and testing, Lang and his associates instructed subjects in Jacobsen's relaxation technique. They report that they did so, in order to eliminate background "noise" in the electromyograph measurements they were going to make of covert muscular activity. This methodological consideration makes sense of the phenomenological report that in analog mode the body is released from chronic muscular tensions. If subjects can "feel" another's

movements through slight muscular activations within their own bodies, it makes sense to assert that they can also "feel" background muscular "noise" and that images, understood as covert behavior, will be registered more strongly when subjects are relaxed and this noise is reduced.

Lang's report of sex differences in the ability to respond to imagery instructions, fits nicely with research on emotional empathy as well. The reader will recall that Davis (1979/1980) found that women showed a relationship between their Fantasy-Empathy Scale score and subsequent empathy evoked in an experimental setting, irrespective of whether they had received instructions to imagine themselves in the other's situation or not. By comparison, men showed this relationship only when given the imagine instructions, thus seeming to require an "extra boost", according to Davis. Lang's research suggests that women are more empathic, because they involve their bodies more when imagining the other's experience.

In addition to these insights about the listener's experience, Lang's research also provides insight into the kind of speaker that would be most likely to elicit emotional empathy from the listener. Such a person, like a novelist, a politician, an actor or a poet, would use many metaphors, describing his or her experience in high imagery narratives, replete with body reactions. One might easily imagine that such a speaker would be "charismatic",

"hypnotic", i.e., capable of capturing the attention of even the most diffident listener. Like a good story-teller, such a person would entrance his audience--moving them from digital to analog mode.

In the extreme case of a highly expressive speaker, being attended to by an absorbed, empathic listener, the old metaphor of being "in tune" would almost literally be the case. Both speaker and listener would be in analog mode, experiencing vivid full-body imagery. Each person's self-boundaries would be softened as chronic muscular tensions were lessened, and in each body parallel patterns of physiological and muscular arousal would be stimulated. Like two tuning forks, each body would be resonating with the same note.

## Drawings: A Code for Emotional Expression

In the preceding sections it has been suggested that nonverbal empathy is based in the overt sharing of expressive behaviors, and that empathy triggered by imagery is, at least partially, due to the covert sharing of expressive behaviors. In this section, it will be suggested that drawings of an emotional state encode emotional expression in line and form, and emotional arousal in color. It will be argued further that while drawings can be used to express an emotional state, they can also be used to communicate that state: like overt emotional expressions or narratives high in imagery, they

can trigger vicarious feeling in the viewer.

In addition, it will be argued that drawings can serve as a "prompt" for the generation of high-imagery narratives. Lang's research has established that narratives high in imagery, particularly response imagery, are effective at generating physiological and emotional arousal in listeners. If people would speak in such high-imagery language, they would probably be more effective in eliciting emotional responsivity in others. While poets, dramatic actors, politicians and advertisers seem to be aware of this, the average person often is not.

Many times people resort to simple statements of feeling supplemented by conventionalized and somewhat abstract descriptions of their life situations when attempting to describe their feelings to another person. For example, a typical statement might be: "When she told me to leave, I got really hurt". While imagery may be used, it is often within stereotyped cultural expressions which by virtue of having been used repeatedly have lost their ability to generate the images on which they were originally based. For example, the rejected person in the example above might add: "I'm left out in the cold", or "I've got to keep a stiff upper lip and get through this".

In contrast, if the same person did a drawing of this feeling and then free-associated to the colors and shapes in the drawing, he might find himself saying: "I feel like this tiny blue dot at the bottom of the page..I think of a

small child with tattered clothing shivering in the cold..the dot is contracted in on itself..looking at it makes my body feel like shrinking into itself. It's kind of a hunched-in feeling."

While this might appear to be an improbable vocalization for a typical person, the author has found in her work using drawings, that most people do have imagery associations to them and even the most conventional person sounds somewhat like the example given above, when describing these associations. Drawings thus serve as a "prompt" helping conventional people to express themselves in more vivid and high imagery terms.

In the following section, the argument that drawings encode emotional expression and emotional arousal will be presented in two sections: a) theory and research on the expressivity of line and simple black and white drawings, and b) research on the emotional significance of color.

Line and Expression

For years, psychologists interested in art, gestalt psychologists interested in the properties of perception, and psychologists of the "expressionist" school have proposed theories to explain the observed "dynamic" or "moving" quality of a line. Thus, Arnheim (1966) has proposed that inhering in certain configurations are tensions or forces, which parallel tensions within our own physiological states. Gestalt psychologists have proposed the notion of "isomorphism" suggesting there is a parallel

between neurological structures and perceptual configurations. Lipps (1906) the expressionist argued that the sense of movement in a line resulted from the viewer's projection of his or her feelings into the art.

More recently, Clynes (1978) developed and researched a theory of "sentic states" which draws together the literature on the nonverbal expression of emotions with the literature on aesthetics. Clynes has proposed that there are specific patterns of movement characteristic of each emotional state and that these patterns are dynamic forms in space and time which can be expressed not only in physical movement but also in the unfolding of a musical phrase, or in the curvature of a line. He suggests that these patterns are genetically "programmed" into our neurological structures--probably the brain--and are as much a part of us as other automatic behaviors, for example, reflexes.

Clynes uses a simple finger rest, sensitive to pressure in both the horizontal (away from and toward the body) and the vertical direction. A subject is asked to express a particular emotional state (e.g., anger, grief, love, etc.) by pressing on the sentograph with a finger. The variation in pressure over time, in both the horizontal and the vertical directions is then graphed as two separate lines.

Responses of thousands of subjects, including Americans, Europeans and Japanese, have been gathered for

twenty different emotional or "sentic" states, and Clynes reports that there is a characteristic pattern for each of these states which is cross-culturally valid (See Appendix 11). For example, Clynes reports that: "...subjects asked to express anger typically initiate a sharp movement in a direction markedly away from the body. The expression starts rapidly and ends after a relatively short time. It is most intense at the beginning." By comparison, Clynes notes that: "grief is characterized by an expression which is neither away from the body nor toward it, an initial downward exertion, followed by a period of apparent weakness and relative immobility. Finger pressure remains relatively passive and constant".

In this way, Clynes has identified a pattern of expression for each of twenty different emotions. With the help of a computer simulation program using an analog computer model, he was able to find a differential equation whose solutions, when graphed, closely resembled the graphs for the different emotional states. The correspondence between the graphs of the solutions and the experimentally derived graphs of the emotional states was found to be extremely high.

Clynes proposed that in order for a sentic state to be experienced, it must be expressed. He noted that it could be expressed in a variety of ways, through variations in voice tone, in facial expression, in large movements of the body, and also in drawings, dance or music. Irrespective

of modality, the same dynamic form in space and time emerges. In other words, asked to express anger, we may jab a finger rest, produce a dance of abrupt and jabbing movements, draw a painting with sharp, acute angles, or compose music with sharp and clashing phrases.

According to this theory, drawings, by virtue of the patterns expressed in them would be expressions of emotions in their own right. They would be a graphic record of the expressive movements made by the one who produced them, and as such, would reveal his or her feeling state.

A number of studies have investigated the relationship between various characteristics of very simple line drawings (e.g., presence of curves and angles, heaviness of line, direction of movement, etc.) and feeling states (e.g., Lundholm, 1921; Peters and Merrifield, 1958; Sheerer & Lyons, 1957; Lyons & Sheerer, 1951; Poffenberger & Barrows, 1924).

While these studies have been criticized for a lack of experimental rigor, taken together they offer considerable evidence for the ability of line drawings to represent feelings. Thus Rhyne (1979) after reviewing this research noted:

> ...generalized conclusions can be drawn that demonstrate a high degree of consensus..."Sad", "melancholy", "dead", etc. are represented mostly with curving downward lines; "happy", "joyous", "cheerful", etc. tend to be curvilinear, also, but the implied movement is upward. "Raging", "angry", "furious", "agitated", etc. may also move upward but they are represented with sharp angularity predominating. More quiescent states like "tranquil", "quiet", "serene", "lazy" show high agreement in the use of horizontal

lines, with undulating curves implying slow movement. (p. 85, 1979)

Rhyne (1979) extended this research by investigating the ability of black and white drawings (as opposed to pure line drawings) to represent feelings. In her research, subjects were asked to produce abstract drawings which represented fifteen different mind-states including: depressed, excited, passive, aggressive, serene, anxious, hoping, threatened, hostile, curious, guilty, innocent, going crazy, and being sane. After completing the drawings, each subject filled out a Repertory Grid (see Kelly, 1955) assigning structural properties to their drawings.

Rhyne made 45 predictions about the properties that would be ascribed to each of the mind state drawings. More than half of her predictions were supported by a Z score of plus one or above, fifteen were in the right direction, and only three were negated.

While her results were extremely complex and can't be discussed in full here, an example provides an understanding of the kinds of findings that were obtained: e.g., "aggressive" was characteristically represented by drawings which were "diagonal in overall orientation, angular, pushing outward, dynamic, tight, and dominating the space." The clear differences in drawings used to represent different mind states can be observed from inspecting the drawings for "aggressive" and "innocent"

reproduced from Rhyne's manuscript in Appendix 12.

Aggell (1982) sought to extend Rhyne's research by investigating whether mind-states drawn by one person will be accurately identified by others. Obviously Aggell's research issue is one of immediate relevance to the issue of drawings as a means of enhancing empathy.

Aggell presented subjects with a slide for each mind-state, each slide bearing a cluster of drawings representing that state. Subjects were asked to match slides to mind-state words. In addition, they were asked to select no more than three construct dimensions to represent that mind state.

Considerable agreement was obtained in identifying the Aggressive, Excited, Being Sane, and Going Crazy, clusters. By comparison, Innocent and Serene were confused with each other, although clearly differentiated from the other mind-states. In addition the most frequently identified characteristics for each mind-state were determined. For example, the characteristics of Aggressive were: "the drawing dominates the space, is dynamic, is heavy, and is angular".

Color

As with the research on the expressivity of line and drawing, research on color, while only in the beginning stages, offers much promise for understanding color as a nonverbal element in empathic communication.

Among the first to comment on the relationship between

color and emotions, Rorschach (1951) proposed that the use of color was analogous to a person's expression of emotions. In noting subjects' reactions to colored inkblots, he suggested that the more emotionally labile subjects had many verbal associations to color, while emotionally constricted people had few, if any, color associations. Schachtel (1943), in an attempt to understand the relationship between color and emotion, suggested that since people are passive with respect to both, i.e., are "seized" by both--that perhaps there was a common psychological mechanism mediating both color and emotion. Recently some researchers have pointed to a right-brain involvement in processing color (Bakan and Shotland, 1969) and the reader will recall a similar finding for the processing of emotional material (Ley, 1979).

While the mere presence or absence of color as a sign of emotionality is an important subject, even more to the point of this study is the particular emotional significance of different colors.

Perhaps the most robust result from both self-report measures of emotion (such as adjective checklists) and from physiological measures of arousal, is that there is a direct relationship between hue and arousal level. Thus, it has been shown consistently that red and orange are rated as more active and stimulating and produce more physiological arousal than blue or green.

Thus for example, in a study measuring subjective reactions, Wexner (1954) found that red was the color most frequently associated with the adjectives "exciting" and "stimulating"; while blue was the color most frequently associated with "calm", "peaceful", and "serene", as well as "tender-soothing" and "secure-comfortable". Similarly, Wright and Rainwater (1962) reported a correlation between blue and "calm" and between red and "warmth". Aaronson (1970) reported that subjects rated red and orange as "active, outgoing, rebellious, and assertive"; while blue-green was rated as "outgoing" but "calmer and socialized".

These psychological reactions have been supported in many studies measuring physiological arousal. Thus, Wilson (1966) found that skin conductance level and skin conductance response were consistently higher to red than to green slides. Gerard (1957, 1958) found palmar conductance and cortical activation were consistently greater for red than for blue lights. In addition, blood pressure, respiratory movements, and frequency of eye blinks all showed an increase under red and a decrease under blue light. James and Domingos (1953) found greater finger tremor under red than white light, and Nakashian (1964) found that subjects had greater hand tremor and were significantly faster in their movements when surrounded by a red semicircle than by a green one. Finally, Green, Hasson, Mohammed, Phillips, Richards, Smith & White (1982) have demonstrated greater grip strength under red than blue

or pink light.

These differences in activity ratings for red versus blue or green have been shown to generalize beyond American culture. Thus Oyama, Tanaka, & Chiba (1962) found that Japanese agree with Americans in rating red as the most "exciting or hot" color, while the colors blue or blue-purple were seen as the most "calm or cold" colors. Similarly, Williams (cited in Sharpe, 1975) found that Germans, Danes, Chinese, and East Indians, agree with both black and white North Americans in rating red as the most active of colors. Interestingly, he also found that black and brown were rated as very passive.

Perhaps the next most clearly established color finding concerns the "heaviness" or "potency" of a color. Thus Burnham, Hanes, & Bartleson (1963) after reviewing the research on color noted that "There is general agreement that dark colors appear 'heavy' and light colors less heavy". More recently, Oyama et al. (1962) found that Japanese and Americans agree in considering white, yellow, yellow-orange, and yellow-green to be "weak" or "light" while black, red, purple, and blue were rated as "strong" or "heavy". Similarly Williams (in Sharpe, 1975) found in the cross-cultural study mentioned above that there was agreement in seeing red and black as strong, while yellow and white were seen as weak. He suggested that potency may be related to saturation, based on these results.

Less agreement is found cross-culturally on good-bad

ratings using the semantic differential scale. However, Williams found in the same study that there was cross-cultural agreement in seeing white as a positive color, and black and brown as negative colors. Similarly, Oyama et al. (1962) found that for both Japanese and Americans, white is "good", while black and grey are "bad".

In reviewing this kind of research on color, Crane (1980) has suggested that a specific color does not relate in a one-to-one way with a particular emotion, but rather to a "pattern of affects". For example, while red-orange has been shown repeatedly to be an active, stimulating color, it could be used by one person to express a feeling of being full of vitality and by another to express a feeling of being full of anxiety. In both cases, the red-orange serves to indicate a level of arousal, but it is being used to convey very different meanings.

In addition to these overall arousal and potency values of colors, it should be mentioned that there are both personal and cultural "meanings" attached to color. On the personal level, a particular color may come to symbolically represent a particular experience, thereby functioning in a highly idiosyncratic way. For example, a person who spent the summer with an angry aunt who always wore a yellow apron, might come to associate yellow with a feeling of being blamed. When this person used the color it would be unlike how most other people would use it. Similarly, cultures can have idiosyncratic color meanings.

Sharpe (1975), a research psychologist in color and a color consultant, has made the following summary of frequently observed color meanings in our culture:

> ...red, yellow, and orange are associated with excitement, stimulation and aggression; blue and green are associated with calm, security, and peace; black, brown and grey are associated with melancholy, sadness and depression; yellow with cheer, gaiety, and fun; and purple with dignity, royalty, and sadness... (page 55)

Drawings as High Imagery Scripts

The research on line drawings and color summarized on the preceding pages represents only a beginning of what may one day be a science of graphic communication. There is much more that remains to be explicated: the emotional impact of particular color combinations, the interaction of color and form, etc. Nevertheless in these simple beginnings, there is enough evidence to conclude that drawings can be used to express and communicate feelings, by encoding expressive movement in line, and arousal in color.

For example, in the preceding research it has been determined that jagged upward moving lines are frequently associated with aggression. Similarly, the color red has often been found to be associated with stimulation and arousal. If the two are combined to create a drawing of jagged red lines, this drawing would be highly likely to communicate an angry, excited state. By comparison a drawing of a faint, blue line which slowly curved downward and then flattened out, would be likely to communicate a

sad, weak state. If the viewer than "takes on" these emotional expressions, by allowing his or her body to make subtle, covert shifts in posture, muscular tension and physiological arousal associated with these emotions, the drawing can function as a mood induction device.

Furthermore, using the art therapy technique of imagery free-association to a drawing, the person who produced the drawing is prompted to generate a high imagery narrative. Typically, this includes both "stimulus" and "response" imagery. It supplies a series of metaphors by which the listener can understand the speaker's situation as he or she is experiencing it inwardly and provides a rare opportunity for the listener to truly "get behind the eyes" and "step into the shoes" of the speaker and to fully transpose himself into the "thinking, feeling, and acting" of the speaker.

Like reading a well-written novel, such a high-imagery narrative, should be particularly suited for evoking an absorbed, empathic experience. Indeed, a drawing, accompanied by a high-imagery narrative should evoke both "cognitive" and "emotional empathy". By providing an understanding of the other's inward situation, it should enable the listener to better comprehend the other's behavior; and by encoding the emotional state and expressing it in a narrative high in response and stimulus imagery, it should enable the listener to share in those feelings and feel concern for them.

## Summary

In this section, a relationship between imagery and emotional empathy has been proposed. It has been suggested that an image involves both stimulus and response properties and is an enactment on a covert level of the behavior that would have occured in the real-life situation being imaged. It has been argued that emotional empathy occurs when one person describes his emotional experience in high imagery terms to another and when the listener reenacts the emotional behaviors contained in the image and generates an emotional state within himself. Finally, it has been argued that drawings, both by encoding the feeling state and by serving as a prompt for the generation of high imagery narratives, are an effective communication tool for enhancing emotional empathy.

## Conclusions

On the preceding pages, the literature on emotional empathy; imaginative involvements; and the relationship between nonverbal empathy, and emotional imagery has been reviewed. The observation that inspired this review was that members of small groups developed an unusually deep, emotional, and trance-like rapport after using drawings and an imagery free-association technique to talk about their current feelings. While there is no research that directly pertains to this phenomenon, the research in the areas mentioned above, has been useful in generating hypotheses

about the small group exercise, and has suggested ways of studying these hypotheses with a simplified research design.

From the literature on emotional empathy, it has become apparent that the ability to become involved in imagining another's situation is central to experiencing both vicarious feeling and empathic concern for that situation. Instructions to imagine oneself into the other's situation, and a predisposition to identify with the characters of books, movies and plays, both enhance the likelihood of empathic arousal. Females characteristically score higher in empathy than males, and while there may be a genetic difference in primitive empathic response, there is evidence that women are socialized to use their imaginations to experience the other's situation, while men are socialized to solve the problems generating the situation.

Further study into the nature of this "imagining" that is so central to empathic involvement, suggests that it is a capacity to "lose" oneself in the other's situation, characterized by a very vivid imaginative experience, distinct from a more rational, "perspective-taking" ability. It has been suggested that this imagining is a "regression in service of empathy" and involves a shift from secondary to primary process.

Research on the personality attributes which correlate with this ability present a picture of the high empathizer

as emotionally open and vulnerable, having a respect for the complexity and variability of human nature, a sensitivity to others and to others' views of oneself, as well as a tendency toward some insecurity and to not be particularly self-confident, aggressive or dominant. The picture is of an unusually feelingful person who may, at times, have to defend himself/herself against this capacity to become swept up into another's feelings.

From the review of the literature on imaginative involvement, an understanding of the cognitive style of the high empathizer was further developed. Through a fortuitous convergence, the same fantasy involvement in the characters of books and movies is predictive not only of empathy but also of hypnotizability.

Further review of the literature on hypnotic susceptibility led to the conclusion that a highly hypnotizable person is one who is capable of an unusually absorbed deployment of attention, and very vivid imagining. Evidence was found for the presence of a positive, vivid, absorptive imaginal style underlying capacities not only in hypnosis, but daydreaming, creativity, and a generalized ability to enter altered states. It was suggested that an "analog" mode of consciousness was common to all these experiences, and that empathy is yet another function of this mode. It was further noted that the ability to enter this mode might be a necessary but not sufficient condition for empathy because a person's tendency toward sociability

may affect their willingness to use this ability in social situations.

From the review of the literature on nonverbal communication of emotions, it was suggested that nonverbal empathy results when one person mimics the expressive behaviors of another and generates the same emotions that the other is feeling. This analysis was then applied to an understanding of the role of imagery in evoking emotional empathy.

Research was reviewed which showed that high-imagery narratives describing emotional situations, especially those containing "response" imagery, can evoke a covert re-enactment of the situation in the body of the listener, and that the greater the physiological reactivity evoked, the greater the listener's emotional arousal. It was concluded that imagery triggered emotional empathy in the same way that assuming another's physical postures does: by a sharing of expressive behaviors and self-generation of the other's feelings.

In addition, evidence was presented that people can be trained to covertly re-enact another's situation, and it was suggested that the highly imaginative individual, who is probably the most empathic individual, is specially talented in this physiological re-enactment.

Finally, research and theory was reviewed which suggests that drawings encode emotional expression in lines and emotional arousal in color. These findings suggest

that a drawing can serve as a direct analogy to the physical state of the person who drew it, and can communicate that state to another person in much the same way that seeing another's expressive behavior, or hearing a high-imagery description of it does. Thus drawings should be able to enhance emotional empathy between individuals, not only by serving as a prompt for the generation of high-imagery narratives, but also by directly expressing the emotional state itself.

The findings from this rather extensive review of the literature shed light on the small group experience which was the original inspiration for this study. They suggest that the author's students were triggered into an absorbed, vivid experience of imagining themselves into each other's emotional situation, through the increased imagery content of each person's narrative and the drawings themselves.

It may well be that the combined effect of the students becoming aware of their own images and feelings, viewing the images and feelings of others, and being in a permissive group atmosphere, triggered a shift from digital to analog mode. While individuals in the group undoubtedly differed in their imaginative capacities and empathic abilities, it may be that the combination of these effects washed out these differences. Similarly, male-female differences may have been overshadowed by the power of the art therapy exercise and the group context.

As a result of exploring the implications of this

naturalistic observation, some important hypotheses have been generated:

1. The ability to empathize is correlated with the ability to experience intense imaginative involvements.

2. Females are more likely than males to be empathic, but this gap can be closed with techniques that promote imaginative involvement.

3. High imagery narratives accompanied by drawings will evoke more empathy than high-imagery narratives alone, and both will evoke more empathy than low-imagery narratives.

The original situation which led to the review of the literature and the production of these hypotheses proved to be too complicated to be rendered into an experimental design. However, using research methods taken from studies in empathy, imaginative involvement, and emotional imagery, a simplified test of these hypotheses was developed. In the next chapter, that research design will be discussed in considerable detail.

# CHAPTER 3: METHODS

In Chapter One the naturalistic observation which inspired this study was described and the lines of research which pertained to that situation were identified. In Chapter Two a detailed review of these different research areas was presented. It was found that while there exists no research which has directly investigated the phenomenon in question, there exists much research and theory which can inform the design of such an experiment. Three hypotheses emerged from the review:

1. The ability to empathize is correlated with the ability to experience intense imaginative involvements;

2. Females are more likely than males to be empathic, but this gap can be closed with techniques that promote imaginative involvement; and,

3. High imagery narratives accompanied by drawings will evoke more empathy than low imagery narratives.

In the following section, the series of steps by which these hypotheses were translated into an experiment will be presented.

## Experimental Design

The first task in designing this experiment was to simplify the experimental situation while preserving enough of the original experience to make the experiment meaningful. The reader will recall that the original experience involved a number of small groups all within one

classroom, doing an art therapy exercise.

The first level of simplification was to eliminate the small group context. The literature on small group interactions (see Hare, 1962) has demonstrated the many effects of groups on a member's behavior. To use small groups in this experiment would have run the risk of confounding the data with the effects of differing group norms, problems of more active and silent members, etc. Since the author's primary interest was in the relationships between imagery and empathy and imagination and empathy, it seemed unnecessary to preserve the group context in this experiment.

In changing the context from a group one, however, it is highly likely that one of the primary variables responsible for the development of rapport in the exercise was eliminated. It is rare for people in our culture to be given permission to "regress" within an ordinary social context. While people at the movies may let themselves drift into their fantasies, it is unusual for people in face-to-face interaction to enter high-imagery states of mind unless they are intimates. Here a group of people were given permission by an authority figure to connect with and describe deeply personal images. In fact, doing so was the <u>norm</u> of the small groups. Thus the presence or absence of a group context is probably a variable worthy of an experiment in its own right. However, to focus on the relationship between imagination

and empathy, it was eliminated.

Yet another, and more difficult decision to simplify the experiment was made next. The ideal experiment would have involved, if not a group of people, then at least an interaction between two people in which both had an opportunity to do drawings and talk about the feelings and images in them. However, once again, this situation proved to be too complex. A review of the research on self-disclosure (see Cozby, 1972) revealed that people differ considerably in their willingness to disclose intimate details of their lives, that self-disclosure affects other variables such as interpersonal attraction, that there tends to be a reciprocity effect such that a dyadic norm of disclosure is established rapidly, etc.

Furthermore, these considerations referred to verbal disclosure under ordinary circumstances, and the author knew from her experience that people varied even more with respect to their ability to do a drawing and describe the images associated with it.

These and other variables seemed to make the dyadic interaction far too complicated to allow an assessment of the imagery-empathy relationship. With considerable regret, the author concluded that subjects would not interact with each other at all, and that all subjects would be presented with the same stimulus person or persons.

Embedded in this last simplification was yet another

one. In the original situation, group members were exposed to another's drawings and imagery associations but had also generated their own. The elimination of an interactive context altogether, eliminated not only "system" effects such as norms, but also eliminated each subject's exposure to the drawing process. By connecting with their own images and feelings, each group member may have been "primed" to respond more deeply to other members' experiences. Going inward into their own imagery may have triggered a more dreamy state of mind from which they could better empathize with the others. While a solitary drawing experience could have been used as a preliminary condition to the test of empathy and imagination, the author decided to simply eliminate this "priming" variable to further simplify the experimental design.

## Designing the Empathy Evoking Situation

As a result of the preceding analysis, the author decided that the experiment would consist of a stimulus person or persons presenting a drawing and free-association imagery narrative to a group of subjects.

In addition it was decided that to study the power of drawings to elicit empathy, above and beyond that of the high-imagery narrative, one experimental group would be presented with both a drawing and the high-imagery narrative related to it, while another would be presented with only the high-imagery narrative. To investigate the power of high-imagery versus low-imagery communications,

yet another experimental group was necessary: one which presented a low-imagery narrative with no drawing. Thus, three experimental conditions were required: high imagery with drawing, high imagery without drawing, and low imagery.

The next variable of interest for this study was sex. From the literature review, it was known that perceived similarity enhances empathy. Although no study with adults had investigated sex as the "similarity" variable, studies with children had shown that girls empathize more with other girls, and boys with boys. Therefore it was decided that in this experiment both a male and female stimulus person would be used to test the similarity hypothesis with adults. It was also decided that subject sex would be allowed to vary, so that a comparison of same-sex, and cross-sex empathy could be obtained for all possible combinations of the sexes.

In addition to differences in empathy resulting from the different imagery content of the message, and from the sex of the stimulus person and of the subject, the author was interested in investigating the difference in empathy for different emotions. Feshbach and Roe (1968) had demonstrated that children empathize most with happiness, next with sadness, and least with anger and fear. Very little research with adults has been done on this question, the only studies being those comparing empathy for pleasure and pain which have demonstrated no reaction to a stimulus

person's pleasure (e.g., Krebs, 1975; Stotland, 1969). For pragmatic reasons, it was decided that there would be two emotional conditions: anger and sadness.

Deciding to vary both the sex of the stimulus person, and the emotion presented raised an interesting further question. Would subjects react differently to the two emotions when they were displayed by a male versus a female? Would subjects empathize more with a sad man or a sad woman? With an angry man or an angry woman? Yet another question was would male and female subjects react differently to the different emotions portrayed in the different sexes? The author decided to investigate these questions by having both the male and the female stimulus person portray both emotions.

In summary, it was decided that the experiment would vary the imagery content of the message (e.g., high-imagery with drawing, high-imagery, and low-imagery); sex of stimulus person (male, female); emotion presented (anger, sadness); and sex of person displaying the emotion (angry male, sad female; sad male, angry female).

The next issue to decide was which variables would be studied within subjects and which between subjects. For pragmatic reasons, it was decided that each subject would be presented with both sexes and both emotions, but that the imagery content of the message, and the interaction of sex and emotion, would be varied between experimental groups. Furthermore, in the event that there would be

order effects in response to the different emotions (e.g., sadness then anger, versus anger then sadness), and in response to the sex of the stimulus person (e.g., male then female, versus female then male), it was decided to counterbalance these variables as well.

To satisfy all these considerations, twelve experimental arrangements were created: for each of the three imagery conditions, there were four groups, differing in the order of the emotions, the order of the sexes, and which sex was portraying which emotion.

Upon inspecting this experimental design, it became apparent that the stimulus persons would have to be an actor and an actress since there were two kinds of controls essential to the experimental design which only professional performers could acheive.

The first had to do with the investigation of differences in reactions to male and female renditions of the same emotion. If subjects' reactions to hearing an angry male were to be compared with hearing an angry female, for example, the two renditions had to be as nearly identical in all other ways, as possible. Not only did their words have to be the same, it was important for the male and female to be "twins" of each other: in character, in emotional quality, in interpretation of the narrative, etc. Only actors could hope to approach this matching of behaviors.

The second control had to do with keeping the level of

emotionality expressed in variations in voice tone constant across all imagery conditions and for all emotions. This was necessary since variations in emotional intensity could confound differences in imagery or differences in reaction to the two emotions. Only professional performers could be expected to render six different scripts (three imagery conditions for each of two emotions) at the same level of emotional intensity.

Subject Variables

The design discussed above was adequate to measure differences in empathy resulting from varying the imagery content of the message, the sex of the stimulus person, the emotion presented, the emotion by sex interaction, and order effects. However, it had not yet addressed the central question of the relationship between empathy and imaginative involvement and how to assess each of these variables.

From the review on emotional empathy, it was apparent that there were three different types of empathy that could be assessed: emotional contagion, vicarious feeling, and empathic concern. The author believed that in her small group exercise, the students were experiencing both vicarious feeling and empathic concern for each other. No previous study with adults or children had compared scores on measures of vicarious feeling with scores on measures of empathic concern. The author decided that she would assess both types of empathy in response to the drawings and

narratives presented by stimulus persons. For pragmatic reasons, self-report measures were selected as the means for assessing empathy rather than physiological measures. The "short-short" form of the Nowlis Mood Adjective Checklist (see Nowlis & Greenberg, 1979), a portion of the Empathic Concern Mood Index (see Coke et al., 1978), and a brief "rapport" questionnaire constructed by the author, were the measures of empathy used in the experiment. (See materials section for further discussion.)

To assess imaginative involvement, the author decided to use both a test of quasi-hypnotic attention, and a test of "in vivo" imagining ability. Tellegen and Atkinson's (1974) Absorption Scale (republished as a subscale of the Differential Personality Questionnaire by Tellegen, 1982) was the measure selected to assess quasi-hypnotic attention. Wilson and Barber's (1978) Creative Imagination Scale was selected as the ideal measure of imagining since it assesses the ability to create an ongoing stream of imagination imagery in response to hearing a high-imagery narrative.

There remained one final question to be addressed: would the highly imaginative person invariably be empathic, or might this ability be a necessary, but not sufficient condition for empathy? Would some highly imaginative individuals chose not to use this ability in interpersonal situations? The reader will recall that Tellegen (personal conversation with the author) suggested that an empathic

individual might be one who scored highly on both the Absorption Scale and the Social Closeness Scale of his Differential Personality Questionnaire. The author decided, therefore, to also administer the Social Closeness Scale to all subjects.

Finally, in order to assess the male/female differences in empathy, it was decided that each experimental group would contain both male and female subjects.

In summary, it was decided to measure emotional empathy--both vicarious feeling and empathic concern--in male and female subjects, with known Absorption, Social Closeness, and Creative Imagination Scale scores, under the twelve experimental conditions discussed previously.

## Experimental Procedure: Overview

Groups of subjects (students in psychology classes) were assigned to one of the twelve experimental conditions.

Each group was then presented with two tapes. After each tape, empathic concern and vicarious feeling were assessed using self-report measures.

Subjects then took the Absorption and Social Closeness subscales of the Differential Personality Questionnaire. Finally, subjects listened to the eighteen-minute Creative Imagination Scale tape and upon its completion, filled out a CIS self-report questionnaire.

## Materials

### Empathy Measures

In the research on emotional empathy, the Nowlis Mood Adjective Checklist (Nowlis, 1965) has been used in a variety of forms to measure vicarious feeling (e.g., Lazarus et al., 1962; Aderman, Brehm, & Katz, 1974; Aderman & Berkowitz, 1970). It is probably the most widely used multiple mood inventory (see Howarth & Schokman-Gates, 1981) for a review of self-report mood instruments) and has met the normal standards of reliability and validity (see Nowlis, 1965).

Factor analysis of the original long form which contained 140 items and of a short form containing 35 items has repeatedly yielded 12 factors (Nowlis, 1970). Most recently a "short, short" form has been developed which consists of clusters of adjectives for 11 of these factors plus three sub-factors, in which each cluster contains the three most heavily loaded adjectives on that factor (see Nowlis & Greenberg, 1979). This easy-to-administer form was the measure of vicarious feeling in this experiment.

In addition to the assessment of vicarious feeling, the author also wanted to assess empathic concern so that the two types of emotional empathy could be investigated in relationship to each other and to imaginative involvement. Coke, Batson, & McDavis (1978) have developed an index of empathic concern which consists of adjectives which all load highly on a single factor. Of these, three adjectives

were selected which had greater than .70 loadings on this empathic concern factor. These three items (compassionate, moved, touched) were appended to the Nowlis mood adjective checklist and became the final "cluster" of adjectives to which subjects responded.

Subjects were asked to rate their feelings using this final adjective checklist containing both vicarious feeling and empathic concern items, using a 7-point scale ranging from -3 (definitely don't feel) to +3 (definitely do feel). (See Appendix 1.)

In addition to this mood index, the author constructed a short "rapport" questionnaire which asked subjects how much they would like to meet the stimulus person, how involved they felt in that person's feelings, how similar to the person they felt, and how much they liked the person. Subects were asked to respond on a 7-point scale varying from -3 (not at all) to +3 (very, very much). (See Appendix 2.)

## Measures of Imaginative Involvement

Two measures of imaginative involvement were used: one a self-report measure of quasi-hypnotic attention, and the other a measure of responsiveness to guided imagining.

The Tellegen Absorption Scale (TAS, Tellegen & Atkinson, 1974) was the measure of quasi-hypnotic attention. It consists of 34 True-False self-descriptive items about experiences of absorption and involvement in a variety of every-day activities. The version of the scale

used was taken from the Differential Personality Questionnaire published by Tellegen in 1982, and it was scored using the DPQ manual. A simple sum was obtained for each subject with the maximum score being 34. The scale was presented to subjects as part of a 77-item questionnaire which contained absorption items intermixed with items of the Social Closeness Scale and 21 items randomly selected from the other subscales of the Differential Personality Questionnaire. (See Appendix 3.)

The Absorption Scale has been used in many different research studies since it was developed (e.g. Finke & MacDonald, 1978; Van Nuys, 1973; O'Grady, 1980) and the most relevant of these have been summarized in the Imaginative Involvement section of Chapter Two. It has met the normal standards of reliability and validity (see Tellegen & Atkinson, 1974).

The Creative Imagination Scale (Wilson, 1976; Wilson and Barber, 1978), was used as the measure of guided imagining. This scale has also been used extensively in research studies since it was published and in the preceding chapter, the most relevant of these were reviewed (e.g., Hilgard et al., 1981; Monteiro et al., 1980). It too, has met the normal standards of validity and reliability (see Barber and Wilson, 1979).

The instrument consists of an 18-minute tape, prepared by Sheryl Wilson (available from her by writing to Cushing Hospital, Framingham, Mass.), and a 10-item self-report

questionnaire. Subjects listened to the tape which consists of ten items, each a narrative of 1-2 minutes suggesting a different imaginative experience (see Appendix 4).

After listening to the entire tape, they rated their responses to each of these items by indicating on a five-point scale (ranging from "not at all" to "almost exactly the same") how much like an actual experience each imagined experience was. A simple sum was computed for each subject, with the maximum score being 40.

## Social Closeness

To assess the relevance of sociability in the relationship between imaginative involvement and empathy, the Social Closeness Scale of Tellegen's 1982 Differential Personality Questionnaire was intermixed with the Absorption Scale and 21 additional items selected at random from other subscales of the DPQ. The Social Closeness Scale consists of 22 items inquiring into a subject's preference for being alone or with other people under a wide variety of circumstances. Like the other subscales of the DPQ, it is a paper and pencil test requiring either true/false, or a/b choices. A simple sum is computed for it with a maximum score of 22. (See Appendix 3, items marked "S".) Reliability and validity for this scale have been satisfactorily established (see Tellegen, 1982).

## Drawings

In an effort to produce stimulus materials that were

as authentic as possible, the author used drawings from actual art therapy sessions as the raw materials. In two separate sessions, she asked two of her friends, both psychotherapists familiar with the drawing method, to "draw how you are currently feeling". As discussed previously, the task was to use colors and paper to produce an abstract drawing, and then to use an imagery free-association technique to identify the images connected with each color and shape in the drawing.

Two drawings were spontaneously produced in this manner: one a predominately angry, and the other a predominately sad drawing.

As these are two of the primary emotions involved in personal problems, they seemed appropriate for this study.

Since these drawings were different in their idiosyncratic "quality" (e.g., style), and somewhat different in their complexity (number of elements, number of colors), the author redrew them. The final two drawings were equalized in the number of elements, number of colors, and in emotional intensity. In addition, the author's own idiosyncratic style had replaced the individual styles of the two drawings.

A color print of the final "angry" drawing is provided in Appendix 5. It consists of a distorted heart shape with an outer pink layer, an inner dark-blue layer with black markings and "teeth-like" projections toward the center, and a black dot in the center with black and red arrows

which spiral out from it and penetrate the "walls" of the heart. In addition, the drawing has two khaki-colored bars in an upper corner, and black splotches randonly scattered over the page.

A color print of the final "sad" drawing is also provided in Appendix 5. It consists of a grey outline of a figure with black eye and mouth slits turned downward. A grey-blue mist is to the upper corner of the drawing and from it a heavy blue arrow pierces one "cheek" of the figure's face. From the other side of the figure, three additional dark blue arrows pierce the other "cheek". Black, brown, and blue "tears" come from the figure's eyes and connect with a yellow-brown circular area in its chest. A cross-hatch of heavy black lines "cover" this area. A faint blue line forms an oval shape from below the eyes of the figure to the bottom of the cross-hatched area.

The colors and lines used in these drawings do indeed follow the conventions of expression that have been discovered in research on line and color. However the drawings are far more complex than those that have been studied previously.

The angry drawing is predominately black and red and has jagged, diagonal arrows protruding from its center. As reviewed in the last section of the preceding chapter, research indicates that red is usually the color of aggression and excitement while black is a "potent" and "negative" color. The lines of the spiral are diagonal,

angular, and heavy while the arrows are sharply angled. These line qualities are typically associated with aggression.

However, the drawing also has some pink in it which often expresses weakness, and blue which is often seen as calm, sad or cold. It also has the curved lines of the heart although these lines are distorted, and less rounded than that of the typical heart shape. These additional elements add overtones and undertones to the predominately angry mood, "coloring" it with a coldness, and a lightness, both of which make sense when viewed while listening to the narrative.

Similarly, the "sad" drawing is predominately black, grey and blue, colors which represent depression, sadness, and heaviness. The outline of the figure and the faint blue oval are composed of lines which are slow and down turning, again representative of sadness. However, the drawing also has jagged lines in the "tears", in the cross-hatch of black lines, and in the arrows which pierce the cheeks denoting an undertone of anger which is understood as frustration when augmented by the narrative.

Rather than use more simplified schematic drawings, the author chose to use these more complex, yet more authentic drawings, hoping that the greater veracity of the drawings would make them more potent in eliciting an empathic response. It was assumed, both from the actor's mood ratings after performing the narrative (to be

discussed in the next section) and from the complexity of the drawings, that subjects' responses to the drawings would be a pattern of feelings rather than simply anger or sadness. It was expected, however, that the patterns for the two feelings would be sufficiently different to distinguish one from the other.

## High Imagery Narratives

A similar procedure of working from authentic materials was used to produce the high-imagery narratives as was used to produce the drawings. The author's friends spontaneously provided imagery free-associations to their drawings and these comments were taped. The tapes were then transcribed and the author rewrote the transcribed scripts.

While the author preserved much of the original wording and flavor, she adjusted the narratives to conform with the final drawings, and also to equalize the number of emotion words (e.g., "I feel angry"), the number of imagery associations, and the number of body responses for the two emotional narratives.

Once this rewrite had been done, the author then created two versions of the high-imagery narratives: one to be used with drawings, and the other without. The high-imagery narratives used with the drawing had repeated references to the drawing or the drawing process contained within it (e.g., "when I drew this pink layer"). By comparison, the high-imagery narratives which were to be

used without the drawing substituted references to an inner experience for references to the drawing (e.g., "when I turned inward, I saw..."). (See Appendix 6.)

In this manner, four scripts were prepared, two for each emotion.

## Low Imagery Narratives

The author's friends also provided the raw material for the low-imagery narratives. Prior to doing a drawing of how they were currently feeling, the author had asked them to describe their current feelings in conventional and low-imagery terms. (These friends were aware of the author's research, were sophisticated in their psychological understanding and were attempting to generate authentic material, but in the style required by the experiment.)

These narratives, which were spontaneous and fairly easy to produce, were taped, transcribed and then rewritten. The author equalized the total number of words, elements, and emotional words in these narratives with those same features in the high imagery scripts. (See Appendix 6.) There were two low-imagery scripts produced: one for each emotion.

## Tapes

Actors and actresses were interviewed and a man and woman were selected whose voices sounded like college-age students. In pilot readings of the scripts, approximately ten different people (friends of the author) listened to

the voices of these two people and found them to be similar in emotional range, maturity, and subtlety of expression.

Once selected, the actor and actress were introduced to each other, and worked together in attempting to produce tapes which were equivalent to each other. The author, acting as director, explained to the performers the nature of the "characters" they were to portray, based on her knowledge of the friends who had made the original drawings. This involved subtle distinctions in the "quality" of the anger and sadness portrayed. For example, the sadness was to be portrayed as "open, flowing, and compassionate" and not as "whining, tight, or wimpy".

In discussions with the performers, and in subsequent pilot hearings using the actors' preliminary tapes, much was learned about what was necessary to evoke empathy in the listener. For example, it was discovered that if the angry tape began with anger, the listener might dismiss the speaker as a "nut", or someone with a "gripe on his shoulder". It was concluded that the angry tape had to begin with good humor, and slowly build to anger, so that the character was portrayed as a rational person who was justifiably angry. In addition, rather than portraying pure anger, the performance was to have an undertone of pain and hurt, to communicate the "vulnerability" and "humanness" of the speaker.

Similar subtleties were involved in the production of the sad tape which had to be tempered with good humor and

frustration for the "character" to come across as more than "just a whiner".

In this way, the performers developed a mental image of the person they were to portray, and the mix of feelings of this character. They then agreed upon a word by word interpretation of the narrative which would portray this character and attempted to render performances which were as similar as possible to each other.

This task proved to be enormously difficult. It involved pacing, emphasis, subtle uses of pitch, similar modulations of words and phrases, and other variables. Both performers noted that it was the most difficult and challenging acting task they had ever done, since performers never mimic each other that closely, even when standing-in for each other; and because the precise interpretation of every word is never required to be the same, even with repeat performances for the same actor.

In addition to these difficulties in working out a common interpretation of a believable character, these performers were, at the author's request, attempting to equate the emotional intensity for all the tapes. In other words, irrespective of the imagery content of the script, or of the particular emotion being portrayed, the actors were attempting to provide paralinguistic cues of the same intensity; i.e., to be equally sad or equally angry irrespective of the imagery content of the narrative, and to be as sad on the sad tapes as they were angry on the

angry tapes.

This proved, once again, to be very difficult. As a result of the constraints discussed above, there may have been 10-20 "takes" for each tape. The author, both actors, and approximately six "listeners" finally selected those tapes which met both the equivalence requirements, and the emotional intensity requirements.

Both performers had been asked to use the "method" as opposed to the "technical" acting technique. In other words, they attempted to "become" the characters and to feel their feelings. After each take, the performers filled out the same adjective checklist that subjects were later to use as an index of vicarious feeling and empathic concern. There was considerable consistency in the pattern of adjective ratings produced by each actor for a given emotional script, and also considerable agreement between the two performer's ratings for each emotion.

In fact, the adjective ratings served as a partial assessment for when the final "take" had been made. Typically, a pattern of adjective ratings would intensify as each take was made, mirroring the actor's increasing involvement in the script. For example, at the first "take" of the sad tape, the performer might report a "5" on a 7 point scale for the cluster "sad, sorry, regretful" and a "3" for the cluster "elated, refreshed, pleased". However by the tenth take, this pattern would have been intensified such that the sad cluster received a rating of

7, while the elated cluster had become 1.

When the author and the actors were satisfied with a few "takes" for each tape, the "listeners" were consulted to help select the most authentic sounding of these tapes. At the same time, listeners were attempting to select takes matched in emotional interpretation and in emotional intensity.

In this process of preparing the tapes, numerous important variables were identified, and hopefully, controlled for. Any of them could have provided the inspiration for another study of the qualities which evoke empathy. All were variables well known to the acting trade, but never researched by psychologists from the perspective of identifying the variables of the message that promote empathy.

As mentioned previously, it was noted that the speaker had to communicate his or her basic sanity and good humor before strong emotionality was acceptable to the listener. Next, "pure" renditions of anger or sadness were not as powerful in evoking empathy as more complex renditions, that had undertones and overtones of other emotional experiences and which communicated that the speaker was a subtle, intelligent, and complex person. A quality of restraint, also, seemed to be an important variable: a slight tremor in the voice when communicating sadness, a certain edge of hardness in communicating anger were more powerful than more exaggerated versions of these cues.

Finally, the emotions had to ebb and flow, and build. A constant level of emotionality throughout the narrative tended to be perceived as boring or draining, and led to a break in involvement with the character.

The author knows no way of proving that the recordings served her purposes. Readers of this document are invited to send blank cassettes to the author to obtain copies of the final tapes used in the experiment. Instructions for ordering tapes are provided on the last page of Appendix 6.

## Subjects

Subjects were students enrolled in psychology classes at San Francisco, Sonoma, and San Jose State Universities of the California State University system. At the beginning of the experiment, all subjects completed a demographics questionnaire (see Appendix 7); and at the midpoint of the experiment, a relationship questionnaire was also completed (see Appendix 8). Based on these two sources of data the information given below was compiled.

In the original sample, there were 461 students from a total of 16 classes. However, after data screening procedures to be discussed in Chapter Four, the final sample size was 421. Of these, 171 or 41% were females, and 250 or 59% were males. The mean age of the sample was 24.7 years and the median was 22.0 years. Demographics collected in a preliminary phase of the experiment revealed that 59% were white, 15.2% were oriental, 6.7% were black,

3.6% were hispanic and the remaining 15.5% were either of mixed ethnicity, Native American or Fillipino.

The majority of the students were undergraduates and they were fairly evenly distributed among the four years. However 6.4% of the sample were graduate students.

Asked about their majors, 415 subjects responded. Of these, 38% were psychology majors, and 44% were in the "helping" professions including psychology, social work, nursing, or medicine. The rest were distributed among a wide range of majors.

Against the possibility that these factors might influence empathy and social closeness, subjects were asked about their relationship status and their sexual orientation. Fifty-one percent of the sample reported that they were single and not in any relationship, 31% reported that they were "in relationship", 11.6% reported that they were married, and the remaining 6.7% listed their status either as separated, divorced, or "other". With regard to sexual orientation, a variable of possible significance in the Bay Area, 93% reported they were "straight", 2.6% that they were "gay", and 3.6% that they were "bisexual".

Subjects were also asked whether they had been in individual or group psychotherapy and if so, for how long. Seventy-five percent reported that they had not been in individual therapy, and 85.7% that they had not been in group therapy.

In summary, the subjects in this experiment were

predominately white undergraduate students, heterosexual in orientation. Over half reported they were not in any relationship. Forty-four percent were receiving training to enter the "helping" professions. Most had never been in individual or group psychotherapy. Their mean age was 25 years old.

## Procedure

Subjects were tested in groups, during the regularly scheduled meeting time of their psychology classes. The classes were randomly assigned to one of the twelve experimental conditions. As described earlier, these conditions differed in the imagery of the message (low imagery, high imagery, and high imagery plus drawing), in the order of the emotions (anger, sadness), in the order of the sex of the actor (male, female) and in which emotion each actor portrayed (e.g., angry female, sad male versus angry male, sad female).

Prior to introducing the experiment, the author passed out manila envelopes containing the two test booklets (See Appendices 9 and 10). She asked subjects to please leave the manila envelopes unopened, and said nothing else.

The experiment was then introduced as follows:

> Hi! My name is Susan Schneier and the experiment you are about to participate in is the research for my Ph.D. in clinical psychology. Thank you for being willing to participate. Although I can't discuss the experiment with you right now, since it might bias the results, I'll be glad to come back and explain everything at a later date.

Excuse me for occasionally reading to you. I wanted to be sure to say the same thing to each group of students, so I wrote down what I wanted to say, and will be reading from it every now and then.

For the next 75 minutes, you will be listening to some tapes (and viewing some slides shown here on this screen [for the high imagery plus drawing condition]) and then recording your reactions in the booklets in the manila envelope I have provided you with. At no point will you be asked to speak before the class, interact with other people in the class or "perform" in any other way. So relax, this should be an interesting, non-threatening experience.

Before we get going on the main part of the experiment, I need you to code your test booklet A. First, would you take A out of the envelope? Leave B in there. A is the one on top. Thank you. You'll notice that in the upper right hand corner of the booklet cover, I've asked you to provide the last four digits of your telephone number. This will provide me with a way of coding your test materials and keeping them together, while preserving your anonymity. If you don't have a phone, you could write the last digits of a friend's or family member's phone number. Would you do that now? Thanks very much.

Okay, would you turn now to page one of Booklet A? You'll find some questions there. Remember that your responses are totally anonymous and there is no way I can identify you from the booklet, so please answer each question and answer honestly. It is important for the experiment. Thank you.

At this point, subjects filled out the one-page demographics questionnaire mentioned in the preceding section. This questionnaire inquired into a subject's sex, age, sexual orientation, relationship status, number of brothers and sisters older and younger, educational status, major, and months in individual or group psychotherapy.

The author then introduced the tapes in three different ways, depending on the imagery condition.

The Low imagery condition was introduced as follows:

> Okay, in the first phase of this experiment, I will be playing two tapes for you: one of a young man talking about some feelings that have been troubling him, and one of a young woman, also talking about feelings that have been disturbing her. These two people are students at another college who volunteered to discuss a personal problem, knowing it was part of an experiment and that they would get course credit for doing it.
>
> During the interview with each person, I spent some time getting to know the person so that they would feel more relaxed. I am a psychotherapist and I talked at some length to each of them about the value of getting in touch with feelings by reflecting on your experience and then expressing the feelings it stirs. I encouraged them to talk at some length about their feelings.
>
> After they had done so, I asked them to summarize the experience and taped what they said. I then asked permission to play the tapes. Both agreed when I assured them I would not play the tapes at their college and that I would not reveal their identities

The High-Imagery condition was introduced with the same description of how the interviews were obtained, and how the subjects had been encouraged to talk about their feelings. It also closed with the same description of how the subject was asked to summarize his or her feelings, the taping, and obtaining permission to use the tapes. However, it differed in the explanation of what the subjects were asked to do, as follows:

> I then introduced a fairly unusual therapy technique in which people close their eyes, turn their attention inward, and watch the images/ feelings/sensations that come up when they think about their problem.
>
> After they explored their feelings in this way for a while...

Finally, the High-Imagery with Drawing condition was introduced with the same opening and closing words but with

the following description of the therapeutic technique used:

> I then introduced them to a fairly unusual therapy technique in which people do an abstract drawing of how they are feeling and then see what images/feelings/sensations come to mind about the different colors and shapes in the drawing.
>
> After they explored the drawings and the images associated with them for awhile, I asked them...

After talking about the tapes the author continued:

> Now right after listening to each of these tapes, I am going to ask you to quickly fill out a mood adjective checklist which will give me an assessment of how you are feeling right after listening to the tapes. Since you need to be ready to go, to capture your mood immediately after hearing the tape, I'd like to familiarize you with the checklist before we begin. Would you please turn to page two of Booklet A? There are instructions there on how to fill out the checklist. Please read along silently as I read the instructions to you.

The author then read the instructions on filling out the mood adjective checklist to the subjects. (See Appendix 9, page 3.)

As mentioned previously, the checklist was the "short-short" form of the Nowlis Mood Adjective Checklist consisting of 14 clusters of adjectives (from Nowlis & Greenberg, 1979), plus a fifteenth cluster taken from the Empathic Concern Index of Coke et al. (1978).

Subjects were provided with a 7-point rating scale for each cluster raging from -3 (definitely don't feel) to +3 (definitely do feel).

After reading the instructions on how to fill out the checklist, the author then said:

> Okay, there is a mood adjective checklist on the

next page: page three of your booklet. Would you please quickly fill it out for how you are feeling right now? When you are done please look up so that I'll know that you're finished.

When all subjects had looked up, the author then introduced the tape, or the tape plus drawing, as follows:

I'm now going to play a tape for you (play a tape and show a slide of a drawing). Right after it's done please turn to page four and fill out the checklist for how you are feeling at that point. As you listen to the tape (and view the slide) the lights will be lowered so that you can focus your full attention on each person's experience.

The author then lowered the lights and played the first tape and in the high-imagery plus drawing condition, also projected a color slide.

There were some differences in the length of the tapes presented. Angry tapes took just short of five minutes to run, sad tapes varied from 7 minutes to slightly over 8 minutes. Although the number of words were equalized in the angry and sad tapes, angry tapes were rendered more rapidly by the actors than sad tapes. Also the high imagery tapes were slightly longer in words than the low imagery tapes. In addition, the actress was generally a little slower in her rendition of the sad tapes than the actor.

Slides were projected with a simple slide projector and screen, with the image held at approximately three feet high.

Lights were turned off for three reasons. First, they were turned off to equate the drawing condition with the other two imagery conditions, since it was necessary to

lower the lights in the drawing condition in order to see the slide. Second, the author hoped that the darkness would encourage a more dreamy state of mind. Third, the darkness provided more anonymity for the subjects, hopefully allowing for more emotional involvement.

Once the first tape (and slide) had been presented, the author said:

> Now, before you lose your feeling, please turn to page four and fill out the adjective checklist..Look up when you're through.

When all subjects had looked up, she then said:

> Thank you. Now would you turn to page five of your booklet and answer the questions there.

A short "rapport" questionnaire was presented on page five of Booklet A (see Appendix 9) which consisted of four questions: How much did you like the person you just heard on the tape? How involved did you feel in this person's feelings? How similar to this person do you think you are? How much would you like to meet this person? Again, subjects were presented with a 7-point scale ranging from -3 (not at all) to +3 (very, very much).

After listening to the first tape (and viewing the first slide), subjects were then put through the same procedure for the second tape (and slide).

When subjects had completed the rapport questionnaire for the second tape, the author said:

> Thank you very much. This completes the first phase of the experiment. Would you please check to see that you have written the last four digits of your telephone number on the cover of Booklet A, and then

> put Booklet A away in the manila envelope and remove Booklet B? Thank you. Now would you please write the same four digit number on the cover of Booklet B?
>
> Alright, if you would now turn to the first page of Booklet B you'll find some questions there. Please remember that your answers are totally anonymous and please answer each question as honestly as possible.

This second questionnaire (the "relationship" questionnaire mentioned in the preceding section) consisted of five questions inquiring into how emotionally close the subject was to his or her mother and father as a child, how emotionally close he or she was to each of them now, and how emotionally close he or she felt to the current partner (if there was one).

When subjects had filled out this questionnaire, the author then said:

> Would you turn now to page two? On the next four pages you will find a series of statements concerning certain attitudes, values and opinions. Read each statement closely and then circle the answer which seems most appropriate. It is important to answer every question. But don't worry too much about the answer, just move quickly through, circling the answer which seems right.

Subjects then filled out a 77-item questionnaire containing the 34-item Absorption Scale, the 22-item Social Closeness Scale and 21 filler items. All items were taken from the Differential Personality Questionnaire of Tellegen (1982).

Following completion of the 77-item questionnaire, subjects were told:

> In the next part of this experiment, you will be listening to another tape. This tape will take approximately 18 minutes, after which you will fill out a brief questionnaire and the experiment will be over.

> The tape will present a number of imaginative experiences and you will be asked to focus your thoughts and imagine certain events. When asked to do so, please focus your thoughts and imagine to the best of your ability.
>
> I will now lower the lights again, so that you can focus on listening to this tape.

The author then lowered the lights. Subjects were then presented with the Creative Imagination Scale tape prepared by Sheryl Wilson. Following presentation of the tape, the lights were turned on, and subjects were told:

> Please turn to page six of your booklets.

The author then read from the top of that page (see Appendix 10):

> You have just listened to a tape suggesting certain imaginative experiences. In the questions below you are asked to score these experiences. Please answer each item as honestly as possible. There are no right or wrong answers.
>
> Read the statements below describing the possible responses for each item. Then, circle the number (0, 1, 2, 3, or 4) which corresponds to the statement that most nearly matches your experience.

Subjects were presented with ten questions, one for each item of the CIS.

Following completion of the CIS rating scale, subjects were asked to turn to the last page of the booklet to give their "reactions to the experiment". On this page they were asked to rate how much they enjoyed participating in the experiment on a 7-point scale ranging from -3 (not at all) to +3 (very, very much). They were then asked two open-ended questions: "What did you think this experiment was about?" and "What comments, if any, would you like to

make about the experience?"

The author then asked subjects to check to make sure they had written the four digit code on the cover of Booklet B, and to place Booklet B in the manila envelope. She then thanked subjects for their participation.

Several months later, the author returned to debrief the subjects, presenting the rationale of the experiment, and the results.

# CHAPTER 4: RESULTS

A total of 461 subjects participated in the experiment in fifteen administrations. An initial screening of the data established that forty subjects had failed to complete major portions of the task and accordingly their data were discarded. Table 1 indicates the experimental arrangements for each administration and the final number of subjects with useable data, in each group.

A close examination of the table reveals that none of the experimental arrangements are in exact balance with one another, e.g., far more subjects received the high imagery condition with a drawing than received either of the other two conditions. These imbalances precluded performing analyses of variance (with one exception) in later data processing, but the large sample size permitted all other parametric tests.

The data for each subject were rendered machine readable in connection with which all rating scales were converted to positive numbers no matter how they had been displayed in the data booklets. For example, all 7-point scales had the value of "4" as a midpoint.

## Data Organization

The data collected may be conceptually organized into the categories of dependent, independent, and design variables.

Table 1

Experimental Arrangements for

Each Group of Subjects

| Group | Number of Subjects | Script[1] | Sex and Emotion[2] First Tape | Second Tape |
|---|---|---|---|---|
| 1 | 22 | Low | F-Sad | M-Angry |
| 2 | 23 | Low | M-Sad | F-Angry |
| 3 | 26 | Low | F-Angry | M-Sad |
| 4 | 34 | Draw | F-Sad | M-Angry |
| 5 | 32 | Low | M-Angry | F-Sad |
| 6 | 21 | High | F-Sad | M-Angry |
| 7 | 21 | High | M-Angry | F-Sad |
| 8 | 20 | High | M-Sad | F-Angry |
| 9 | 30 | High | F-Angry | M-Sad |
| 10 | 27 | Draw | M-Angry | F-Sad |
| 11 | 11 | Low | F-Angry | M-Sad |
| 12 | 57 | Draw | M-Sad | F-Angry |
| 13 | 28 | Draw | F-Angry | M-Sad |
| 14 | 34 | Draw | F-Sad | M-Angry |
| 15 | 35 | Low | M-Sad | F-Angry |
| | 421 | | | |

[1] Low=Low imagery scripts, High=High Imagery Scripts, Draw=High Imagery Scripts with Drawing

[2] M=Male Actor, F=Female Actress

The dependent variables comprise three "empathy" measures: a measure of Vicarious Empathy, a measure of Empathic Concern, and a measure of Empathic Rapport.

The independent variables include the subject's sex, Absorption score, Sociability score, Creative Imagination Scale score, Closeness (to parents), Birth Order (first-born and only children versus later-borns), ethnicity, nationality, age, psychotherapy experience (some or none), major (psychology and all other) and a rating of how much the subject "enjoyed" the experiment.

Design variables include those which specify the conditions of the experiment to which the subject was exposed. These include the sex of the actor portraying the emotion (i.e., whether the subject heard an angry male and a sad female or vice versa), the order in which the emotions were presented, and message variables such as whether the subject was exposed to a high imagery or low imagery tape; and if the tape was high imagery, whether a drawing was or was not presented.

## Construction of Dependent Variables

For each of the two emotions, Angry and Sad, three dependent variables were constructed: Empathic Concern, Empathic Rapport, and Vicarious Empathy.

The measure of Empathic Concern was taken from the subject's scores on the final adjective cluster on the adjective checklist: i.e., the subject's rating on

"compassionate, moved, touched" (see Appendix 1). Subjects completed the checklist three times: at the beginning of the experiment, at the end of hearing the angry tape, and at the end of hearing the sad tape.

Two Empathic Concern scores were obtained for each subject: one for each emotion. These scores were defined as the difference between a subject's score after hearing one of the tapes and his or her baseline score. On the following pages, these variables will be referred to as Angry Concern and Sad Concern, respectively.

As indicated in Table 2, all subjects were significantly more compassionate after hearing both the angry and sad tapes than they were upon entering the experiment. Additionally, they were more compassionate following the sad tape than the angry tape.

Empathic Rapport, the second pair of dependent variables, was constructed from the four questions that were posed on pages five and seven of Booklet A (see Appendix 9). These questions inquired into a subject's liking of the person portrayed on the tape, and his or her feeling of similarity to that person, involvement with that person's feelings, and desire to meet that person. Initial analyses established that scores on these four questions were highly intercorrelated. Therefore, in the interests of parsimony, a sum was created for each emotion. These sums were named Angry and Sad Rapport.

Table 2

Empathic Concern at Baseline

and After Angry and Sad Tapes

| Baseline Score | | After Angry Tape | | After Sad Tape | |
|---|---|---|---|---|---|
| Mean | SD | Mean | SD | Mean | SD |
| 4.03 | 1.59 | 4.30 | 1.77 | 5.11 | 1.60 |

Mean Differences and Contrasts

| | Mean | SD | t |
|---|---|---|---|
| Angry | 0.27 | 2.20 | 2.58** |
| Sad | 1.08 | 2.01 | 11.02*** |
| Angry vs. Sad | | | 8.39*** |

** $p < .01$, ***$p < .001$, two-tailed

In Table 3 the means and standard deviations for each of these variables is presented, as well as the correlations of each question with its sum. As can be seen, all questions had a correlation of .76 or higher with the sum, significant at the .001 level. Additionally, the table indicates that just as with the Concern scales, Sad Rapport is higher than Angry Rapport.

Vicarious Empathy, the third pair of variables, was more complex to construct since it depended on summarizing the subject's behavior on the fourteen other adjective clusters of the adjective checklists which subjects filled out at the beginning of the experiment and after listening to the tapes.

Table 4 presents the means for each cluster at the outset of the experiment, after the angry tape, and after the sad tape. (The *t*-values in the table have been annotated with minus signs if the change from baseline was in the negative direction.) Contrasts between the baseline and the two emotions revealed that for each emotion, the shifts were intuitively meaningful.

The changes in cluster scores for the two emotions were very similar, albeit not identical. For the most part, differences between reactions to the two emotions were a matter of degree. After hearing either the angry or sad tape, subjects scored higher on sad, angry, clutched-up and discouraged and lower on elated, warm-hearted, egoistic, active, carefree, nonchalant, and at-rest than at

Table 3

Empathic Rapport for Angry and Sad Tapes:

Correlations of the Four Questions with Their Sum[1]

| Questions | Sum of Responses to Angry Tapes | Sum of Responses to Sad Tapes |
|---|---|---|
| | Mean=15.31, SD=5.56 | Mean=16.47, SD 5.33 |
| Did you like the person? | .85*** | .83*** |
| How involved in person's feelings? | .77*** | .79*** |
| How similar to person are you? | .78*** | .76*** |
| Would you like to meet person? | .81*** | .82*** |
| Angry vs. Sad | t = 3.54*** | |

*** .= p < .001

[1]Questions taken from pages 5 and 7 of Booklet A.

Table 4

Means of Adjective Clusters and Constrasts for Baseline, Angry and Sad Conditions

| Cluster | Baseline | | Angry | | Sad | | Baseline vs. Angry | Baseline vs. Sad |
|---|---|---|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S.D. | Mean | S.D. | t | t |
| Elated | 4.08 | 1.63 | 2.93 | 1.61 | 2.44 | 1.47 | -12.26*** | -18.65*** |
| Sad | 2.74 | 1.74 | 3.77 | 1.61 | 4.49 | 1.75 | 9.53*** | 16.13*** |
| Warm-hearted | 5.14 | 1.37 | 3.81 | 1.63 | 4.26 | 1.65 | -15.57*** | -10.73*** |
| Egoistic | 2.63 | 1.74 | 2.55 | 1.57 | 2.19 | 1.47 | 1.03 | -5.77*** |
| Active | 4.22 | 1.77 | 3.88 | 1.67 | 3.04 | 1.69 | -3.69*** | -13.92*** |
| Concentrating | 5.38 | 1.45 | 5.14 | 1.58 | 5.52 | 1.45 | -2.74** | 1.72 |
| Angry | 2.27 | 1.72 | 3.95 | 1.87 | 2.94 | 1.78 | 16.21*** | 6.92*** |
| Drowsy | 4.26 | 1.93 | 3.71 | 1.77 | 4.37 | 1.78 | -5.54*** | 1.13 |
| Carefree | 3.89 | 1.70 | 2.96 | 1.57 | 2.57 | 1.48 | -11.98*** | -16.04*** |
| Nonchalant | 4.53 | 1.56 | 3.45 | 1.57 | 3.35 | 1.60 | -12.82*** | -13.56*** |
| Clutched-Up | 2.75 | 1.80 | 3.34 | 1.77 | 3.01 | 1.71 | 6.23*** | 2.91** |
| At Rest | 4.66 | 1.71 | 3.79 | 1.61 | 4.48 | 1.62 | -9.31*** | -2.01* |
| Discouraged | 2.50 | 1.79 | 3.31 | 1.69 | 3.72 | 1.81 | 8.41*** | 11.97*** |
| Alert | 5.06 | 1.57 | 5.09 | 1.48 | 4.65 | 1.60 | 0.47 | -5.47*** |

*p < .05, **p < .01, ***p < .001, two-tailed

the beginning of the experiment.

However, subjects were more angry after the angry tape, and more sad after the sad tape. In addition, subjects were more warm-hearted, concentrating, drowsy, at-rest, discouraged and less elated, egoistic, active, carefree, clutched-up, and alert after hearing the sad tape than after the angry tape.

For both emotions, all but two clusters significantly changed. The exceptions for Angry were egoistic and alert; while for Sad they were concentrating and drowsy.

A single score was obtained for reactions to each emotion from the adjective clusters which had shown significant change for that emotion. This score was obtained by taking the sum of the absolute magnitude of change from the baseline score for each significant cluster irrespective of the direction of the change.

Table 5 defines the two final scales, Angry Vicarious and Sad Vicarious, and indicates for each emotion, the correlations of the shifts in adjective clusters with their sums. As can be seen from inspecting the table, the Sad Vicarious sum is higher than Angry Vicarious, but unlike the case for the Concern and Rapport scores this difference is not significant.

The six dependent variables--Angry and Sad Concern, Angry and Sad Rapport, and Angry and Sad Vicarious--not suprisingly, are not independent of one another. Table 6 presents the correlations among the six scales. For each

Table 5

Vicarious Empathy: Sum of Shifts in Adjective Clusters for Angry and Sad Tapes and Correlations of Each Cluster Shift with its Sum

| Cluster | Sum Angry Mean | Sum Angry S.D. | Sum Sad Mean | Sum Sad S.D. |
|---|---|---|---|---|
| | 10.60 | 10.97 | 11.11 | 10.40 |
| Elated | .62 | | .59 | |
| Sad | .44 | | .55 | |
| Warm-Hearted | .56 | | .43 | |
| Egoistic | -- | | .39 | |
| Active | .39 | | .54 | |
| Concentrating | .38 | | -- | |
| Angry | .60 | | .47 | |
| Drowsy | .37 | | -- | |
| Carefree | .61 | | .55 | |
| Nonchalant | .54 | | .49 | |
| Clutched-Up | .54 | | .46 | |
| At-Rest | .51 | | .41 | |
| Discouraged | .58 | | .58 | |
| Alert | -- | | .40 | |

Angry vs. Sad $t = 1.26$

all correlations $p < .001$

empathy variable, scores on the two emotions are correlated: Concern with Concern, Rapport with Rapport, and Vicarious with Vicarious.

Additionally, for each emotion, Concern is correlated with Rapport but neither of them is correlated with Vicarious. Thus, in a sense, there are two clusters of dependent variables: Concern-Rapport and Vicarious. This interesting finding will be discussed in the next chapter.

## Specification of Independent Variables

The independent variables were collected from responses to page 1 of Booklet A and from Booklet B (see Appendices 9 and 10). These include subject sex, age, ethnicity, birth order, experience with psychotherapy, nationality, major, closeness to family, Absorption score, Sociability Score, Creative Imagination Scale score, and enjoyment of experiment score.

Three variables were omitted from further analyses because they were found to have no influence, whatever, on the results. These included the subject's age (mean, 24.6 years; S.D. 7.6 years), nationality (66 foreign born), and ethnicity (131 non-Caucasian).

The Absorption, Sociability and Creative Imagination Scale scores (collected from Booklet B) are all simple sums. Subject Sex, Psychotherapy, Birth Order, and Major (collected from page 1, Booklet A) are binary variables coded as follows: Sex (male, female), Psychotherapy (some

Table 6

Correlations Among the Six Empathy Scales

| | Angry Concern | Angry Rapport | Angry Vicarious | Sad Concern | Sad Rapport | Sad Vicarious |
|---|---|---|---|---|---|---|
| Angry Concern | | .35*** | -.05 | .56*** | .05 | .00 |
| Angry Rapport | | | .08 | .09 | .34*** | .10 |
| Angry Vicarious | | | | .00 | .07 | .70*** |
| Sad Concern | | | | | .33*** | -.03 |
| Sad Rapport | | | | | | .07 |
| Sad Vicarious | | | | | | |

*** $p < .001$

or none), Birth Order (first-born and only children versus later-born), and Major (Psychology versus all other).

The Closeness score was computed as a sum. Initial analyses of the responses to the first four questions on page 1 of Booklet B (closeness to father and mother, as a child and now) revealed that these scores were highly intercorrelated. Because of this and because two few subjects responded to the fifth question (closeness in current relationship) for it to be useable, scores on the fifth question were discarded and a sum of the first four questions was computed. As indicated in Table 7, the four questions correlated highly with their "Closeness" sum.

Descriptive statistics on the independent variables are provided in Table 8. The mean for the Closeness scale is 7.58 out of a possible 16-point sum, translating into feeling only "slightly close" to one's parents. The Sociability mean of 15.17 out of a possible 22 is somewhat above the published norm of 14.5, as is the Absorption mean of 21.69 out of a possible 34 for which the published norm is 19.8 (Tellegen, 1982). The Creative Imagination Scale mean of 18.73 out of a possible 40, falls within the low-medium range of the CIS (Barber and Wilson, 1978). Finally, the Enjoyment rating mean of 5.38 indicates a slightly to moderately positive attitude toward the experiment.

Some of the nine variables presented in Table 8 were

Table 7

Construction of Closeness Scale:

Correlations of Four Questions With Their Sum*

| Questions | Closeness Sum | |
|---|---|---|
| | Mean | S.D. |
| | 7.58 | 2.55 |
| Close to Mother as a Child? | .61 | |
| Close to Father as a Child? | .65 | |
| Close to Mother Now? | .70 | |
| Close to Father Now? | .75 | |

all r's, $p < .001$

*(Taken from page 1, Booklet B.)

Table 8

Summary of Independent Variables*

| Variable | | Appendix Reference | Mean | S.D. |
|---|---|---|---|---|
| 1. Closeness Scale | | B1 | 7.58 | 2.55 |
| 2. Social Sum | | B2-5 | 15.17 | 4.58 |
| 3. Absorption Sum | | B2-5 | 21.69 | 6.44 |
| 4. Creative Imagination Scale Sum (CIS) | | B6-7 | 18.73 | 7.57 |
| 5. Enjoyment Rating | | B8 | 5.38 | 1.12 |
| Binary Coding | | | Number of Subjects | |
| 6. Birth Order | | A1 | | |
| Eldest or First Born | (1) | | 145 | |
| Later Born | (2) | | 276 | |
| 7. Major Subject | | A1 | | |
| Psychology | (1) | | 131 | |
| Other | (0) | | 290 | |
| 8. Psychotherapy | | A1 | | |
| Some | (1) | | 107 | |
| None | (0) | | 290 | |
| 9. Subject Sex | | A1 | | |
| Males | (1) | | 171 | |
| Females | (2) | | 250 | |

* (Taken from page 1, Booklet A and from Booklet B.)

intercorrelated, as indicated in Table 9. Strong relations are present between the Creative Imagination Scale scores and both the Absorption score, and the subject's enjoyment of the experiment. The Absorption score is also related to Enjoyment although less strongly, and is weakly correlated with Psychotherapy indicating that subjects who had had some therapy scored higher in Absorption than those who had not.

In addition to these correlations of primary interest, the Closeness score is significantly related to the Sociability Score, and Psychology majors are more likely to have had some psychotherapy than non-Psychology majors.

Finally, several weak correlations are evident between subject sex and Sociability, Absorption, Enjoyment, Psych Major, and Psychotherapy. In all cases, the direction of the relationships indicates that women score higher than men in Sociability, Absorption, and Enjoyment; and are more likely than men to have been in psychotherapy and to be a psychology major.

## Correlations Between Independent and Dependent Variables

Of inherently greater interest, are the correlations between the empathy measures and the independent variables. These are shown in Table 10. Several significant relations are evident.

While there are no correlations with Angry Concern, Angry Rapport scores correlate significantly with seven of

Table 9

Intercorrelations Among Independent Variables

| | Close | Social | Absorb | CIS | Enjoy | Birth | Psych | Ther | Sex |
|---|---|---|---|---|---|---|---|---|---|
| Closeness | | .15** | .03 | .02 | .02 | -.07 | -.08 | -.09 | .05 |
| Social | | | -.05 | -.05 | -.00 | -.02 | -.03 | .06 | .12* |
| Absorption | | | | .36** | .20** | .07 | -.05 | .11* | .11* |
| CIS | | | | | .41** | .08 | -.09 | .04 | .06 |
| Enjoyment | | | | | | .03 | -.08 | -.06 | .10* |
| Birth Order | | | | | | | -.00 | .07 | .04 |
| Psychology | | | | | | | | .22** | .10* |
| Psychotherapy | | | | | | | | | .11* |
| Subject Sex | | | | | | | | | |

* $p < .01$, ** $p < .001$

Table 10

Correlations Among Empathy Measures and Independent Variables

| | Close | Social | Absorb | CIS | Enjoy | Birth | Psych | Ther | Sex |
|---|---|---|---|---|---|---|---|---|---|
| Angry Concern | -.08 | -.04 | .01 | -.05 | .01 | .03 | .06 | .03 | .07 |
| Angry Rapport | -.16** | .01 | .23** | .17** | .15** | .13* | .07 | .13* | .12* |
| Angry Vicarious | .03 | .13* | .08 | .11* | .04 | .02 | .05 | -.04 | .13* |
| Sad Concern | -.01 | -.02 | -.03 | .00 | .12* | .00 | .04 | .03 | .16** |
| Sad Rapport | .05 | .00 | .11* | .14* | .26** | .01 | -.04 | .13* | .12* |
| Sad Vicarious | .12* | .14* | .08 | .09 | .08 | .03 | -.03 | -.06 | .09 |

*p < .01, **p < .001

the independent variables. The relationship is negative with Closeness, but positive with Absorption, Creative Imagination, Enjoyment, Birth Order, Psychotherapy, and Subject Sex. There are three significant correlations with Angry Vicarious: the Creative Imagination Scale score, the Sociability score, and Subject Sex.

Unlike Angry Concern, Sad Concern has two significant correlations: with Enjoyment and Subject Sex. There are five relations with Sad Rapport including Absorption, Creative Imagination, Enjoyment, Psychotherapy, and Subject Sex. Finally, there are two relations with Sad Vicarious: Sociability and Closeness.

In theory, a significant correlation with a binary variable implies a significant difference between the two means. This is not necessarily true, however, if the two sample sizes are unequal. Accordingly, to test the meanings of the significant correlations for Birth Order, Psychotherapy, and Subject Sex, *t*-tests were performed on all six dependent variables for the splits that had been significant.

The results are shown in Table 11 where each relationship is confirmed. First-born and only children have higher Angry Rapport scores than later-borns. Subjects who have had psychotherapy are higher on Angry and Sad Rapport than those who have never had any psychotherapy. Finally, women are higher than men on Angry Rapport, Angry Vicarious, Sad Concern and Sad Rapport.

Table 11

Empathy as a Function of Birth Order, Psychotherapy and Subject Sex

| Variable | Mean | S.D. | Mean | S.D. | t |
|---|---|---|---|---|---|
| Birth Order | Eldest and Only Children (N=145) | | Later Borns (N=276) | | |
| Angry Rapport | 16.32 | 5.56 | 14.78 | 5.49 | 2.73** |
| Psychotherapy | Never (N=314) | | Ever (N=107) | | |
| Angry Rapport | 14.89 | 5.79 | 16.51 | 4.62 | 2.62** |
| Sad Rapport | 16.08 | 5.22 | 17.61 | 5.51 | 2.58** |
| Subject Sex | Male (N=171) | | Female (N=250) | | |
| Angry Rapport | 14.50 | 5.63 | 15.86 | 5.45 | 2.49* |
| Angry Vicarious | 8.82 | 9.87 | 11.81 | 11.53 | 2.77** |
| Sad Concern | 0.70 | 1.95 | 1.34 | 2.01 | 3.22*** |
| Sad Rapport | 15.71 | 5.26 | 16.99 | 5.32 | 2.44* |

*p < .05, **p < .01, ***p<.001, two-tailed

## Influence of Design Variables

The final class of variables are those that define the design of the experiment: the sex of the actor portraying a given emotion; the order in which the tapes were presented; and the imagery content of the tapes: i.e., whether low-imagery, high-imagery, or high-imagery with drawing.

The influence of Sex of Actor was examined in connection with Subject Sex, in case there were any interactions between the two. Analyses of variance on the six empathy measures for these two factors revealed that only Subject Sex is relevant, as has already been documented in Table 11; and that there are no interactions involving Actor Sex. Thus, female subjects did not react differently than male subjects to hearing an angry man than to hearing an angry woman; nor did they react differently than men to hearing a sad man or a sad woman.

The order variable was next assessed, with the result that only one of the six dependent variables was affected, namely Angry Concern. Explicitly, subjects hearing the angry tape first, had more Empathic Concern for the angry performer, than subjects who heard the angry tape after the sad tape ($t = 3.42$, $p<.001$).

The imagery content of the tapes proved to be highly relevant. Table 12 presents the means for each of the three conditions (low-imagery, high-imagery, and high-

Table 12

Empathy for High-Imagery plus Drawing, High-Imagery, and Low-Imagery Tapes

| Variable | (LI) Low-Imagery N=149 | | (HI) High-Imagery N=92 | | (HID) High Imagery with Drawing N=180 | | LI vs. HI t | HI vs. HID t | LI vs. HID t |
|---|---|---|---|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S.D. | Mean | S.D. | | | |
| Angry Concern | - 0.28 | 2.26 | 0.72 | 1.92 | 0.49 | 2.19 | 3.56*** | 0.89 | 3.13** |
| Angry Rapport | 13.68 | 5.57 | 16.27 | 5.18 | 16.16 | 5.46 | 3.60*** | 0.17 | 4.05*** |
| Angry Vicarious | 11.19 | 11.30 | 9.83 | 10.66 | 10.50 | 10.89 | 0.93 | 0.49 | 0.56 |
| Sad Concern | 1.05 | 1.88 | 1.12 | 1.97 | 1.08 | 2.13 | 0.26 | 0.26 | 0.11 |
| Sad Rapport | 17.76 | 4.49 | 15.66 | 5.91 | 15.86 | 5.50 | 3.04** | 0.27 | 3.29*** |
| Sad Vicarious | 11.31 | 10.92 | 12.79 | 10.62 | 10.08 | 9.78 | 1.04 | 2.10* | 1.07 |

*p < .05, **p < .01, ***p < .001, two-tailed

imagery with drawing) together with contrasts between the conditions.

Angry Concern is significantly higher for the high-imagery and the high-imagery plus drawing conditions than for the low-imagery condition. Angry Rapport is also significantly higher in the high-imagery and the high-imagery plus drawing conditions than in the low-imagery condition. There are no significant differences for the three conditions for Angry Vicarious. In addition, there are no significant differences between the high-imagery with drawing and the high-imagery conditions for the three angry empathy variables.

Sad Concern shows no differences among the three conditions. Sad Rapport, in sharp contrast to the findings with Angry Rapport, is significantly lower in the two high-imagery conditions than in the low-imagery condition. Sad Vicarious shows no significant differences between the low and high imagery conditions. Finally, there are no differences between the high-imagery with drawing and high-imagery conditions for Sad Concern and Sad Rapport; however, Sad Vicarious scores are significantly lower for the high-imagery with drawing condition than for high-imagery alone.

While it was predicted that men would show more difference than women in the low versus high imagery comparison, no evidence of this difference was obtained. Means for Vicarious Empathy and Empathic Rapport, for the

two emotions and the two imagery conditions, reveal no significant differences between men and women in the relationship between imagery and empathy. The same holds true for the impact of the drawing: men and women do not differ in how the drawings affected their empathy scores.

It is of interest to note that, irrespective of sex, high imagery operates in opposite fashion for the two emotions: raising scores in Angry Concern and Angry Rapport, but lowering them in Sad Rapport, and showing a mixed picture for the two Sad Vicarious high-imagery conditions.

## Multiple Prediction of Dependent Variables

It was of interest to determine how the design variables might interact with the independent variables to predict scores on the empathy measures. Accordingly, the two sets of variables were entered competitively into stepwise multiple regressions.

For this purpose, the three imagery conditions were converted into two separate binary variables. The first, labeled "Image" contrasted the two high-imagery conditions with the low-imagery condition. The second, labeled, "Draw", contrasted the two imagery conditions (low and high) without a drawing with the high-imagery condition with a drawing.

Results are shown in Tables 13-18. In all of these regressions, the directions of scale are always as they

have been in the simple correlations already reported. As can be seen from inspecting these tables, the variable "Draw" did not figure into any of the predictions. Results are as follows:

Angry Concern ran two steps, taking in Order as previously noted, and Image (Table 13);

Angry Rapport ran six steps taking in Image, Absorb, minus Closeness, Enjoyment, Birth Order and Subject Sex (Table 14);

Angry Vicarious ran four steps taking in Creative Imagination, Social, Subject Sex, and minus Actor Sex (higher for male than female actor) (Table 15);

Sad Concern ran two steps: Subject Sex and Enjoy (Table 16);

Sad Rapport ran four steps: Enjoy, minus Image, Psychotherapy, and Subject Sex (Table 17); and

Sad Vicarious ran two steps: Social and Closeness (Table 18).

This concludes the presentation of the primary findings. Discussion of these results will be presented in the next chapter.

Table 13

Multiple Prediction of Angry Concern

| Variable | Beta | %Variance | %Explained Variance |
|---|---|---|---|
| Order | -.179*** | 3.15 | 47.5 |
| Image | .198*** | 3.49 | 52.5 |
| TOTAL | R=.258 | 6.64 | 100.0 |

***p < .001, two-tailed

Table 14

Multiple Prediction of Angry Rapport

| Variable | Beta | %Variance | %Explained Variance |
|---|---|---|---|
| Image | .197*** | 3.53 | 23.7 |
| Absorb | .176*** | 3.15 | 21.2 |
| Closeness | -.149** | 2.66 | 17.9 |
| Enjoyment | .126** | 2.26 | 15.2 |
| Birth Order | .093* | 1.67 | 11.2 |
| Sex | .090* | 1.61 | 10.8 |
| TOTAL | R=.386 | 14.88 | 100.0 |

*p < .05, **p < .01, ***p < .001, two-tailed

Table 15

Multiple Prediction of Angry Vicarious

| Variable | Beta | %Variance | %Explained Variance |
|---|---|---|---|
| Creative Imagination | .119* | 1.39 | 26.9 |
| Social | .118* | 1.37 | 26.6 |
| Subject Sex | .111* | 1.29 | 25.0 |
| Actor Sex | -.095* | 1.10 | 21.5 |
| TOTAL | R=.227 | 5.15 | 100.0 |

*p < .05, two-tailed

Table 16

Mutiple Prediction of Sad Concern

| Variable | Beta | %Variance | %Explained Variance |
|---|---|---|---|
| Subject Sex | .145** | 2.02 | 58.5 |
| Enjoyment | .103* | 1.44 | 41.5 |
| TOTAL | R=.186 | 3.46 | 100.0 |

*p < .05, **p < .01, two-tailed

Table 17

Multiple Prediction of Sad Rapport

| Variable | Beta | %Variance | %Explained Variance |
|---|---|---|---|
| Enjoyment | .244*** | 4.50 | 37.4 |
| Image | -.167*** | 3.08 | 25.6 |
| Psychotherapy | .149** | 2.74 | 22.8 |
| Subject Sex | .093* | 1.71 | 14.2 |
| TOTAL | R=.347 | 12.03 | 100.0 |

*p < .05, **p < .01, ***p < .001, two-tailed

Table 18

Multiple Prediction of Sad Vicarious

| Variable | Beta | %Variance | %Explained Variance |
|---|---|---|---|
| Social | .125* | 1.61 | 55.8 |
| Closeness | .099* | 1.28 | 44.2 |
| TOTAL | R=.170 | 2.89 | 100.0 |

*p < .05, two-tailed

# CHAPTER 5: DISCUSSION

In the preceding chapter, the results of this experiment have been presented in some detail. The main findings are summarized below.

1. Two types of empathy were identified: Empathic Concern-Rapport and Vicarious Empathy. The pattern of intercorrelations among the three empathy measures showed that Empathic Concern and Rapport correlated strongly with each other but not with Vicarious Empathy. In addition, the two types of empathy related differently to the independent and design variables as discussed below.

2. Empathic Concern and Rapport were significantly higher for sad tapes than angry tapes; and Vicarious Empathy measures showed a similar but non-significant difference.

3. The order in which the emotions were presented affected only one of the six empathy measures: Angry Concern. There was more compassion for the angry performer who was heard first, than the angry performer heard after the sad performer.

4. Empathic Rapport was correlated with measures of imaginative involvement, while both imaginative involvement and sociability were correlated with Vicarious Empathy.

5. The amount of imagery in the message influenced scores on both Angry and Sad Empathic Rapport and on Angry Empathic Concern but did not affect scores on Sad Concern or on vicarious empathy for either emotion.

6. The direction of this influence depended on the emotion portrayed in the tape. For Angry tapes, imagery increased Rapport and Concern; however for Sad tapes imagery decreased Rapport.

7. The high-imagery drawing condition did not raise scores above those of the high-imagery condition for any of the empathy measures. Furthermore, for Sad Vicarious, the presence of a drawing significantly decreased scores as compared to the high imagery without drawing condition.

8. Men and women did not differ in their response to high versus low imagery tapes, or to the high imagery with drawing versus high imagery alone comparison.

9. Women scored significantly higher than men in four out of six empathy measures: Angry Rapport, Angry Vicarious, Sad Concern, and Sad Rapport. In addition, they scored higher in Absorption, Sociability, Psychotherapy, and Enjoyment of the experiment.

10. Women and men did not differ in their reactions to the emotions as portrayed by the different sexes. For example, women were not different than men in how they responded to hearing an angry woman versus an angry man, or a sad woman versus a sad man. However, all subjects showed more Vicarious Anger for the male performer than the female performer. No other empathy measure varied with the sex of the actor.

In addition to these main findings which will be discussed in greater detail in the next section, the

following results were obtained.

1. Closeness was negatively correlated with Angry Rapport and positively correlated with and predicted Sad Vicarious. Since the Angry tapes involved anger against parents, and the sad tapes involved feelings of sadness and compassion for parents these findings make sense. One would expect a person close to their parents to be less sympathetic toward someone who is very angry towards his or her mother and more sympathetic toward someone showing compassion for his or her parents.

2. Birth Order showed a similar relationship to the content of the tapes: later-borns showed less Angry Rapport than first-borns and only children. This fits the findings of Stotland (1969) who reasoned that later-borns spend more of their time relating to their peers and are less concerned with issues of control and authority than first-borns and only children. In terms of this study, it explains the result that later-borns reported less empathy in reaction to the angry tapes which focus on anger with a controlling parent. By comparison the sad tapes portrayed a person sympathetic with the unhappiness of his or her parents--an attitude which did not distinguish between subjects of different birth order.

3. Persons who had had some psychotherapy were more likely than those who had never had any, to score high in Absorption, and to score high in Angry and Sad Rapport.

This may indicate that psychotherapy is a training

ground for developing a capacity for absorbed attention and empathy for others, or alternatively, that persons already possessing such traits are those most likely to enter therapy.

4. Enjoyment ratings were correlated with subject sex (higher for females); and scores on the CIS, on Sad Rapport, Sad Concern, and Angry Rapport. This seems rather self-explanatory. The CIS occupied the last 18 minutes of the experiment and clearly those who could "get into it" were those most likely to have reported enjoying the experiment shortly after it concluded. Similarly, it seems plausible that those who felt more empathy for the persons portrayed on the tapes would have enjoyed the experiment more. Since women scored higher in empathy than men in four out of six measures, it is not suprising that they reported more enjoyment of the experiment.

## Confirmation and Disconfirmation of Hypotheses

Three major hypotheses were proposed at the conclusion of Chapter 2 as follows:

1. The ability to empathize is correlated with an ability to experience intense imaginative involvements;

2. Females are more likely than males to be empathic, but this gap can be closed with techniques that promote imaginative involvement; and

3. High-imagery narratives accompanied by drawings will evoke more empathy than high-imagery narratives alone,

and both will evoke more empathy than low-imagery narratives.

What can be said about the results summarized above, in relationship to these hypotheses?

The first hypothesis regarding the predicted relationship between imaginative involvement and empathy has been largely confirmed. Three of the six empathy measures were either correlated with or predicted by a measure of imaginative involvement. In addition, as discussed in Chapter 2, both sociability and imaginative involvement were predictors of vicarious empathy for anger.

It was suggested in Chapter 2 that empathic concern lies at one end of an involvement-in-feelings continuum with emotional contagion at the other. The three empathy measures can be ordered along this continuum with Empathic Concern referring to a sympathy for the other's feelings without necessarily experiencing them, Empathic Rapport being more a mixture of some sharing of feelings and also of the other's perspective, and Vicarious Empathy being a measure of actually participating in the other's feelings, without the lack of self-awareness implied in emotional contagion.

Since Empathic Concern is understood as a feeling of compassion without necessarily feeling the other's emotions, one would not expect high imaginatives to display more Empathic Concern than low imaginatives and this is indeed the case. There were no significant

correlations between Angry and Sad Concern and the measures of imaginative involvement.

On the other hand, one would expect Empathic Rapport to correlate with imaginative involvement. The reader should recall that the rapport measure is a sum of how much the listener liked, was involved in, felt similar to, and wanted to meet, the angry or sad performer. The mental state accompanying such rapport must involve both a cognitive appreciation of the other's situation and a sharing in their feelings, but perhaps to a muted degree. One would hope that an ability to imagine into the other's situation would result in Empathic Rapport, as indeed it does. Both rapport measures correlate with both measures of involvement, and in addition, Absorption predicts Angry Rapport.

Finally, Vicarious Empathy which involves actually sharing the other's feelings would surely be expected to correlate with imaginative involvement. The reader will recall that in Chapter 2, it was suggested that those high in imaginative involvement are especially skilled in imaging the other's situation, re-enacting the other's expressive behaviors on a covert level, and thereby self-generating the other's feelings.

However, it was suggested that a high score in imaginative involvement might be only one aspect of predicting vicarious empathy, since high imaginatives may not choose to use their abilities to take on the feelings

of others they encounter. Therefore, it was predicted that those who score high on both imaginative involvement and sociability would be those who were most empathic in a situation involving real people.

At least with respect to vicarious anger, this prediction seems to be supported. The multiple regression shows that both the CIS and Sociability predict Angry Vicarious.

However, this result was not obtained with Sad Vicarious where only Sociability predicted empathy, although there was an insignificant correlation, in the right direction between the CIS and Sad Vicarious.

It is possible that this difference in the role of imaginative involvement for vicarious sadness and anger is a result of a difference in the cultural acceptability of the two emotions. We have already noted that for both Empathic Rapport and Empathic Concern, empathy for sadness was significantly higher than empathy for anger. This same result has been obtained by Feshbach and Roe (1968) for vicarious empathy in children. In this study, while there was not a significant difference in the means for the two emotions for Vicarious Empathy, the difference was in the right direction.

If sadness is, indeed, an emotion more readily experienced than anger, it may have required less imaginative ability to "get into" the sad tapes than the angry tapes. The low imaginatives may have scored higher

in vicarious sadness than they did in vicarious anger. The collapse of the distance in empathy scores between high and low imaginatives for Sad Vicarious would then lead to the observed weakened correlation with imaginative involvement. At the same time, this should raise the mean for Sad Vicarious above that of Angry Vicarious as observed, since high imaginatives would not be expected to differ in their level of vicarious empathy for the two emotions while low imaginatives would have higher scores for Sad Vicarious.

Hypothesis 2 regarding sex differences was, in part, supported by the findings. Women scored higher than men in four out of the six empathy measures. However, there is no indication that the high-imagery condition or the high-imagery with drawing caused a larger shift in empathy for males than females as was predicted.

In previous research, it has been shown that males, when encouraged to imagine themselves into the other's situation, improved in their empathy scores. In this study, an attempt was made to enhance imaginative involvement by changing the imagery content of the message. This may not have been a sufficiently active intervention to encourage males to shift to the more imagery-feeling oriented mode of approaching another's emotions.

Hypothesis 3 regarding the role of drawings and imagery in enhancing empathy received only partial support and results were particularly complicated and puzzling.

First, high imagery did not enhance Vicarious Empathy

for either emotion which is a result which flies in the face of the author's theory of the role of emotional imagery in evoking empathy. Next, imagery did influence empathy for Empathic Rapport and Concern, but it increased empathy scores for the angry tapes, and either showed no change or actually decreased scores for the sad tapes. Finally, the high-imagery drawing condition did not improve empathy scores on any of the measures over the high imagery without drawing condition for either emotion, and Sad Vicarious was actually decreased in the high imagery drawing versus high-imagery condition.

The answer to these strange findings may lie in a more differentiated understanding of the different aspects of imagery which may affect empathy.

In attempting to explain the ineffectiveness of imagery in raising scores on Vicarious Empathy, the author began to wonder if the very familiarity of the situations described in the tapes may have weakened the low-imagery/high imagery distinction. The tapes focused on issues with parents and were, in part, selected because it was assumed that they would be situations with which college students could readily identify. However, this manipulation may have backfired: the situations may have been too familiar.

It may be that while the low-imagery tape did not give a very vivid description of the person's experience, it gave just enough information to trigger the feelings of the

subjects. For example, a person going through a divorce, may only need to hear "we got into a fight at court", to fill in all sorts of intensely emotional personal imagery. Therefore the high and low imagery conditions may have not differed in producing differing amounts of experienced imagery and therefore vicarious feeling.

If this were the case, then the familiarity of the situation being described and therefore the subject's store of personal emotional imagery on that situation would be an important factor to be considered in any future research on the role of imagery in evoking vicarious empathy.

But what about Empathic Concern-Rapport? Why was there an effect attributable to imagery for Sad and Angry Rapport, and Angry Concern if the argument above makes sense?

Here we may have a different issue. Empathic Rapport is not so much a matter of whether the subject feels the other's situation, but if he or she can understand it. One could argue that the high-imagery tapes provided a more developed view than the low-imagery tapes into the speaker's personality, thereby leading subjects to more Empathic Rapport with the individuals portrayed on the high imagery tapes.

However, it did so only for the angry tapes and not for sad tapes. In fact, for Sad Rapport, the high-imagery condition actually resulted in decreased empathy. Once again, we must ask: how can this puzzling finding be

explained?

In poring over the content of the scripts, the author located a difference in the high-imagery angry scripts versus the high-imagery sad scripts which may may provide some explanation.

The high-imagery angry scripts alternate in their content from an image portraying the stimulus for the feeling, and images portraying the feelings and body reactions of the speaker.

Thus, for example, the angry script describes "black teeth which threatened to crunch down on me", "a sneering mouth", a "cold, steel band", alternating with images of body reactions: i.e., "I felt like a furious black dot". By comparison, the high-imagery sad script provides fewer stimulus images, and concentrates primarily on images of body reactions. Thus, images of the mother sitting on the bed, and the father sobbing in a cage are presented, but the majority of the script focuses on such body sensations as "tears cutting a path down my face", "hunched-in" shoulders, etc.

Perhaps to communicate feeling, the images must include the stimulus which provokes that feeling as a kind of justification for feeling. In talking with several friends who are poets, the author learned that there is a well-known principle of the "objective correlative" which poets rely on when seeking to stir feelings. This principle is indeed to describe the stimulus situation with

feeling as opposed to focusing entirely on the subject's body reactions. For example, using this principle one would choose to stir feelings by saying "as I stepped outside", "the street snarled at me", rather than: "...I trembled inside".

If this is indeed an important variable affecting the relationship between the imagery content of the message and empathy, it may explain the observed difference in reactions to the angry and sad tapes. Again, it identifies another variable which would need to be controlled in any future research.

Finally, the unexpected finding that the high imagery drawing condition evoked no more empathy than the high imagery condition alone, and even decreased empathy for Sad Vicarious must be explained. It occurs to the author that since the images were generated from the drawings, the drawings themselves may have been redundant. While they do encode the feelings in color, line, and form, they may have added nothing, above and beyond the descriptions of the drawings. Indeed, subjects in the high-imagery condition were told the colors and lines of the drawing. It may well be that subjects were sufficiently capable of generating the image of the drawing within their minds.

In fact, this raises yet another interesting question regarding the exact way in which imagery stirs empathy. Is the objective image on a piece of paper more or less powerful than the subjective image a person constructs upon

hearing a description of that image? It may be that the second, by virtue of being more personalized, is more powerful. Or, it may depend on the emotion which is being imaged.

Indeed, in this study, drawings decreased empathy for sadness, while not affecting it for anger. It may be that sadness, which is a very inward focused feeling, experienced phenomenologically as a withdrawal from the environment and a sinking-down into oneself, was diminished by requiring the subject to focus outward at a drawing. Perhaps anger, which is often focused strongly on the object of one's upset and which is experienced as a moving outward, is less disrupted by having to maintain an outward focus on a drawing.

## Limitations of the Experiment

There are a number of considerations which limit the generality of this experiment. Since there was only one angry situation and one sad situation, it would be improper to draw conclusions regarding these findings for angry and sad situations in general.

Differences in scripts such as the "objective correlative" principle discussed above which have nothing to do with the emotions portrayed and which are idiosyncratic aspects of the scripts, most probably affected these results. Furthermore, both scripts dealt with one type of situation--feelings for parents--and the

situation most undoubtedly influences the willingness of particular kinds of subjects to empathize with the two emotions. One wonders, for example, how college students would have responded to angry and sad situations involving only peers.

Similarly, since there was only one male and one female performer, one cannot know for certain that the subjects' reactions to the sex of the actor, (actually few findings, except for Vicarious Anger) are not the result of the special characteristics of this particular man and woman.

In addition, since the findings were so different for anger and sadness, it seems likely that the relationship between empathy and imagery, and empathy itself would depend upon the emotion studied. These results cannot be generalized to other emotions. Fear, joy, happiness, jealousy--each may need to be investigated separately.

The experiment is also limited in its generality in that subjects were young college students for the most part. It would be interesting to investigate empathy among senior citizens to see if advanced age affects the different empathy measures. One wonders, for example, if senior citizens would be more or less willing than young adults to participate in another's emotions.

Finally, it is important to remember, that the stimulus materials were audio-tapes, not actual people or even video tapes, and that the persons presented were

actors. While there is evidence that people empathize with audiotapes, we cannot know how reducing the input to audiotape affected empathy until audio is compared with video and actual presentations of the same material. Needless to say, the issue of using actors also raises many questions about the possible variables which may have acted to influence empathy.

## Implications for Future Research

This experiment--replete with puzzling findings and ultimately explaining only a small percent of the variance in the empathy measures--nevertheless opens the way for future interesting research on the different kinds of empathy and their relationship to imagery, imaginative involvement, and sociability.

First, by demonstrating a difference between Empathic Rapport-Concern, and Vicarious Empathy, it opens up the investigation of the relationship between these two types of empathy within different populations and under different circumstances. Many interesting questions can then be posed. Would Vicarious Empathy correlate with Empathic Rapport for high imaginatives who are also highly social but not for low imaginatives? Would it correlate for people trained as psychotherapists versus non-therapists? Would it correlate in a living room setting but not in a classroom setting?

Next, this study begins an important new line of

investigation into the characteristics of the message which evoke empathy. Previous research has focused either on the characteristics of the stimulus person or of the listener, and has neglected the conceptual and objective properties of the message.

While the results of this experiment are puzzling, they suggest that imagery can indeed have an important effect on empathy. However, there is apparently a fine art to the use of imagery to influence feeling, as any poet or novelist has always known. Should one describe the situation in familiar or unfamiliar terms? Should emotions be located in the stimulus object or in images of the person's internal state? Is an objective image more or less powerful than a subjective one? None of these questions have been resolved by this experiment, but at least they have been posed.

Finally, this research brings together two previously disconnected areas of research: hypnotizability and empathy. In so doing, it raises many exciting questions about the mode of information processing which these two capacities might share. If empathy is indeed an altered state, we may learn much from research which investigates how to increase empathy by inducing this state. Would a standard hypnotic relaxation induction enhance empathy? Would lying down and listening to a tape enhance empathy? Would mutual hypnosis enhance empathy?

In the final analysis, this research raises more

questions than it has answered. The original small group experience which inspired this experiment--the art therapy exercise--remains enigmatic. Indeed, it may require years of research to explain that one magical afternoon when small bands of strangers imagined together and drew so close.

# APPENDICES

# APPENDIX 1: EMPATHY MEASURES

# APPENDIX 1: VICARIOUS EMPATHY AND EMPATHIC CONCERN MEASURE

HOW ARE YOU FEELING RIGHT NOW?

| | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|---|
| elated, pleased refreshed | definitely don't feel | moderately don't feel | slightly don't feel | neutral | slightly do feel | moderately do feel | definitely do feel |
| regretful, sad, sorry | definitely don't feel | moderately don't feel | slightly don't feel | neutral | slightly do feel | moderately do feel | definitely do feel |
| warm-hearted, kindly, affectionate | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| egoistic, boastful, self-centered | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| active, energetic, vigorous | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| concentrating, serious, engaged-in-thought | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| angry, defiant, rebellious | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| drowsy, tired, sluggish | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| carefree, playful, witty | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| nonchalant, leisurely | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| clutched-up, jittery, nervous | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| at-rest, quiet, still | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| discouraged, helpless, unhappy | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| alert, clear-minded, aware | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| compassionate, moved, touched | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |

# APPENDIX 2: RAPPORT QUESTIONNAIRE

# APPENDIX 2: RAPPORT QUESTIONNAIRE

Would you also please answer the questions below, regarding your reaction to the person you just heard? As before, the numbers run from -3 to +3 with 0 representing an indifferent or neutral place.

1. How much did you like the person you just heard on the tape?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Neutral | | | Very, very much |

2. How involved did you feel in this person's feelings?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Neutral | | | Very, very involved |

3. How similar to this person do you think you are?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Midpoint | | | Very, very similar |

4. How much would you like to meet this person?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Neutral | | | Very, very much |

# APPENDIX 3: ABSORPTION AND SOCIAL CLOSENESS SCALES

# APPENDIX 3: ABSORPTION AND SOCIAL CLOSENESS SCALES

Please read the question and then quickly circle the answer which seems most appropriate.

| | | | | |
|---|---|---|---|---|
| | 1. | I keep close track of where my money goes. | True | False |
| S | 2. | I usually prefer to spend my leisure time with friends rather than alone. | True | False |
| A | 3. | Sometimes I feel and experience things as I did when I was a child. | True | False |
| | 4. | I often stop in the middle of one activity to start another. | True | False |
| A | 5. | I can be greatly moved by eloquent or poetic language. | True | False |
| | 6. | My feelings are hurt rather easily. | True | False |
| S | 7. | I could be happy living by myself in a cabin in the woods or mountains. | True | False |
| A | 8. | While watching a movie, a T.V. show, or a play, I may become so involved that I forget about myself and my surroundings and experience the story as if it were real and as if I were taking part in it. | True | False |
| | 9. | I see no point in sticking with a problem if there is little chance of success. | True | False |
| S | 10. | When I am unhappy about something, (a) I tend to seek the company of a friend. (b) I prefer to be alone. | a | b |
| A | 11. | If I stare at a picture and then look away from it, I can sometimes "see" an image of the picture, almost as if I were still looking at it. | True | False |
| | 12. | It is easy for me to become enthusiastic about things I am doing. | True | False |
| A | 13. | Sometimes I feel as if my mind could envelop the whole world. | True | False |
| S | 14. | I prefer not to "open up" too much, even to friends. | True | False |
| | 15. | I'm frequently nervous. | True | False |
| A | 16. | I like to watch cloud shapes in the sky. | True | False |
| | 17. | I am very religious(more than most people are). | True | False |
| A | 18. | If I wish I can imagine (or daydream) some things so vividly that they hold my attention as a good movie or story does. | True | False |
| S | 19. | I am a warm person rather than cool and detached. | True | False |
| | 20. | I often prefer to "play things by ear" rather than to plan ahead. | True | False |
| A | 21. | I think I really know what some people mean when they talk about mystical experiences. | True | False |
| S | 22. | I am usually happier when I am alone. | True | False |

| | | | | |
|---|---|---|---|---|
| A | 23. | I sometimes "step outside" my usual self and experience an entirely different state of being. | True | False |
| | 24. | When I get angry I am often ready to hit someone. | True | False |
| A | 25. | Textures--such as wool, sand, wood--sometimes remind me of colors or music. | True | False |
| S | 26. | I prefer working with people to working with things. | True | False |
| A | 27. | Sometimes I experience things as if they were doubly real. | True | False |
| | 28. | My mood frequently goes up and down. | True | False |
| S | 29. | I have few or no close friends. | True | False |
| A | 30. | When I listen to music I can get so caught up in it that I don't notice anything else. | True | False |
| | 31. | I am more likely to be fast and careless than to be slow and plodding. | True | False |
| A | 32. | If I wish I can imagine that my body is so heavy that I could not move it if I wanted to. | True | False |
| S | 33. | I am more of a "loner" than most people. | True | False |
| A | 34. | I can often somehow sense the presence of another person before I actually see or hear her/him. | True | False |
| S | 35. | It is very important to me that some people are concerned about me. | True | False |
| A | 36. | The crackle and flames of a wood fire stimulate my imagination. | True | False |
| | 37. | I like hard work. | True | False |
| A | 38. | It is sometimes possible for me to be completely immersed in nature or in art and to feel as if my whole state of consciousness has somehow been temporarily altered. | True | False |
| S | 39. | Often I go a whole morning without wanting to speak to anyone. | True | False |
| A | 40. | Different colors have distinctive and special meanings for me. | True | False |
| | 41. | I often act on the spur of the moment. | True | False |
| S | 42. | For me one of the most satisfying experiences is the warm feeling of being in a group of good friends. | True | False |
| A | 43. | I am able to wander off into my own thoughts while doing a routine task and actually forget that I am doing the task, and then find a few minutes later that I have completed it. | True | False |
| | 44. | I seldom feel really happy. | True | False |

| | | | | |
|---|---|---|---|---|
| A | 45. | I can sometimes recollect certain past experiences in my life with such clarity and vividness that it is like living them again or almost so. | True | False |
| S | 46. | I prefer to work alone. | True | False |
| A | 47. | Things that might seem meaningless to others often make sense to me. | True | False |
| S | 48. | I would rather live (a) in a friendly suburb, (b) alone in the woods. | a | b |
| A | 49. | While acting in a play I think I could really feel the emotions of the character and "become" her/him for the time being, forgetting both myself and the audience. | True | False |
| | 50. | Most days I have moments of real fun or joy. | True | False |
| A | 51. | My thoughts often don't occur as words but as visual images. | True | False |
| S | 52. | When I have a problem I prefer to work it out alone. | True | False |
| A | 53. | I often take delight in small things (like the five pointed star shape that appears when you cut an apple across the core or the colors in soap bubbles. | True | False |
| | 54. | I would not like to try skydiving. | True | False |
| A | 55. | When listening to powerful music, I sometimes feel as if I am being lifted into the air. | True | False |
| S | 56. | It is easy for me to feel affection for a person. | True | False |
| | 57. | I push myself to the limits. | True | False |
| A | 58. | Sometimes I can change noise into music by the way I listen to it. | True | False |
| S | 59. | I am rather aloof and maintain distance between myself and others. | True | False |
| A | 60. | Some of my most vivid memories are called up by scents and smells. | True | False |
| | 61. | I am a cautious person. | True | False |
| A | 62. | Some music reminds me of pictures or changing color patterns. | True | False |
| S | 63. | I am happiest when I see people most of the time. | True | False |
| A | 64. | I often know what someone is going to say before he or she says it. | True | False |
| S | 65. | I tend to keep my problems to myself. | True | False |
| A | 66. | I often have "physical memories"; for example, after I've been swimming I may still feel as if I'm in the water. | True | False |
| | 67. | For me life is a great adventure. | True | False |
| A | 68. | The sound of a voice can be so fascinating to me that I can just go on listening to it. | True | False |
| S | 69. | I often prefer not to have people around me. | True | False |

| | | | | |
|---|---|---|---|---|
| | 70. | I like the kind of work that requires my close attention. | True | False |
| A | 71. | At times I somehow feel the presence of someone who is not physically there. | True | False |
| S | 72. | Without close relationships with others my life would not be nearly as enjoyable. | True | False |
| A | 73. | Sometimes thoughts and images come to me without the slightest effort on my part. | True | False |
| | 74. | I am too sensitive for my own good. | True | False |
| A | 75. | I find that different odors have different colors. | True | False |
| S | 76. | I could pull up my roots, leave my home, my parents, and my friends, without suffering great regrets. | True | False |
| A | 77. | I can be deeply moved by a sunset. | True | False |

# APPENDIX 4: CREATIVE IMAGINATION SCALE

## APPENDIX 4: CREATIVE IMAGINATION SCALE

1. Arm Heaviness. By letting your thoughts go along with these instructions, you can make your hand and arm feel heavy. Please close your eyes, and place your left arm straight out in front of you at shoulder height with the palm facing up.

Now imagine that a very heavy dictionary is being placed on the palm of your left hand. Let yourself feel the heaviness. Your thoughts make it feel as if there is a heavy dictionary on your hand. You create the feeling of heaviness in your hand by thinking of a large, heavy dictionary. Feel how very heavy your arm begins to feel as you push up on the dictionaries. Push up on the heavy dictionaries as you imagine the weight; notice how your arm feels heavier and heavier as you push up on them. Now tell yourself that a third, big, heavy dictionary is being piled on top of the other two heavy dictionaries in your hand and your arm is very, very heavy. Let yourself feel as if there are three heavy dictionaries on the palm of your hand and your arm is getting heavier and heavier and heavier. Feel your arm getting heavier and heavier and heavier, very, very, very heavy, getting heavier and heavier and heavier...very heavy. [1'20"]

Now tell yourself that your hand and arm feel perfectly normal again and just let your hand and arm come back down and relax.

2. Hand Levitation. By directing your thoughts, you can make your hand feel as if it is rising easily, without effort. Keep your eyes closed, and place your right arm straight out in front of you, at shoulder height with the palm facing down.

Now, picture a garden hose with a strong stream of water pushing against the palm of your right hand, pushing up against the palm of your hand. Think of a strong stream of water pushing your hand up. Let yourself feel the strong stream of water pushing up against the palm of your hand, pushing it up. Feel the force of the water, pushing your hand up. Feel it pushing against the palm of your hand. Tell yourself that the force of the water is very strong and, as you think about it, let your hand begin to rise. Feel your hand rising as you imagine a strong stream of water pushing it up, and up, and up, higher and higher. Tell yourself that a strong stream of water is pushing your hand up and up, raising your arm and hand higher and higher as the strong stream of water just pushes it up, just rises and pushes and just pushes it up, higher and higher. [About 1'10"]

Now tell yourself it's all in your own mind and just let your hand and arm come back down and relax.

3. Finger Anesthesia. By focusing your thinking, you can make your fingers feel numb. Please place your left hand in your lap with the palm facing up. Keep your eyes closed so you can focus fully on all the sensations in the fingers

of your left hand.

Now, try to imagine and feel as if novocaine has just been injected into the side of your left hand next to the little finger so that your little finger will begin to feel like it does when it "falls asleep". Focus on the little finger. Become aware of every sensation and the slight little changes as you think of the novocain slowly beginning to move into your little finger, just slowly moving in. Notice the slight little changes as the little finger begins to get just a little numb and a little dull. The little finger is becoming numb as you think of the novocain moving in slowly.

Now think of the novocain moving into the second finger next to the little finger. Tell yourself that the second finger is getting duller and duller, more and more numb as you think of how the novocain is beginning to take effect.

Tell yourself that these two fingers are beginning to feel kind of rubbery and are losing feelings and sensations. As you think of the novocain moving in faster, the fingers feel duller and duller...more and more numb...dull, numb, and insensitive. As you think of the novocain taking effect, the two fingers feel duller and duller...more and more numb...dull...numb...insensitive. [1'50"]

Now tell yourself it's all in your own mind and you're going to bring the feeling back; bring the feeling back

into the two fingers.

4. Water Hallucination. Keep your eyes closed. By using your imagination constructively, you can experience the feeling of drinking cool, refreshing water.

First, imagine you've been out in the hot sun for hours and you're very, very thirsty and your lips are dry and you're so thirsty. Now, picture yourself on a mountain where the snow is melting, forming a stream of cool, clear water. Imagine yourself dipping a cup into this mountain stream so you can have a cool, refreshing drink of water. As you think of sipping the water, tell yourself it's absolutely delicious as you feel it going down your throat...cold and beautiful and delicious. Feel the coolness and beauty of the water as you take a sip. Now, think of taking another sip of water and feel it going over your lips and tongue, going down your throat, down into your stomach. Feel how cool, refreshing, delicious and beautiful it is as you take another sip...so cool...cold...sweet...beautiful...delicious and refreshing. Think of taking another sip now, and feel the cool water going into your mouth, around your tongue, down your throat and down into your stomach...so beautiful and cool and wonderful...absolutely delicious...absolute pleasure. [1'30"]

5. Olfactory-Gustatory "Hallucination". Keep your eyes closed. By using your imagination creatively, you can

experience the smell and taste of an orange.

Picture yourself picking up an orange, and imagine that you're peeling it. As you create the image of an orange, feel yourself peeling it and let yourself see and feel the orange skin on the outside and the soft white pulp on the inside of the skin. As you continue peeling the orange, notice how beautiful and luscious it is, and let yourself smell it and touch it and feel the juiciness of it. Now think of pulling out one or two of the orange sections with your fingers. Pull out part of the orange, and bite into it. Experience how juicy, luscious and flavorful it is as you imagine taking a deep, deep bite. Let yourself smell and taste the orange, and notice that it's absolutely delicious. Let yourself feel how delicious, beautiful, and luscious it is. Just the most beautiful juicy orange...absolutely juicy and wonderful. Let yourself taste and smell the juicy orange clearly now as you think of taking another large bite of the delicious, juicy orange. [1'30"]

6. Music "Hallucination". Keep your eyes closed. Now, think back to a time when you heard some wonderful, vibrant music; it could have been anywhere, and by thinking back you can hear it even more exquisitely in your own mind. You make it yourself, and you can experience it as intensely as real music. The music can be absolutely powerful...strong...exquisite...vibrating through every

pore of your body...going deep into every pore... penetrating through every fiber of your being. The most beautiful, complete, exquisite, overwhelming music you ever heard. Listen to it now as you create it in your own mind. [about 45"]

7. Temperature "Hallucination". Keep your eyes closed, and place your hands in your lap with the palms facing down and resting comfortably on your lap. By focusing your thinking, you can make your right hand feel hot.

Picture the sun shining on your right hand, and let yourself feel the heat. As you think of the sun shining brightly, let yourself feel the heat increasing. Feel the sun getting hotter, and feel the heat penetrating your skin and going deep into your hand. Think of it getting really hot now...getting very hot. Feel the heat increasing. Think of the sun getting very, very hot as it penetrates into your hand...getting very hot. Tell yourself, "The rays are increasing...the heat is increasing...getting hotter and hotter." Feel the heat penetrating through your skin. Feel the heat going deeper into your skin as you think of the rays of the sun increasing and becoming more and more concentrated...getting hotter and hotter. Feel your hand getting hot from the heat of the sun. It's a good feeling of heat as it penetrates deep into your hand...hot, pleasantly hot, penetrating your hand now. It's a pleasantly hot feeling, pleasantly hot. [About 1'15"]

Now tell yourself it's all in your own mind, and make your hand feel perfectly normal again.

8. Time Distortion. Keep your eyes closed. By controlling your thinking, you can make time seem to slow down.

Tell yourself that there's lots of time, lots of time between each second. Time is stretching out, and there's lots of time...more and more time between each second. Every second is stretching far, far out...stretching out more and more...lots of time. There's so much time...lots of time. Every second is stretching out. There's lots of time between each second...lots of time. You do it yourself, you slow time down. [words stretched out to 1'40"]

9. Age Regression. Keep your eyes closed. By directing your thinking, you can bring back the feelings that you experienced when you were in elementary school--in first, second, third, fourth or fifth grade.

Think of time going back, going back to elementary school, and feel yourself becoming smaller and smaller. Let yourself feel your hands, small and tiny, and your legs and your body, small and tiny. As you go back in time, feel yourself sitting in a big desk. Notice the floor beneath you. Feel the top of the desk. You may feel some marks on the desk top, or maybe it's a smooth, cool surface. There may be a pencil slot and perhaps a large

yellow pencil. Feel the underside of the desk, and you may feel some chewing gum. Observe the other children around you, and the teacher, the bulletin board, the chalkboard, the cloakroom, and the windows. Smell the eraser dust or the paste. You may hear the children and the teacher speaking. Now just observe, and see what happens around you. [1'20"]

Now tell yourself it's all in your own mind, and bring yourself back to the present.

10. Mind-Body Relaxation. Keep your eyes closed. By letting your thoughts go along with these instructions, you can make your mind and body feel very relaxed.

Picture yourself on a beautiful, warm summer day lying under the sun on a beach of an ocean or lake. Feel yourself lying on the soft, soft, sand or on a beach towel that is soft and comfortable. Let yourself feel the sun pleasantly warm and feel the gentle breeze touching your neck and face. Picture the beautiful, clear, blue sky with fluffy, little, white clouds drifting lazily by. Let yourself feel the soothing, penetrating warmth of the sun, and tell yourself that your mind and body feel completely relaxed and perfectly at ease...peaceful, relaxed, comfortable, calm, so at ease, at peace with the universe...completely relaxed...relaxed, peaceful, lazy, tranquil...calm...comfortable. Your mind and body are completely relaxed...calm, peaceful, tranquil, flowing with

the universe. [2'05'']

Now as you open your eyes let yourself continue to feel relaxed and yet perfectly alert...peaceful, alert, and normal again. Open your eyes.

Reprinted with permission, from Wilson, S. C., & Barber, T. X. (1978), The Creative Imagination Scale as a measure of hypnotic responsiveness: Applications to experimental and clinical hypnosis, American Journal of Clinical Hypnosis, 20, 235-249.

# APPENDIX 4: CREATIVE IMAGINATION SCALE SCORING FORM

You have just listened to a tape suggesting certain imaginative experiences. In the questions below you are asked to score these experiences. Please answer each item as honestly as possible. There are no right or wrong answers.

Read the statements below describing the possible responses for each item. Then, circle the number (0, 1, 2, 3, or 4) which corresponds to the statement that most nearly matches your experience.

1. In the first test, you were asked to imagine that one, two, and then three dictionaries were being piled on the palm of your hand. Compared to what you would have experienced if three dictionaries were actually on your hand, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

2. In the second test, you were asked to think of a strong stream of water from a garden hose pushing up against the palm of your hand. Compared to what you would have experienced if a strong stream of water were actually pushing up against your palm, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

3. In the third test, you were asked to imagine that novocain had been injected into your hand, and it made two fingers feel numb. Compared to what you would have experienced if novocain had actually made the two fingers feel numb, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

4. In the fourth test, you were asked to think of drinking a cup of cool mountain water. Compared to what you would have experienced if you were actually drinking cool mountain water, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

Please turn to the next page

5. In the fifth test, you were asked to imagine smelling and tasting an orange. Compared to what you would have experienced if you were actually smelling and tasting an orange, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

6. In the sixth test, you were asked to think back to a time when you heard some wonderful music and to re-experience hearing it. Compared to what you would have experienced if you were actually hearing the music, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

7. In the seventh test, you were asked to picture the sun shining on your hand, making it feel hot. Compared to what you would have experienced if the sun were actually shining on your hand, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

8. In the eighth test, you were asked to imagine time slowing down. Compared to what you would have experienced if time actually slowed down, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

9. In the ninth test, you were asked to think back to a time when you were in elementary school. Compared to the feelings you would have experienced if you were actually in elementary school, the feelings you experienced were:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

10. In the tenth test, you were asked to picture yourself lying under the sun on a beach and becoming very relaxed. Compared to what you would have experienced if you were actually relaxing on a beach, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

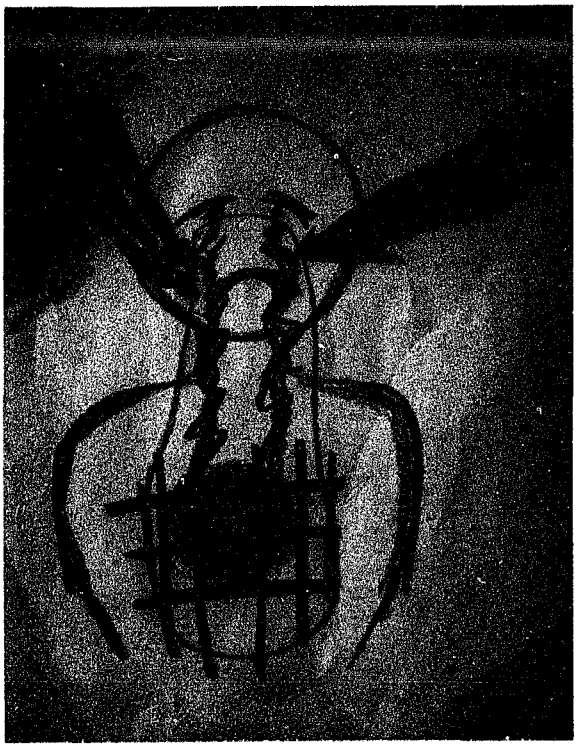
# APPENDIX 5: DRAWINGS

## APPENDIX 5: DRAWINGS

### ANGRY

# APPENDIX 5: DRAWINGS

## SAD



# APPENDIX 6: TAPE TRANSCRIPTS

## APPENDIX 6: TAPE TRANSCRIPTS

### Angry: Low-Imagery

Right now when I think about my mother I feel really angry. Oh God! I guest it's leftover from the last time I saw her. It...it was a few months ago, when she and my stepfather were visiting me. She got upset with me. We had spent several days together and then she suggested that I go out and have some fun with my friends. At first, I said no, in fact I kept <u>having</u> to say no, I wanted to be with them and that they were here and I hadn't seen them for a long time and that I could see my friends another time and all that but she kept insisting, right? And boy, she has a way of sweetly insisting about things, and it did sound kind of nice and actually I needed a break. So finally I <u>did</u> spend a couple of hours having coffee with a friend of mine.

Well, when I got back, she was sitting on the couch and she looked like she had been crying the whole time I was gone and like she was going to start crying again. So I asked her, I said: "Mom are you OK?" And she just shook her head, and didn't say a thing, and then in this real sad voice she said: "It just didn't work out." And I said: "<u>What</u> didn't work out?" I was kind of guessing that she was upset because I went out with my friends which was exactly what she <u>said</u> to do. And here, after I didn't do it for several days cause I kind of felt uneasy about it..here when she..I mean when I <u>do</u> do it, after she

insists over and over that I do it...here she makes this sweeping statement: "It just didn't work out"...like their coming to visit--their whole visit--didn't work out!

I just got so frustrated. I yelled: "How can you say this? How can you encourage me to do something--all so sweetly as if you really wanted me to enjoy myself--and then when I do it, just pull away from me like this?" Well, my stepfather (he was in the room) he just ordered me to calm down and, my mother, she just stayed quiet, very very quiet--she wouldn't say anything. And then a few minutes or seconds later, while my stepfather was still reprimanding me, she just walked out of the room! I couldn't believe it! I mean here we are together, with a chance to really talk things over and she just walks out! I was so angry, I yelled: "Mother, get back in here! We have to talk." but she did not come back, absolutely not.

I wasn't about to go after her and then my stepfather kept getting on my case about how I hurt her and I even started to weaken and feel guilty. Finally, I went to look for her. I thought she had left the house but when I walked out of the living room, I saw her in the bedroom...crying...and her tears (God, it's hard to talk about this, it makes me so furious), her tears just got me going again. And I went in there feeling real angry. I think she'd never seen me that angry before (actually, it was the first time I think I had ever been so angry, I was finally seeing how she tries to keep me under control).

Well, I think she was trying to gain control over me right then, because you know what she said? She actually threatened to leave. I mean leave the city, if I didn't calm down! Well her threatening me like that was the last straw. I said: "How dare you threaten me! Go ahead and leave. I don't give a damn!"

Angry: High-Imagery

I decided to explore the angry feelings that come up in me when I think of my last encounter with my mother. Oh God! During her visit, whe encouraged me to go out with my friends--right?--but got so upset when I did that she threatened to leave. I turned inward to get in touch with my fantasies about it and immediately I saw two khaki-colored bars in the upper corner of my mind's eye. They reminded me of my step-father's stripes. He's a sargent in the army and I always feel like a private in the reviewing line around him. He orders me and reprimands me and I'm supposed to snap to attention.

My mother never speaks to me in that tone of voice and yet there's something about her that's like him. When I thought of her I saw a heart. It had a pretty pink outer layer and I pictured her smiling face and the pretty, flowery, clothes she wears, but there was something about that pink that made me uneasy. It looked puffy and I thought of cotton candy. I always think I'm going to like cotton candy. It seems so pretty and light and airy looking. But whenever I eat it, it gets all over my face and hands and sticks to me, and it's too sweet and it makes me nauseous.

Thinking of the cotton candy, I started to get angry and then I saw my mother sweetly encouraging me to go out and have a good time and then getting all upset and puffy from crying when I did it. <u>She's</u> sticky somehow. It's

like I can't get away from her, she makes me feel so guilty. When I focused my attention back on the pink layer, I was surprised to find that it wasn't very deep, and that I could see this thick blue layer just beneath it. The blue, it's like a cold, steel band--the kind you find around barrels or holding shipping crates together. It's like just underneath this pretty pink layer of her there's this hard, cold, controlling part that holds everything inside and keeps anything she doesn't want out.

I imagined myself slipping my hands under the band and straining to pull it off--pull it apart. But it was too powerful and I felt angry again, it reminded me of when she threatened to leave. In the middle of the band, I saw this black, barbed wire fence. It's like, there's some part of her that's deep inside, that if you got to, and tried to pass over, you'd get jabbed or pierced. It won't reach out and strike you, but just try to get anywhere and you've had it. She makes these cutting little remarks and they really bite into me. I saw black teeth underneath the blue layer representing that feeling and then the heart suddenly looked wrong to me.

I noticed it was kind of misshapen and twisted to one side and actually, didn't look like a heart at all but like a sneering mouth (God, this makes me angry even now!). The mouth threatened to crunch down on me and I felt really trapped, imprisoned like a furious black dot in the center of the heart and I felt my hands pressing down hard on the

table where they were resting, and then this angry heat rose up in the center of me and shot through me. I imagined a red and black spiral exploding out from the center and trying to crash through the blue and black of her. And I had this image of myself pushing out of the center of her body. Half of me made it out, but I could feel my legs and waist were still stuck. It was so frustrating. I felt I really wanted to hit her, and I saw all these black smudges!

I decided I had to explore the angry feelings that come up in me when I think of the last encounter I had with my mother. Oh God! During her last visit, she was encouraging me to go out with my friends--right?--but got so upset when I did that she threatened to leave. When I did this drawing..first, I drew two khaki-colored bars in the upper corner of the page. They reminded me of my stepfather's stripes. He's a sargent in the army, and I always feel like a private in the reviewing line around him. He orders me and reprimands me and I'm supposed to snap to attention.

My mother would never speak to me in that tone of voice and yet there's something about her that's like him. I drew this heart to represent her. It has a pretty pink outer layer and when I drew it I pictured her smiling face and the pretty, flowery clothes she wears, but there was something about that pink that made me feel really uneasy. It looked puffy, and I thought of cotton candy. I always think I'm going to like cotton candy. It seems so pretty and light and airy looking. But whenever I eat it, it gets all over my face and hands and sticks to me, and it's too sweet and it makes me nauseous.

Thinking of the cotton candy, I started to get angry and then I saw my mother sweetly encouraging me to go out and have a good time and then getting all upset and puffy from crying when I did it. I don't know, <u>she's</u> sticky

somehow. It's like I can't get away from her, she makes me feel so guilty. When I was drawing, I was surprised to find that the pink layer wasn't very deep, and that I drew this thick, blue layer just beneath it. This blue, it's like a cold, steel band--the kind you find around barrels or shipping crates that holds them together. It's like just underneath this pretty pink layer of her, there's this hard, cold, controlling part that holds everything inside and keeps anything she doesn't want out.

I imagined myself slipping my hands under the band and straining to pull it off--pull it apart. But it was too powerful and I felt angry again. It reminded me of when she threatened to leave. In the middle of the band, I drew this black, barbed wire fence. It's like, there's some part of her that's deep inside, that if you got to, and tried to pass over, you'd get jabbed or pierced. It won't reach out and strike you, but just try to get anywhere and you've had it! She makes these cutting little remarks that really bite into me. I drew black teeth underneath the blue layer to represent this feeling and suddenly the heart looked wrong to me.

I noticed it was kind of mishappen and twisted to one side and actually didn't even look like a heart at all but like a sneering mouth! (God this makes me angry even now!) The mouth, it threatened to crunch down on me and I felt really trapped, imprisoned in the middle of this heart. I drew this furious black dot in the center, pressing harder

and harder on the paper, and then I grabbed the red and black crayons as this angry heat rose up through the center of me and shot through me and this spiral exploded out from the center and tried to crash through the blue and black of her. As I drew, I had this image of myself pushing out from the center of her body. Half of me made it out, but I could feel my legs and waist still stuck. It was so frustrating. I felt I really wanted to hit her, so I made all these black smudges on the paper.

Sad: Low-Imagery

I've been feeling really sad lately. It's weird feeling like this because everything seems to be going well in my life..and, uhh, it's, it seems different from the rest of how I feel...I can be feeling really good and then all of a sudden it comes over me. I know it happens more when I'm tired, and I guess, it happens when someone else is sad and their feeling gets to me.

Actually, that reminds me of the last time I visited my parents. It was a few months ago. I think this feeling started then. I spent two weeks there, pretty much just being with them and it just overwhelmed me.

I spent the days with mom. She's had a hard life, been drinking for about fifteen years, and recently we lost my older brother in a car accident. She seemed kind of sick to me..no energy. When I'd try to tell her about things in my life--my job, my girlfriend (boyfriend)--things I usually feel good about, it wouldn't work. She just couldn't respond. I knew she wanted to be happy for me, but it was like she had no life to give it. She'd ask a question or two and then fall silent and we'd both just sit there and then she'd bring up some conversation topic like the weather or my aunt's new baby. It was like she was trying to be cheery, but the way she talked, it would just get me down. I knew she was unhappy, but she just wouldn't say anything about it.

Finally, one day, I couldn't take it anymore and I

said: "Mom, what's wrong? What's making you so sad?" She got really quiet and then she just started to cry, without saying anything, anything at all! God it was really painful for me. I felt so helpless. I just didn't know what to say.

And my Dad, he's sad too, but he covers it over with toughness and anger. He comes home real tired (he's been stuck in the same job that he hates for years, works long hours, always worries about money). I'd try to talk to him too, but mostly he'd just say a word or two and then go off to read his newspaper. I tried to reach him. I said something like: "You look really tired Dad." He seemed to take it defensively cause he just snapped back: "What do you know about working! You've had it easy all your life!" Something like that used to get to me but this time, it just added to my feeling of sadness. I felt he was missing out somehow.

I guess they're both missing out. They don't seem to be able to comfort each other at all. They hardly talk. It's like they're both living there...alone...and in pain. I'd struggle to say something positive over dinner, but I couldn't really feel it, and nothing worked. Then they'd just turn on the TV and watch it for the rest of the night.

I spent a lot of time in my room. I guess I felt worst about Mom. She seemed to have a lot of life in her, she was so wonderful. But I don't know where it all went. It started to really get to me and I slipped into feeling

bad about me..like maybe my job wasn't all that hot, and seeing all the things wrong in my relationship. I found myself crying alot and feeling unwilling to go out and meet any of my old friends in the neighborhood. I felt somehow embarassed about myself and my family...like we were all missing out somehow. It was a really painful experience.

Sad: High-Imagery

I decided to explore this feeling that's been haunting me since I visited with my parents a few months ago and felt how unhappy they've become. It's weird, cause generally I'm feeling good about my life, but, then this sadness comes over me and pulls me down.

When I turned inward to get in touch with my fantasies about it, I saw an outline of my body in grey. The color reminded me of old, lifeless, things...like old people, old houses...kind of how their house felt and how I felt in it. At the same time, the outline looked like a child's body. As I looked at it in my mind's eye, I could feel my shoulders and arms being pulled down into myself. I noticed the pushed-in feeling that comes on my face when I feel the sadness. It's like there's this pressure on my cheeks and it pushes them down into my throat and into my chest. The pressure on my face, it's connected with my parents somehow. I remember walking around their house feeling that pressure on me. It's like I couldn't smile...I couldn't turn my face upward.

On one side of my face, I could imagine there were three dark blue arrows--pointed arrows--piercing my cheek. They felt like needles injecting my mother's sadness into me. I saw them coming from a grey-blue mist and felt myself reaching into that mist for my mother. At first no one was there and then the mist cleared and I saw her alone on the corner of a huge bed. She looked at me with big,

wide, pained eyes. She looked hungry, like those babies who slowly starve to death and finally get so weak they can't move. I think of the time I asked her how she was feeling and she just started to cry without saying anything anything at all. It made me feel so helpless. I was just overwhelmed by it.

Then I imagined another arrow--a single powerful arrow--coming into the other side of my face. It felt more like a blow than an injection, but it also brought sadness--my father's feelings--into me. When I looked at the arrow in my mind's eye, I saw my father--a big, round, fisted man--angrily deriding me. But that image faded and then I saw him with his head buried in his arms, inside a cage alone.

Looking at him, I felt like crying, and I imagined tears coming from my eyes, trickling down my face and into my chest...First, blue tears. I could feel them cutting a path down my face, a child's dirty face. And then brown tears, soiled tears like a grey, muddy stream in the wintertime. I could feel the coldness of the water. And then, finally I saw black jagged lines on top of the tears, because the tears felt so sharp and pained.

All these tears, seemed like they were feeding liquid down into my chest, and I saw this yellow-brown morass--a cesspool of mucus--in the center of my chest, being filled with the oozing out of my face from the pressure on my cheeks.

It looked so ugly to me and so embarassing that I wanted to hold it back from other people and I imagined sharp cross bars and vertical bars--like an iron grating--a shield in front of the cesspool so no one could get near this place in me. And then, the last thing I saw was a faint blue line from just below my eyes, down around my cheeks, down around the base of the cesspool. It felt like a membrane, enclosing the sadness in that area of my body. It's like a layer of me, a part of me, but not a part of me too. It's painful to even talk about it.

Sad: High-Imagery with Drawing

I decided I had to explore this feeling that's been haunting me since I visited my parents a few months ago and felt how unhappy they've become. It's weird, cause generally I'm feeling good about my life, but then this sadness comes over me and pulls me down.

First, I drew my body, an outline of it in grey. The color reminded me of old, lifeless things, like old people, old houses--kind of how their house felt and how I felt in it. At the same time, the outline looked like a child's body...As I looked at it I could feel my shoulders and arms being pulled down and into myself. I noticed the pushed-in feeling that comes on my face when I feel this sadness...It's like there's this pressure on my cheeks and it pushes my cheeks down into my throat and down into my chest. The pressure on my face, it's connected with my parents somehow. I remember walking around their house, feeling that pressure on me. It's like I couldn't smile. I couldn't turn my face upward.

On one side of my face, I drew three dark blue pointed arrows--piercing my cheek. They felt like needles, injecting my mother's sadness into me. I saw them coming from a grey-blue mist and felt myself reaching into that mist for my mother. At first there was no one there, and then the mist cleared and I saw her, alone on the corner of a huge bed. She looked at me with big, wide, pained eyes like those babies who slowly starve to death and finally

get so weak they can't move. I think of the time I asked her how she was feeling and she just started to cry without saying anything, anything at all. It made me feel so helpless. I was just overwhelmed by it.

Then I drew another arrow--a single powerful arrow--coming into the other side of my face. It felt more like a blow than an injection, but it also brought sadness--my father's feelings--into me. When I looked at the arrow I saw my father--a big, round, fisted man--angrily deriding me. But that image faded and then I saw him with his head buried in his arms, inside a cage, alone.

Looking at him, I felt like crying, and I drew tears coming from my eyes, trickling down my face and into my chest. First, blue tears. I could feel them cutting a path down my face, a child's dirty face. And then brown tears--soiled tears--like a grey, muddy stream in the wintertime. I could feel the coldness of the water. And then I drew black, jagged lines on top of the tears, because the tears felt so sharp and pained.

All these tears, seemed like they were feeding liquid into my chest, and I drew this yellow-brown morass--a cesspool of mucus--in the center of my chest, being filled with the oozing out of my face from the pressure on my cheeks.

It looked so ugly to me and so embarassing that I wanted to hold it back from other people and so I quickly drew sharp cross bars and vertical bars--like an iron

grating--in front of the cesspool, so no one could get near this place in me. And then, the last thing I drew was this faint blue line from just below my eyes, around my cheeks, down around the base of the cesspool. It felt like a membrane, enclosing the sadness in that area of my body. It's like a layer of me, a part of me, but not a part of me too. It feels painful to even talk about it.

## TAPE ORDERING INSTRUCTIONS

Readers of this document who are interested in an audiotape of the performances of these six scripts by both male and female actors are invited to send a blank cassette tape, 45 minutes on each side to the author at the following address:

Susan Schneier

427 Filbert Street

San Francisco, California 94133

For further information call (415) 398-8207.

# APPENDIX 7: DEMOGRAPHICS QUESTIONNAIRE

# APPENDIX 7: DEMOGRAPHICS QUESTIONNAIRE

Would you please answer the questions below, either by placing a checkmark in the appropriate space or by filling in the information called for? Your answers will be totally anonymous, since this booklet is not marked with your name or any other information which can be used to identify you. Please answer all questions since the information is an important part of the experiment. Thank you.

1. Sex: ____Female, ____Male

2. Age: _____(years)

3. Sexual Orientation: ____Straight, ____Gay, ____Bisexual

4. Relationship Status: ____Single, ____In Relationship
   ____Married, ____Separated, ____Divorced

5. Ethnic Background: ____White, ____Black, ____Oriental,
   ____Hispanic, ____Native American, ____Polynesian,
   _____Other (please specify)

6. How many brothers do you have older than you? _____

7. How many brothers do you have younger than you? _____

8. How many sisters do you have older than you? _____

9. How many sisters do you have younger than you? _____

10. Educational Status at College: ____Just taking courses,
    ____Freshman, ____Sophomore, ____Junior, ____Senior,
    ____Graduate Student

11. What is your major? _____(please specify)

12. Have you ever been in individual or group psychotherapy? ____Yes, ____No

13. If so, for how many months or years? _____Individual, _____Group

# APPENDIX 8: RELATIONSHIP QUESTIONNAIRE

# APPENDIX 8: RELATIONSHIP QUESTIONNAIRE

Would you please answer the questions below? Simply circle the number (0,1,2, or 3) which matches the most appropriate statement. If the question doesn't apply simply circle N/A. Again it is very important that you answer each question. Remember that your answers are completely anonymous. Thanks.

1. When you were a child how emotionally close to your mother were you?

| 0 | 1 | 2 | 3 | N/A |
|---|---|---|---|---|
| Not at all | Slightly | Moderately | Extremely | (mother absent, etc.) |

2. How emotionally close are you to her now?

| 0 | 1 | 2 | 3 | N/A |
|---|---|---|---|---|
| Not at all | Slightly | Moderately | Extremely | (mother absent, etc.) |

3. When you were a child how emotionally close to your father were you?

| 0 | 1 | 2 | 3 | N/A |
|---|---|---|---|---|
| Not at all | Slightly | Moderately | Extremely | (father absent, etc.) |

4. How emotionally close to him are you now?

| 0 | 1 | 2 | 3 | N/A |
|---|---|---|---|---|
| Not at all | Slightly | Moderately | Extremely | (father absent,etc.) |

5. If you are currently either married or in a relationship how close are you to your partner?

| 0 | 1 | 2 | 3 | N/A |
|---|---|---|---|---|
| Not at all | Slightly | Moderately | Extremely | (not married or in relationship.) |

# APPENDIX 9: BOOKLET A

# APPENDIX 9: BOOKLET A

Please write the last four digits of your phone number in the space provided below. This will serve as a code for identifying your test responses while preserving your anonymity. (If you don't have a phone, write the last four numbers of a friend's or family member's phone.)

____ ____ ____ ____

BOOKLET A

Would you please answer the questions below, either by placing a checkmark in the appropriate space or by filling in the information called for? Your answers will be totally anonymous, since this booklet is not marked with your name or any other information which can be used to identify you. Please answer all questions since the information is an important part of the experiment. Thank you.

1. Sex: ____Female, ____Male

2. Age: _____(years)

3. Sexual Orientation: ____Straight, ____Gay, ____Bisexual

4. Relationship Status: ____Single, ____In Relationship

   ____Married, ____Separated, ____Divorced

5. Ethnic Background: ____White, ____Black, ____Oriental,

   ____Hispanic, ____Native American, ____Polynesian,

   _____Other (please specify)

6. How many brothers do you have older than you? _____

7. How many brothers do you have younger than you? _____

8. How many sisters do you have older than you? _____

9. How many sisters do you have younger than you? _____

10. Educational Status at College: ____Just taking courses,

    ____Freshman, ____Sophomore, ____Junior, ____Senior,

    ____Graduate Student

11. What is your major? _____(please specify)

12. Have you ever been in individual or group psychotherapy? ____Yes, ____No

13. If so, for how many months or years? _____Individual, _____Group

INSTRUCTIONS FOR COMPLETING THE MOOD ADJECTIVE CHECKLIST

Each set of adjectives on the checklist on the next page has been found to correspond to how people feel in a particular mood. To fill out the checklist, please read each set and circle the number which indicates how you are feeling at the moment you're reading it.

For example, if the words in a set were "bold, strong, adventurous", you would see the following:

bold, strong, adventurous

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| definitely don't feel that way | moderately don't feel that way | slightly don't feel that way | don't know if feel that way or not (neutral) | slightly do feel that way | moderately do feel that way | definitely do feel that way |

Notice that the minus numbers indicate that you are not feeling that way, the positive numbers indicate that you are feeling that way, and the 0 identifies a kind of neutral mid-point, when you either can't relate to the adjectives at all, or you're really not sure if you are or aren't feeling that way.

So for example:

If you were definitely feeling "bold, strong, adventurous", you would circle the number +3.
If you were moderately feeling that way, you would circle +2.
If you were only slightly feeling that way, you'd circle +1.
If you couldn't tell one way or the other, you'd circle 0.
If you were slightly not feeling that way, you'd circle -1.
If you were moderately not feeling that way, you'd circle -2.
If you were definitely not feeling that way, you'd circle -3.

On the next page is a checklist. Please read each set of adjectives and circle the appropriate numbers. Be sure to mark each set of words. Work rapidly. Your first reaction is best. This should only take a minute or two.

PLEASE TURN NOW TO THE CHECKLIST ON PAGE THREE AND FILL IT OUT!

. HOW ARE YOU FEELING RIGHT NOW?

| | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|---|
| elated, pleased refreshed | definitely don't feel | moderately don't feel | slightly don't feel | neutral | slightly do feel | moderately do feel | definitely do feel |
| regretful, sad, sorry | definitely don't feel | moderately don't feel | slightly don't feel | neutral | slightly do feel | moderately do feel | definitely do feel |
| warm-hearted, kindly, affectionate | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| egoistic, boastful, self-centered | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| active, energetic, vigorous | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| concentrating, serious, engaged-in-thought | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| angry, defiant, rebellious | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| drowsy, tired, sluggish | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| carefree, playful, witty | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| nonchalant, leisurely | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| clutched-up, jittery, nervous | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| at-rest, quiet, still | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| discouraged, helpless, unhappy | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| alert, clear-minded, aware | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| compassionate, moved, touched | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |

Please wait until you have
heard the first tape before
turning to page 4 and filling
out the Mood Adjective Checklist
on that page.

. HOW ARE YOU FEELING RIGHT NOW?

| | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|---|
| elated, pleased refreshed | definitely don't feel | moderately don't feel | slightly don't feel | neutral | slightly do feel | moderately do feel | definitely do feel |
| regretful, sad, sorry | definitely don't feel | moderately don't feel | slightly don't feel | neutral | slightly do feel | moderately do feel | definitely do feel |
| warm-hearted, kindly, affectionate | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| egoistic, boastful, self-centered | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| active, energetic, vigorous | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| concentrating, serious, engaged-in-thought | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| angry, defiant, rebellious | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| drowsy, tired, sluggish | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| carefree, playful, witty | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| nonchalant, leisurely | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| clutched-up, jittery, nervous | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| at-rest, quiet, still | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| discouraged, helpless, unhappy | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| alert, clear-minded, aware | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| compassionate, moved, touched | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |

Would you also please answer the questions below, regarding your reaction to the person you just heard? As before, the numbers run from -3 to +3 with 0 representing an indifferent or neutral place.

1. How much did you like the person you just heard on the tape?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Neutral | | | Very, very much |

2. How involved did you feel in this person's feelings?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Neutral | | | Very, very involved |

3. How similar to this person do you think you are?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Midpoint | | | Very, very similar |

4. How much would you like to meet this person?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Neutral | | | Very, very much |

Please wait until you
have heard the second tape
before filling out the
Mood Adjective Checklist
on page 6.

HOW ARE YOU FEELING RIGHT NOW?

| | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|---|
| elated, pleased refreshed | definitely don't feel | moderately don't feel | slightly don't feel | neutral | slightly do feel | moderately do feel | definitely do feel |
| regretful, sad, sorry | definitely don't feel | moderately don't feel | slightly don't feel | neutral | slightly do feel | moderately do feel | definitely do feel |
| warm-hearted, kindly, affectionate | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| egoistic, boastful, self-centered | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| active, energetic, vigorous | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| concentrating, serious, engaged-in-thought | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| angry, defiant, rebellious | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| drowsy, tired, sluggish | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| carefree, playful, witty | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| nonchalant, leisurely | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| clutched-up, jittery, nervous | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| at-rest, quiet, still | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| discouraged, helpless, unhappy | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| alert, clear-minded, aware | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |
| compassionate, moved, touched | definitely don't feel | moderately | slightly | neutral | slightly | moderately | definitely do feel |

Would you also please answer the questions below, regarding your reaction to the person you just heard? As before, the numbers run from -3 to +3 with 0 representing an indifferent or neutral place.

1. How much did you like the person you just heard on the tape?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Neutral | | | Very, very much |

2. How involved did you feel in this person's feelings?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Neutral | | | Very, very involved |

3. How similar to this person do you think you are?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Midpoint | | | Very, very similar |

4. How much would you like to meet this person?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| Not at all | | | Neutral | | | Very, very much |

# APPENDIX 10: BOOKLET B

# APPENDIX 10: BOOKLET B

Please write the same four digits
below as you wrote on Booklet A.

____ ____ ____ ____

BOOKLET B

(PLEASE DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ASKED TO DO SO)

Would you please answer the questions below? Simply circle the number (0,1,2, or 3) which matches the most appropriate statement. If the question doesn't apply simply circle N/A. Again it is very important that you answer each question. Remember that your answers are completely anonymous. Thanks.

1. When you were a child how emotionally close to your mother were you?

| 0 | 1 | 2 | 3 | N/A |
|---|---|---|---|---|
| Not at all | Slightly | Moderately | Extremely | (mother absent, etc.) |

2. How emotionally close are you to her now?

| 0 | 1 | 2 | 3 | N/A |
|---|---|---|---|---|
| Not at all | Slightly | Moderately | Extremely | (mother absent, etc.) |

3. When you were a child how emotionally close to your father were you?

| 0 | 1 | 2 | 3 | N/A |
|---|---|---|---|---|
| Not at all | Slightly | Moderately | Extremely | (father absent, etc.) |

4. How emotionally close to him are you now?

| 0 | 1 | 2 | 3 | N/A |
|---|---|---|---|---|
| Not at all | Slightly | Moderately | Extremely | (father absent,etc.) |

5. If you are currently either married or in a relationship how close are you to your partner?

| 0 | 1 | 2 | 3 | N/A |
|---|---|---|---|---|
| Not at all | Slightly | Moderately | Extremely | (not married or in relationship.) |

Please read the question and then quickly circle the answer which seems most appropriate.

| | | | |
|---|---|---|---|
| 1. | I keep close track of where my money goes. | True | False |
| 2. | I usually prefer to spend my leisure time with friends rather than alone. | True | False |
| 3. | Sometimes I feel and experience things as I did when I was a child. | True | False |
| 4. | I often stop in the middle of one activity to start another. | True | False |
| 5. | I can be greatly moved by eloquent or poetic language. | True | False |
| 6. | My feelings are hurt rather easily. | True | False |
| 7. | I could be happy living by myself in a cabin in the woods or mountains. | True | False |
| 8. | While watching a movie, a T.V. show, or a play, I may become so involved that I forget about myself and my surroundings and experience the story as if it were real and as if I were taking part in it. | True | False |
| 9. | I see no point in sticking with a problem if there is little chance of success. | True | False |
| 10. | When I am unhappy about something, (a) I tend to seek the company of a friend. (b) I prefer to be alone. | a | b |
| 11. | If I stare at a picture and then look away from it, I can sometimes "see" an image of the picture, almost as if I were still looking at it. | True | False |
| 12. | It is easy for me to become enthusiastic about things I am doing. | True | False |
| 13. | Sometimes I feel as if my mind could envelop the whole world. | True | False |
| 14. | I prefer not to "open up" too much, even to friends. | True | False |
| 15. | I'm frequently nervous. | True | False |
| 16. | I like to watch cloud shapes in the sky. | True | False |
| 17. | I am very religious(more than most people are). | True | False |
| 18. | If I wish I can imagine (or daydream) some things so vividly that they hold my attention as a good movie or story does. | True | False |
| 19. | I am a warm person rather than cool and detached. | True | False |
| 20. | I often prefer to "play things by ear" rather than to plan ahead. | True | False |
| 21. | I think I really know what some people mean when they talk about mystical experiences. | True | False |
| 22. | I am usually happier when I am alone. | True | False |

| | | | |
|---|---|---|---|
| 23. | I sometimes "step outside" my usual self and experience an entirely different state of being. | True | False |
| 24. | When I get angry I am often ready to hit someone. | True | False |
| 25. | Textures--such as wool, sand, wood--sometimes remind me of colors or music. | True | False |
| 26. | I prefer working with people to working with things. | True | False |
| 27. | Sometimes I experience things as if they were doubly real. | True | False |
| 28. | My mood frequently goes up and down. | True | False |
| 29. | I have few or no close friends. | True | False |
| 30. | When I listen to music I can get so caught up in it that I don't notice anything else. | True | False |
| 31. | I am more likely to be fast and careless than to be slow and plodding. | True | False |
| 32. | If I wish I can imagine that my body is so heavy that I could not move it if I wanted to. | True | False |
| 33. | I am more of a "loner" than most people. | True | False |
| 34. | I can often somehow sense the presence of another person before I actually see or hear her/him. | True | False |
| 35. | It is very important to me that some people are concerned about me. | True | False |
| 36. | The crackle and flames of a wood fire stimulate my imagination. | True | False |
| 37. | I like hard work. | True | False |
| 38. | It is sometimes possible for me to be completely immersed in nature or in art and to feel as if my whole state of consciousness has somehow been temporarily altered. | True | False |
| 39. | Often I go a whole morning without wanting to speak to anyone. | True | False |
| 40. | Different colors have distinctive and special meanings for me. | True | False |
| 41. | I often act on the spur of the moment. | True | False |
| 42. | For me one of the most satisfying experiences is the warm feeling of being in a group of good friends. | True | False |
| 43. | I am able to wander off into my own thoughts while doing a routine task and actually forget that I am doing the task, and then find a few minutes later that I have completed it. | True | False |
| 44. | I seldom feel really happy. | True | False |

| | | | |
|---|---|---|---|
| 45. | I can sometimes recollect certain past experiences in my life with such clarity and vividness that it is like living them again or almost so. | True | False |
| 46. | I prefer to work alone. | True | False |
| 47. | Things that might seem meaningless to others often make sense to me. | True | False |
| 48. | I would rather live (a) in a friendly suburb, (b) alone in the woods. | a | b |
| 49. | While acting in a play I think I could really feel the emotions of the character and "become" her/him for the time being, forgetting both myself and the audience. | True | False |
| 50. | Most days I have moments of real fun or joy. | True | False |
| 51. | My thoughts often don't occur as words but as visual images. | True | False |
| 52. | When I have a problem I prefer to work it out alone. | True | False |
| 53. | I often take delight in small things (like the five pointed star shape that appears when you cut an apple across the core or the colors in soap bubbles. | True | False |
| 54. | I would not like to try skydiving. | True | False |
| 55. | When listening to powerful music, I sometimes feel as if I am being lifted into the air. | True | False |
| 56. | It is easy for me to feel affection for a person. | True | False |
| 57. | I push myself to the limits. | True | False |
| 58. | Sometimes I can change noise into music by the way I listen to it. | True | False |
| 59. | I am rather aloof and maintain distance between myself and others. | True | False |
| 60. | Some of my most vivid memories are called up by scents and smells. | True | False |
| 61. | I am a cautious person. | True | False |
| 62. | Some music reminds me of pictures or changing color patterns. | True | False |
| 63. | I am happiest when I see people most of the time. | True | False |
| 64. | I often know what someone is going to say before he or she says it. | True | False |
| 65. | I tend to keep my problems to myself. | True | False |
| 66. | I often have "physical memories"; for example, after I've been swimming I may still feel as if I'm in the water. | True | False |
| 67. | For me life is a great adventure. | True | False |
| 68. | The sound of a voice can be so fascinating to me that I can just go on listening to it. | True | False |
| 69. | I often prefer not to have people around me. | True | False |

| | | | |
|---|---|---|---|
| 70. | I like the kind of work that requires my close attention. | True | False |
| 71. | At times I somehow feel the presence of someone who is not physically there. | True | False |
| 72. | Without close relationships with others my life would not be nearly as enjoyable. | True | False |
| 73. | Sometimes thoughts and images come to me without the slightest effort on my part. | True | False |
| 74. | I am too sensitive for my own good. | True | False |
| 75. | I find that different odors have different colors. | True | False |
| 76. | I could pull up my roots, leave my home, my parents, and my friends, without suffering great regrets. | True | False |
| 77. | I can be deeply moved by a sunset. | True | False |

Please wait until you have heard
the next tape before going on
to the remaining pages in
this booklet.

You have just listened to a tape suggesting certain imaginative experiences. In the questions below you are asked to score these experiences. Please answer each item as honestly as possible. There are no right or wrong answers.

Read the statements below describing the possible responses for each item. Then, circle the number (0, 1, 2, 3, or 4) which corresponds to the statement that most nearly matches your experience.

1. In the first test, you were asked to imagine that one, two, and then three dictionaries were being piled on the palm of your hand. Compared to what you would have experienced if three dictionaries were actually on your hand, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

2. In the second test, you were asked to think of a strong stream of water from a garden hose pushing up against the palm of your hand. Compared to what you would have experienced if a strong stream of water were actually pushing up against your palm, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

3. In the third test, you were asked to imagine that novocain had been injected into your hand, and it made two fingers feel numb. Compared to what you would have experienced if novocain had actually made the two fingers feel numb, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

4. In the fourth test, you were asked to think of drinking a cup of cool mountain water. Compared to what you would have experienced if you were actually drinking cool mountain water, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

Please turn to the next page

5. In the fifth test, you were asked to imagine smelling and tasting an orange. Compared to what you would have experienced if you were actually smelling and tasting an orange, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

6. In the sixth test, you were asked to think back to a time when you heard some wonderful music and to re-experience hearing it. Compared to what you would have experienced if you were actually hearing the music, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

7. In the seventh test, you were asked to picture the sun shining on your hand, making it feel hot. Compared to what you would have experienced if the sun were actually shining on your hand, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

8. In the eighth test, you were asked to imagine time slowing down. Compared to what you would have experienced if time actually slowed down, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

9. In the ninth test, you were asked to think back to a time when you were in elementary school. Compared to the feelings you would have experienced if you were actually in elementary school, the feelings you experienced were:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

10. In the tenth test, you were asked to picture yourself lying under the sun on a beach and becoming very relaxed. Compared to what you would have experienced if you were actually relaxing on a beach, what you experienced was:

| 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 0% | 25% | 50% | 75% | 90+% |
| Not at all the same | A little the same | Between a little and much the same | Much the same | Almost exactly the same |

Thank you very very much for participating in this experiment. I'd like to get your reactions to it . Could you let me know your feelings about it by answering the questions below?

1. How much did you enjoy participating in this experiment?

| -3 | -2 | -1 | 0 | +1 | +2 | +3 |
|---|---|---|---|---|---|---|
| not at all | | | Neutral | | | very, very much |

2. What do you think this experiment was about?

_____

_____

3. What comments, if any, would you like to make about the experience? (Write them in below.)

_____

_____

_____

_____

# APPENDIX 11: SENTIC STATES

## APPENDIX 11: SENTIC STATES

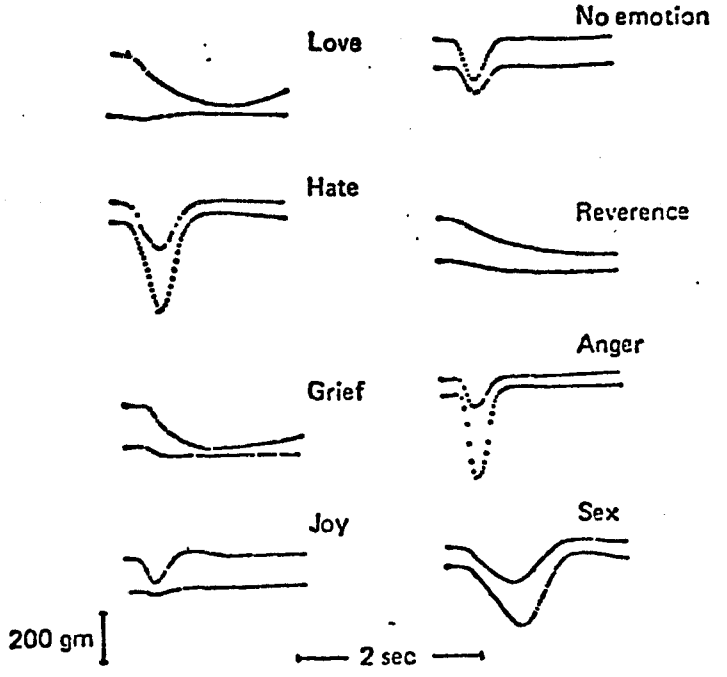
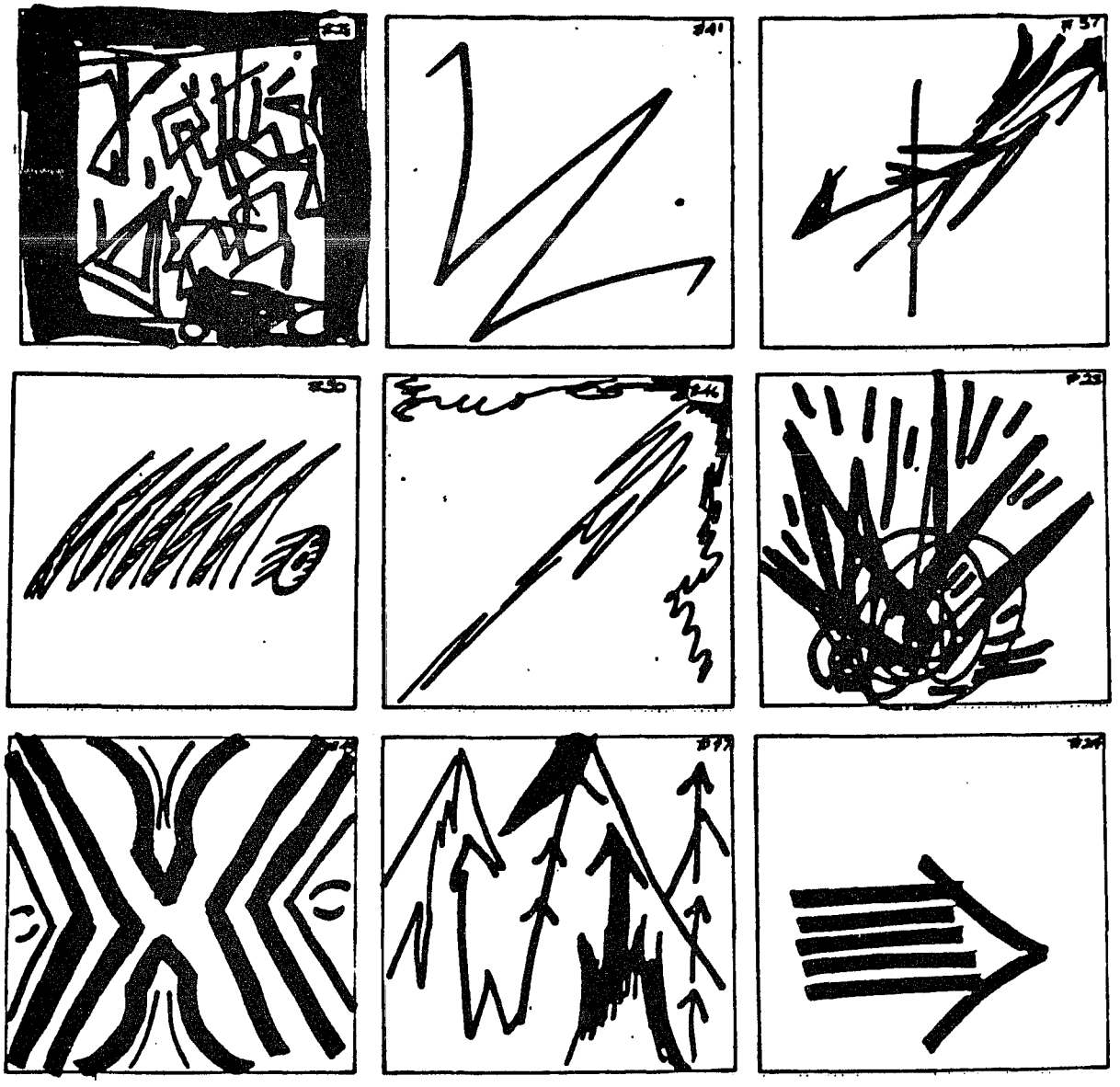



*Figure 4.* Sentograms of the essentic forms of emotions, as measured by the sentograph. The upper trace for each emotion marks the vertical component of transient finger pressure; the lower trace marks the horizontal component (at twice the scale). No emotion is the form of expression recorded when a subject is asked to express mechanically, as if depressing a typewriter key. Each form is measured as the average of fifty actons. The subtle differences in forms (e.g., between Love and Grief) are as significant as the more obvious ones.

# APPENDIX 12: LINE DRAWINGS OF EMOTIONS

APPENDIX 12: LINE DRAWINGS OF EMOTIONAL STATES

"AGGRESSIVE"



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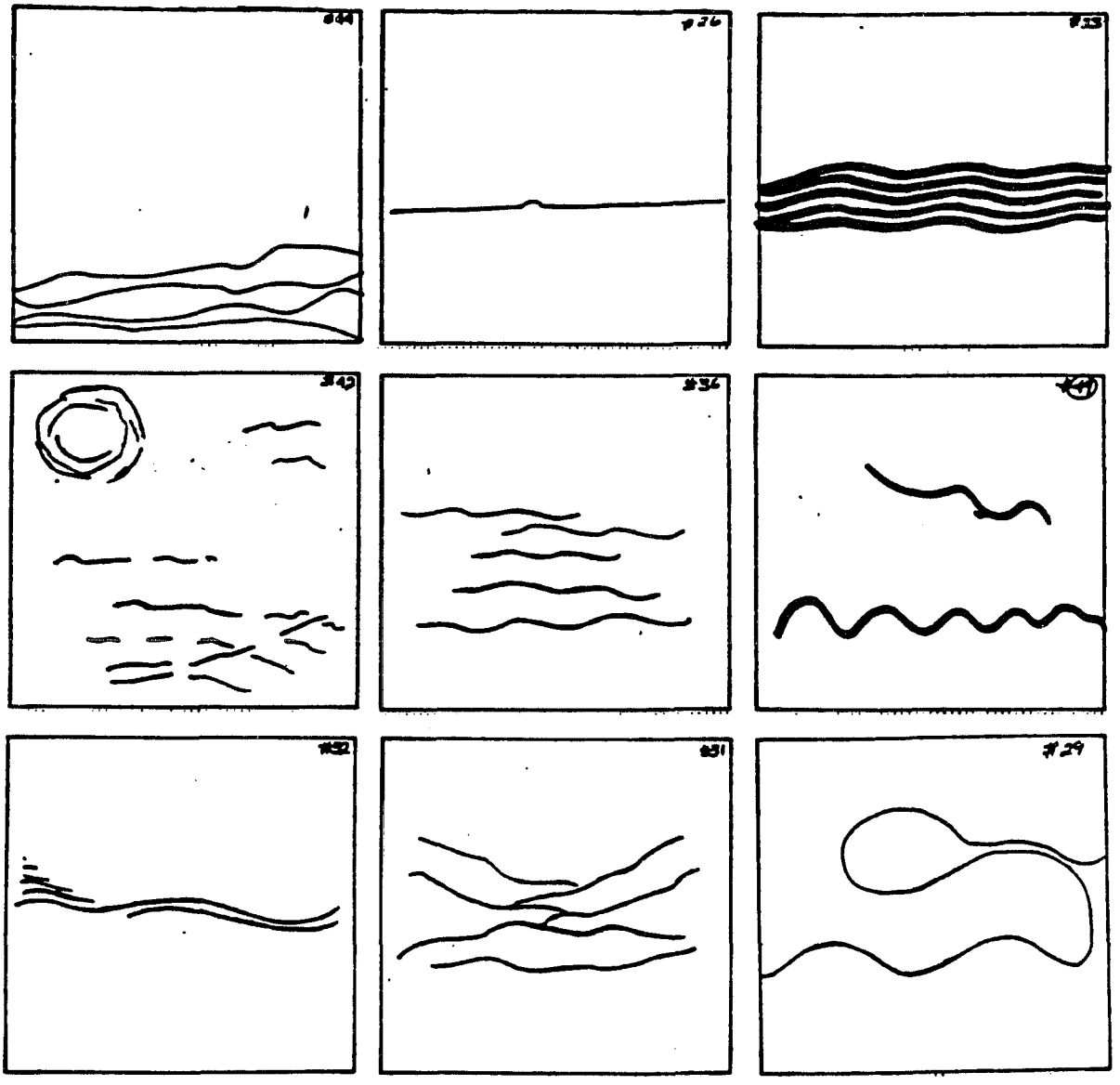
## APPENDIX 12: LINE DRAWINGS OF EMOTIONAL STATES

### "SERENE"



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