1987

Anger as a defense against fear

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ANGER AS A DEFENSE AGAINST FEAR

by

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B.A., University of Montana, 1983

Presented in Partial Fulfillment of the Requirements

for the Degree of

Master of Arts

University of Montana

1986

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March 4, 1987
Date

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789 East Eisenhower Parkway
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4-1-87

Chambers, Duncan A., M.A., December 1986 Psychology

Anger as a Defense Against Fear (96 pp.)

Director: John R. Means JRM

A number of writers (e.g., Rothenberg, 1971; Novaco, 1976a) have suggested that anger may result as a defense against fear. Anger gives the individual a sense of power and control over a situation, whereas fear leaves the individual helpless. This investigation, using guided imagery, attempted to demonstrate this relationship by proposing that anger develops in the following sequence (Ahsen, 1982): 1) experiencing an image results in the production of somatic responses specific to that image; 2) the individual assigns verbal meaning to these responses; 3) if the meaning assigned is "fear," the individual feels no control over the situation and will reinterpret its meaning as "anger" as a defense against the powerlessness of fear.

144 male and female introductory psychology students were used as subjects in four groups. Two groups were exposed to guided images that were either fear-provoking or anger-provoking. They were then asked to generate their own images that matched their somatic responding, giving them the opportunity to reinterpret the meaning of their images. Next, they were asked to assign meanings to these images by rating their emotional content. The other two groups experienced either the guided fear or anger imagery alone.

It was hypothesized that subjects experiencing fear imagery who could reinterpret their somatic responding by self-generating a matching image would rate fear lower and anger higher than subjects experiencing the fear imagery alone, and that this effect would be amplified for subjects who were high in defensiveness (measured by the Marlowe-Crowne Social Desirability Scale; Crowne & Marlowe, 1972). It was also hypothesized that fear imagery subjects self-generating their own image would rate their feelings of control over the situation higher than subjects receiving the fear imagery alone, and that this result would also be amplified for subjects high in defensiveness. It was hypothesized that none of these effects would occur for subjects experiencing anger imagery. Results were analyzed using analysis of variance, and none of the hypotheses were confirmed. Demand characteristics of the experiment and the need for additional time to reinterpret images were discussed as possible reasons for failure to confirm the hypotheses.

ACKNOWLEDGMENTS

Dr. John Means, my thesis chairman, gave generously of his time and ideas to this project. His enthusiasm and creativity helped make it an enjoyable, rewarding experience. Thanks also to Drs. Richard Fritz-Sheridan, David Strobel and Jan Wollersheim for their committee service, enthusiasm for the project and support, and to Dr. James Walsh for making a complicated experimental design understandable and workable.

I am also indebted to Dudley Dana, Liz Kohlstaedt, Bonnie Nussbaum, Dave Rosengren and Joe White for generously giving of their time to help me run my subjects, and especially to my good friend Holly Krueger, who contributed an inordinate amount of time, support and encouragement. Thanks also to Rob Velin for sharing his computer expertise and making my data analysis an easy task.

Special thanks must go to my wife Helena, who suffered through countless rewrites with impossible deadlines, but always produced a flawless product just in time for the next round of changes. Her hard work and patience contributed greatly to the timely completion of this project.

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CHAPTER ONE

INTRODUCTION

> One will rarely err if extreme actions
> be ascribed to vanity, ordinary actions
> to habit, and mean actions to fear.
>
> --Friedrich Wilhelm Nietzsche

The topic of aggression has been popular with behavioral researchers for some time, and with good reason. Rising rates of violent crime and domestic abuse, world-wide acts of terrorist violence, and the ever-present danger of global warfare increasingly threaten the well-being of the individual and even the continued existence of the human race. With all the research that has been conducted on aggression, surprisingly little attention has been paid to the emotion of anger. Novaco (1976a) has stated, "Anger is paradoxically one of the most talked about but least studied of human emotions" (p. 1).

Anger has generally been studied only as part of the broader phenomenon of aggression. Rothenberg (1971), in an extensive literature review, found few articles investigating anger and even fewer of a theoretical nature. He commented, "Almost invariably, anger has not been considered an independent topic worthy of direct investigation but has been subsumed under a general category such as

aggression, emotion, or affect" (p. 86). Averill (1979) similarly reviewed the periodical literature for the years 1958 through 1976 and found only 127 entries in the Psychological Abstracts under the heading of anger. Commenting on the absence of research related to anger, he stated:

> The preoccupation of psychologists with aggression (as opposed to anger) is understandable. The threat (and sometimes actuality) of war, social anarchy, and other Kinds of widespread violence has hung over the present generation like a Damoclean sword. And it is not clear how or where the emotion of anger fits into this pantheon of violence. Yet there are good reasons for not neglecting anger. Historically, perhaps no other emotion has been the subject of more debate and conflicting sentiment. (p. 1)

Although anger is widely assumed to be a component of aggression, few studies have attempted to investigate the precursors of anger. A number of writers in the field have mentioned the often intuitive notion that anger and fear are somehow connected, yet few attempts have been made to investigate this relationship. The present study will attempt to do so. It will briefly review the major theories of aggression as they apply to anger. It will then review the literature on anger and on the relationship between anger and fear. Finally, it will propose a sequential relationship between fear and anger and specific hypotheses to be investigated.

Aggression

Aggression has been defined in a number of ways. Tedeschi, Smith, and Brown (1974) stated that "aggression has been considered an instinct, a drive, a basic energy source, an emotion, an intention to do harm, and a class of behaviors (p. 540).

Freud initially believed that aggression is a part of the individual's instincts for self-preservation and results from the interference with pleasure-seeking or pain-avoiding behavior. Freud (1930/1963) later took the position that aggression is a manifestation of the normally inward-directed death instinct. He saw the death instinct as primarily self-destructive and aggression as a secondary phenomenon that results when the death instinct is directed outward.

Aggressive behavior has been considered by the noted ethologist Konrad Lorenz (1966) to result from a buildup of aggressive drive. Aggressive energy is independently generated by an instinctual system without the need for external stimulation. As this innate aggressive urge inevitably builds, it must periodically be vented so as to avoid reaching explosive proportions.

A similar theory of aggressive drive is contained in the influential frustration-aggression hypothesis (Dollard, Doob, Miller, Mowrer, & Sears, 1939), which has been responsible for a large volume of research on aggression (Buss, 1963). Dollard et al. (1939) defined frustration as "an interference with the occurrence of an instigated goal-response at its proper time in the behavior sequence" (p. 7). They defined aggression as a "sequence of behavior, the goal response

to which is the injury of the person toward whom it is directed" (p. 9). This hydraulic model postulates that frustrating conditions or events cause a buildup of energy or aggressive drive in the organism. The greater the buildup of energy, the more likely it is that the organism will make an aggressive response. Any aggressive response made by the organism drains off excess aggressive energy created by the frustration it has experienced. This draining of excess aggressive drive (also labeled "catharsis") is considered to be self-reinforcing since it reduces the drive state caused by frustration. These instinct and acquired drive theories have little to say about anger, which is assumed to be a manifestation of aggression (Rothenberg, 1971).

Berkowitz (1962) proposed a modified version of the frustration-aggression hypothesis. He introduced two variables, "anger" and "interpretation," that intervene between the frustrating event and the individual's aggressive reaction. He stated that "every frustration increases the instigation to aggression, but this instigation is here termed anger" (p. 45), and proposed that "anger is the primary, inborn reaction to thwarting" (p. 47). Berkowitz believed that aggression is a response to anger that may be innately determined. He also proposed that learning experiences affect the way in which the individual defines frustrating situations and that his interpretation of these events helps determine the nature and intensity of his actions.

Social-learning theory (Bandura, 1973) has further shifted the view of aggression from an instinctual one to that of a learned

behavior that is acquired and maintained in a manner similar to many other forms of social behavior. This theory proposes that aggressive behavior is learned by direct experience or by observation, and that individuals either receive or expect material or social rewards for engaging in aggressive actions. In social-learning theory, aversive events cause a general state of emotional arousal that can elicit a variety of behaviors. Which behavior is manifested depends on the repertoire of responses that the individual has learned, and on his cognitive labeling of the state of arousal he is experiencing. How arousal is labeled depends on cues present in the situation (Hunt, Cole, & Reis, 1958) or the affective modeling of others (S. Schachter & Singer, 1962). The social-learning view of anger is similar to that taken by Berkowitz (1962) in that it regards anger as a variable intervening between the aversive event and the resulting behavior in much the same way that Berkowitz views anger as the "instigation" to aggression.

Most researchers (e.g., Berkowitz, 1962; Dollard et al., 1939; Feshbach, 1964) agree that aggression involves injury to some person or object, but the question of intent has raised difficulties in operationally defining aggression. Feshbach (1964) established a distinction between "unintentional" and "motivated" aggression. Unintentional aggression results in injury but is not contingent on the injuriousness of its consequences as is motivated (or intentional) aggression. He further delineated two types of motivated aggression as 1) "instrumental" aggression which seeks the achievement of

non-aggressive goals, and 2) "hostile" aggression (or aggressive drive) which has as its goal the injury of some person or object (Feshbach, 1971). Berkowitz (1974) similarly defined "instrumental" and "impulsive" components of aggression. Tedeschi et al. (1974) examined the concept of aggression and noted the difficulties caused by introducing the element of intent in strictly behavioral definitions of aggression. They concluded that the term "aggression" is inadequate for describing human behavior and preferred instead a concept of "coercive action" involving elements of threat and punishment.

Many laboratory investigations of aggression have begun with the induction of anger in the subjects (Averill, 1979; Bandura, 1973; Novaco, 1975; Tedeschi et al., 1974), yet the precise nature of the relationship between anger and aggression remains unclear. Aggression is generally regarded by most modern researchers as a behavior that may or may not involve anger (Tedeschi et al., 1974). The point to be made here is that no matter how aggression is defined (a drive, a behavior, or some other concept), little attention has been given to anger, its role in aggression and its precursors.

Anger

Anger has been variously described as a passion (Schimmel, 1979), an emotion (Averill, 1979), a set of physiological responses (Ax, 1953), a combination of physiological arousal and cognitive components (S. Schachter & Singer, 1962), an alerting phenomenon (Rothenberg, 1971), an expressive phenomenon (Feshbach, 1964; Darwin, 1872/1979; Berkowitz, 1974) and a social construction (Averill, 1983).

Schimmel (1979), in an analysis of the writings of the Greek and Roman moral philosophers Aristotle, Seneca and Plutarch, summarized their similar definitions of anger as a "passion aroused in a person when he suffers a slight or an injury or perceives himself to have suffered one, and which directs his actions toward punishment of the real or perceived offender" (p. 322). Schimmel noted that these early philosophers perceived anger to include affective, cognitive and behavioral dimensions.

In a similar review of the historical teachings on anger of Seneca, Lactantius and Aquinas, Averill (1979) noted that all three philosophers agreed that anger was a strictly human emotion involving a judgment that some harm had been done, either due to negligence or a deliberate, unjustified action. Seneca saw anger as primarily harmful and something to be avoided at all costs, while Lactantius and Aquinas believed that anger was often beneficial and necessary for maintaining social order. Lactantius further distinguished two types of anger: just anger, which he saw as reasonable, and unjust anger, which he saw as an attribute of animals. Even these early writings generally define and judge anger in terms of its behavioral consequences.

Modern writers have attempted to more specifically define anger as a separate entity. Novaco (1976a) stated: "The arousal of anger, in an elementary sense, can be viewed as an emotional response to provocation that has identifiable autonomic, . . . central nervous system, . . . and cognitive . . . components" (p. 1124). The subjective experience of anger is familiar to us all. Novaco (1976a) said, "Tight muscles,

grinding teeth, piercing stares, headaches, loud voices, projectiles, and smashed furniture are among the collections in our anger museums" (p. 3).

The physiological components of anger include changes in heart rate, blood pressure, perspiration, skin temperature, muscle tension and overall motoric activity (Ax, 1953; Hokanson & Burgess, 1962; J. Schachter, 1957), and anger has been implicated as a contributing factor to many diseases including hypertension, duodenal ulcers, eczema, asthma and ulcerative colitis (Lewis, 1963; McClelland, 1979; J. Schachter, 1957; Grace & Graham, 1952). The level of physiological arousal has also been found to affect the amount of aggressive behavior (and presumably anger) exhibited by the aroused individual (Konecni, 1975).

S. Schachter and Singer (1962) have proposed that emotional states such as anger "may be considered a function of a state of physiological arousal and of a cognition appropriate to this state of arousal" (p. 398). An individual will label a state of arousal, for which he has no explanation, in terms of available cognitions. The same state of physiological arousal may be labeled as fear, anxiety or anger, depending on the cognitive cues available in the situation. Thus, anger is a combination of a state of physiological arousal and a cognitive label provided by the individual's experience and the specific aspects of the situation. No evaluative labeling will occur if an appropriate explanation of the situation is apparent.

As a result of an extensive survey of the everyday experiencing of anger, Averill (1979) developed a formulation for anger in Western society and defined it by stating:

> Anger is a socially constituted response which helps to regulate interpersonal relations through the threat of retaliation for perceived wrongs, and which is interpreted as a passion rather than as an action so as not to violate the general cultural proscription against deliberately harming another. (p. 71)

Averill assumes that anger cannot be defined without referring to sociocultural factors, and that anger may be specific to a given culture. He found that the stated intent of everyday anger is most often to express displeasure emphatically rather than to do harm, and is designed to make violence unnecessary. Anger involves the cognitive appraisal of a given situation and the judgment that unjustified harm has been done, either deliberately or through negligence. Social norms are used in the judgment of anger to be justified, including norms which prohibit violence and norms which call for retribution in situations involving threat to one's person, property or honor. Anger is subjectively considered a passion in order to mitigate the violation of norms against violence. The influence on anger of social norms and cultural factors, and anger's function as a means of interpersonal communication, have also been emphasized by a number of other researchers (Sullivan, 1956; Holt, 1970; Rothenberg, 1971; Pepitone, 1976).

Rather than simply defining anger, Novaco (1975, 1976a) prefers to analyze its functional effects, noting that anger can have adaptive as well as maladaptive functions. For Novaco, anger has six main functional effects. It energizes behavior and thereby raises the amplitude of responses. As a consequence of this increased arousal, it can also disrupt behavior, interfering with attention and task performance and resulting in impulsivity. It serves an expressive function in that it facilitates communication of negative feelings. This function can result in potentially positive effects by leading to conflict reduction, or in negative effects by escalating conflict situations. Anger serves a defensive function by pre-empting anxiety and energizing an attack response. It can externalize conflict by refocusing internal conflict outward in response to ego threat and can be maladaptive if the protective reaction is not called for by the situation. Anger also serves to instigate aggressive actions, and through appropriate learning, to discriminate events as provocations, thereby signaling the need for coping responses.

The energizing and disruptive functions of anger are well-recognized (Ax, 1953; Feshbach, 1964; S. Schachter & Singer, 1962; Hokanson & Burgess, 1962). In addition, the expressive function of anger has received attention from a number of authors. Darwin (1872/1979) noted the adaptive nature of the expressive as well as the defensive functions of anger in animals and humans as a means of tension discharge and regulation. Feshbach (1964) stated that all emotions have expressive components and most also contain directive

components. He also noted (Feshbach, 1971) that the primary adaptive function of anger is expressive and serves to warn other organisms. Rothenberg (1971) said that "anger is an alerting phenomenon for the individual and for others that provides a basis for communication" (p. 457). Constructive and destructive expressions of anger were considered by Holt (1970), who stressed the maladaptive consequences of not expressing anger.

The defensive function of anger has also been mentioned by a number of writers. Averill (1979) considered anger to be a "conflictive emotion" which is typically instigated by a potentially harmful event. McKellar (1949) stated that anger may be a defensive reaction against a real or imagined threat to the individual's self-esteem or values. Both anger and anxiety were seen by Rothenberg (1971) to result from a state of arousal caused by perceived threat, obstruction or pain. Rothenberg (1971) stated that "since anxiety is more disruptive and more uncomfortable than anger, it seems reasonable to assume that anger is a defense against anxiety or, at the very least, a preferred reaction" (p. 459). Rothenberg also noted, as did Sullivan (1956) and Novaco (1976a), that the arousal of anger serves to give the individual a sense of power and control of the situation which anxiety fails to provide. In discussing the defensive function of anger, Novaco (1976a) stated:

> "Defensive" here refers to ego defense, whereby anger occurs as a not-so-necessary protective reaction to feelings of vulnerability. Anxious feelings of vulnerability are

> short-circuited or pre-empted by the arousal of anger. It is less distressing to be angry than to be anxious. Anger externalizes the conflict by directing attention to something that is nonself: "There is nothing wrong with me; there is something wrong with you." (p. 1125)

Novaco (1976a) also noted that "fear stimuli elicit anger as a defense, but whether this is exclusively the case is unfounded in evidence or theory" (p. 1124).

Anger and Fear

The vague, and often only intuitive, notion that fear and anger are somehow related runs as a nearly continuous thread through the literature on anger (and aggression). Only a few studies have been conducted on the various physiological correlates of anger and fear. Ax (1953) measured the systolic and diastolic blood pressure, blood volume, heart rate, respiration rate, face and hand temperature, skin conductance and muscle tension of subjects who were alternately placed in fear and anger situations. Although differences were found in the average amplitude of these measures, they were not significant. Intercorrelations between the variables for anger were significantly higher than for fear. Ax interpreted this result as indicating greater integration or organization of physiological responses during anger than during fear. He felt that this may represent an adaptive evolutionary function in that successful attack requires greater organization and mobilization of the organism's resources than does flight from a fearful situation. Ax likened the physiological

responses produced by fear to those produced by an injection of epinephrine, while the physiological profile of anger resembled that produced by a combination of epinephrine and norepinephrine.

A study by J. Schachter (1957) produced similar results. Schachter studied the physiological reactions of hypertensives and normotensives who were alternately exposed to situations producing pain, fear and anger, using the same physiological measures as Ax (1953). He found a predominately epinephrine-like effect (a drop in peripheral resistance; a rise in cardiac output, stroke volume, heart rate and systolic blood pressure) in 35 of his 48 subjects in fear situations and a predominately norepinephrine-like effect (a rise in peripheral resistance; a drop in cardiac output, stroke volume and heart rate; a rise in diastolic blood pressure) in 31 of 47 subjects experiencing pain. When exposed to anger-producing situations, 22 subjects exhibited epinephrine-like physiological responses, 19 showed norepinephrine-like responses, and 7 produced mixed effects (these subjects experienced either a small drop in peripheral resistance combined with a small rise in one or two of the cardiac measures and a small rise in systolic blood pressure, or they experienced a small rise in peripheral resistance combined with a moderate-to-marked rise in either cardiac output, stroke volume or heart rate and a small rise in systolic blood pressure). Schachter also had three judges rate and record the intensity of the emotional reactions of his subjects. They were rated on the intensity of emotion as expressed by their verbal and physical behavior during the emotion-producing situation, the degree of

emotional reaction reported by the subjects in post-experiment interviews, and the degree of emotional reaction inferred by the judges based on observation and subject report. These ratings of psychological intensity of emotional reactions tended to be correlated with changes in blood pressure for both fear and anger, whereas cardiovascular responses tended to vary with the psychological intensity of anger but not of fear.

Berkowitz (1962) presented a modified version of the frustration-aggression hypothesis of Dollard et al. (1939) in which he theorized that frustration does not produce aggression directly but instead produces the instigation to aggression, which Berkowitz termed "anger." He suggested that frustrations can produce both anger and fear. As the intensity of the noxious stimulation experienced (or the perceived probability of its occurrence) increases, fear increases more rapidly than anger. However, the dominance of fear over anger is not exclusively dependent upon the amount of harm the individual anticipates or experiences. Fear is predominant over anger in situations in which the frustrating event predicts noxious consequences involving either physical or psychological harm to the individual and when the individual sees himself as being less powerful than the agent of frustration. Berkowitz (1962) said, "The more vulnerable or less powerful he feels, i.e., the less able he is to control the frustrating agent or punish it for the injury he has received, the more fear predominates over anger" (p. 43).

Several writers have acknowledged that anger and/or aggression may involve threats to self-esteem (Feshbach, 1964, 1971; Berkowitz, 1974, 1978; Tedeschi et al., 1974; Novaco, 1975, 1976a; Toch, 1969; Averill, 1983). Feshbach (1971) noted that threats to self-esteem were probably the most important source of anger in humans. These threats diminish the status and power of the individual, who often attempts to reestablish his status and power by attacking the provoking agent. Feshbach saw this need for restoration of status as especially strong in males in Western society.

As noted previously, Novaco (1976a) referred to anger as a protective reaction to anxious feelings of vulnerability. He stated, "The arousal of anxiety is at times undoubtedly associated with the arousal of anger. Fear stimuli elicit anger as a defense, but whether this is exclusively the case is unfounded in evidence or theory" (p. 1124). Novaco (1975) also stated that "a person becomes angry as an effort to take charge or gain control of a situation in which his security is threatened" (p. 7). Rothenberg (1971) also commented on the relationship between anxiety and anger, stating that "both of these phenomena are aspects of a diffuse alerted and aroused state" (p. 458). He saw anger as predominating when the arousal is directed toward escaping the threat. Rothenberg (1971) mentioned a hint from clinical practice that influenced his conclusion about the relationship between anxiety and anger as:

> . . . the well-substantiated two-step therapeutic approach to patient anger: recognition and acceptance of the anger;

> and exploration of the underlying reasons for it. When this second step is undertaken and the roots of anger are adequately explored, another more basic phenomenon almost invariably appears: anxiety. (p. 458)

Rothenberg felt that neither anger nor fear occurred exclusively in any situation and that "anger, especially, is always accompanied by anxiety" (p. 458). He went on to comment:

> Since anxiety is more disruptive and more uncomfortable than anger, it seems reasonable to assume that anger is a defense against anxiety or, at the very least, a preferred reaction. If we direct our attention to the sense of threat, fear, and insecurity when confronted with an irrationally angry person, his rationality usually returns quite rapidly and his anger subsides. (p. 459)

A relationship between anger and fear has also been noted by researchers attempting to apply systematic desensitization (Wolpe, 1958), which was developed primarily as a treatment for fear, to the treatment of anger. Rimm, deGroot, Boord, Heiman, and Dillow (1971) were able to achieve significant reduction in anger as measured by self-report, galvanic skin response and heart rate, using systematic desensitization. They concluded that "one can successfully treat anger using desensitization because anger is typically initiated by fear, and it is the <u>fear</u> response which is being removed so that the self-generation of anger is no longer necessary" (p. 279).

Some limited success in reducing anger using desensitization techniques has been achieved by other researchers (Hearn & Evans, 1972; Evans & Hearn, 1973; O'Donnell & Worell, 1973; Evans, Hearn, & Saklofske, 1973). Warren and McLellarn (1982) stated that "systematic desensitization appears theoretically appropriate as a treatment for maladaptive anger and aggression" (p. 1096) when they arise as a defensive reaction to fear. In their review of the literature on desensitization of anger, Warren and McLellarn expressed "guarded optimism" for its success, and suggested a more comprehensive approach such as that developed by Novaco (1975, 1976a, 1977) which uses systematic desensitization in a cognitive stress inoculation therapy, patterned on the self-instruction technique of Meichenbaum (1977). Novaco (1976b) has shown that although relaxation training alone can decrease self-reported anger, the combination of relaxation training and cognitive self-control training was more effective.

A recent study by Schwartz and Weinberger (1980) assessed the relationship of the emotions of happiness, sadness, anger, fear, depression and anxiety. In the preliminary phase of this study, subjects were asked to give one-sentence statements describing situations that happened to them in the past (or could happen to them in the future) that produced these six emotions. These statements were edited and combined into a pool of 360 items. Another group of subjects was used to validate that the individual items consensually evoke the desired emotions and to rank them in intensity of emotion produced (low, moderate and high). These statements included such

items as "'You see a growling, snarling dog.' (moderate fear)" and "'You are in a theatrical audition' (moderate anxiety)" (p. 179). These items were then randomly assigned to one of four "Emotional Situations Questionnaires" containing 90 statements each. Finally, these questionnaires were administered to 216 undergraduate and graduate students who were asked to read each statement and imagine that the situations described were happening to them. Subjects were asked to rate the amount of happiness, sadness, anger, fear, depression and anxiety they felt on a five-point Likert scale (1 = very little, 3 = moderate, and 5 = very strong) for <u>each</u> statement. Schwartz and Weinberger found, among other things, that ratings of anxiety were significantly higher than ratings of the other negative emotions in happiness situations, and ratings of happiness in anxiety situations were higher than ratings of sadness or anger. In fear situations, ratings of anxiety were statistically equivalent to ratings of fear; however, in anxiety situations ratings of fear were only 60% as high as ratings of anxiety. These findings suggested to Schwartz and Weinberger that fear and anxiety are not identical emotions, but that fear might in actuality be one specific type of anxiety. In addition, ratings of anger in fear situations were greater than ratings of fear in anger situations. Anger was also rated higher in fear situations than in anxiety situations. Schwartz and Weinberger (1980) noted that "some high fear situations produced considerable anger" and stated that "this relation may be consistent with the clinical notion that some individuals tend to become angry to inhibit their fears" (p. 187).

Conclusions from the Literature

This scanty experimental evidence and opinion points (however tenuously) toward the conclusion that anger can result from and may represent a defense against fear. The question of whether fear and anxiety are the same entity remains unresolved except by definition. It seems logical to assume from Schwartz and Weinberger's (1980) results that fear is a form of anxiety that may be focused on a specific stimulus and that the term "anxiety" represents the same emotion in a more diffuse, generalized state. The relationship of anger to fear will be discussed here, but it may be assumed that the same relationship might exist between anger and the generalized, unrecognized fear found in anxiety.

Physiological studies of fear and anger (Ax, 1953; J. Schachter, 1957) point to an epinephrine-like response during fear and a mixed epinephrine and norepinephrine-like response during anger. The latter response was interpreted by Ax (1953) as indicating increased organization and mobilization of the organism's resources during anger. The implication here is that anger responses contain the components of fear responses combined with additional components which enable the organism to regain control of its resources, i.e., an element of control overlaid onto the existing responses to fear.

It must be assumed that fear is an extremely distressing emotion. Whether it be fear of physical harm or loss of self-esteem, it is probably an emotion that the individual cannot tolerate physically or psychologically for very long. Fear implies helplessness and

hopelessness, a lack of control over one's destiny or one's very existence, and anger may be more socially acceptable than fear, especially among males in Western societies (Feshbach, 1971). Anger may serve to externalize the unacceptable internal conflict that results from fear (Novaco, 1975). When put in a fearful situation, an individual will either attempt to escape his distress or relieve that distress by attempting to regain a sense of control over the situation. Many fearful situations in human life simply cannot be escaped, especially threats to self-esteem and position which can occur in interpersonal relationships in almost any setting. When these fear-producing threats occur, the individual must somehow regain control, and this is often accomplished by getting angry (Sullivan, 1956; Rothenberg, 1971; Novaco, 1975, 1976a). Fear apparently predominates when the noxious stimulation is so great that the individual feels powerless to control it, and it subsides as the individual regains control (Berkowitz, 1962). Although anger is also distressing (Averill, 1979, 1983; Doyle & Biaggio, 1981; Raybin, 1971), it is less distressing than fear and is therefore preferred over fear (Rothenberg, 1971; Novaco, 1976a).

Walker (1979) has described a three phase cycle of domestic battering (usually involving the wife as victim and the husband as batterer) which may serve to illustrate how anger operates as a defense against fear. The first phase, the tension-building stage, is marked by escalating verbal and psychological abuse. As anger and tension build, the wife knows from past history that she is powerless to

prevent the escalation to violence; she becomes fearful and withdraws. The second phase involves the violence of the physical battering incident, which usually ends when the batterer is exhausted or the victim is fatally injured or rendered unconscious. This is followed by a brief period of shock and attempts to justify the violence. In the third phase (often called the "hearts and flowers" period), the batterer expresses extreme remorse, often showers the victim with gifts and attempts to reassure the victim that the incident will never be repeated. Most victims who seek outside help or decide to leave the home do so during this third phase that follows the battering incident. This is also the period during which many batterers will admit that they are extremely fearful that the victim will leave (Coleman, 1980; Straus, Gelles, & Steinmetz, 1980; Walker, 1979). As the effects of this third phase diminish, tension builds and the cycle begins to repeat.

The batterer's behavior during this cycle of domestic violence may be explained in terms of the notion that his anger is a defense against fear of being abandoned by his victim. Many batterers develop a strong dependence on their victims as their sole source of affection and social support; these feelings of dependence, combined with low self-esteem and fear of being alone, lead to the batterer's extreme fear of being deserted by his victim (Coleman, 1980; Sonkin, Martin, & Walker, 1985). During the third phase of the cycle, when the victim is most likely to seek help or leave home, the batterer's fear of the victim leaving becomes acute and he feels powerless to prevent it. His

only recourse is to beg or coerce the victim into staying. As time goes on, the batterer realizes that the victim does not intend to leave and his acute fear subsides; fear of the victim's leaving remains but it is less severe. The batterer is now better able to defend against the remaining fear and regains control of the situation by becoming angry. As the tension resulting from this anger builds, the victim again becomes fearful and withdraws, the batterer's fear of her leaving increases, and more anger is required for him to combat this increased fear. As tension and anger escalate, the cycle begins to repeat. The cycle is sometimes broken when the victim threatens to leave or actually does leave after a violent episode and the batterer, in an extreme attempt to regain control, kills the victim (Stuart, 1981).

As previously mentioned, a number of writers (Rothenberg, 1971; Rimm et al., 1971; Warren & McLellarn, 1982; Novaco, 1976a; Schwartz & Weinberger, 1980) have suggested the clinical notion that anger results as a defense against fear. Some support for this notion can be found in the success of Novaco's (1975) anger control treatment and in the limited success of systematic desensitization treatments for anger (Rimm et al., 1971; Hearn & Evans, 1972; O'Donnell & Worell, 1973; Evans et al., 1973). It may be the case that these programs are successful in controlling anger, in part, because they are in actuality reducing or desensitizing the fear that is causing the anger (Rimm et al., 1971; Warren & McLellarn, 1982). In addition, Novaco's (1975) self-instruction techniques may impart a sense of control in the

patient that replaces the sense of control he has previously achieved through anger.

Mental Imagery

The study by Schwartz and Weinberger (1980) relied on mental imagery to involve the subjects emotionally in the situations they rated. Schwartz and Weinberger's (1980) Emotional Situations Questionnaires included 90 situations which were each rated on the amount of six different emotions (happiness, sadness, anger, fear, depression, and anxiety) they evoked in the subjects, followed by an additional 73 true-false questions. The imagery instructions for the questionnaires included the following: "For each of the following statements, imagine that they are happening to you, and rate how you would feel. . . . ." (p. 177). Completing the questionnaires took between 45 minutes and one hour, a task for which the subjects were each paid $2. It is difficult to believe that there was much imaginal or emotional involvement on the part of these subjects since they spent only 30 to 40 seconds on each item (disregarding the amount of time necessary to answer the true-false questions).

Mental images, like perceptions, are private events; neither images nor perceptions are cognitive processes (Horowitz, 1978; Reyher, 1978). According to Reyher (1978), there are two major systems of information processing in human beings. The principles that govern the formation of mental images are found in the analogic-synthetic mode of information processing which synthesizes perception and visual imagery and is inherent in the nervous system. Mental images can be

communicated directly to others only by visual media (drawings, etc.) or with the cognitive mediation of language in the semantic-syntactic mode of information processing which enables us to communicate through the use of spoken and written symbols. Because mental images are neurological events (Bugelski, 1977; Ahsen, 1982) that occur in one mode of information processing, they cannot be exactly translated into another mode that relies on the mediating cognitive process of symbolic language for communication.

Paivio (1972) formulated a Dual Code Model of imagery that similarly incorporates two systems of information processing. He suggested that the two systems operate in parallel fashion, with the imagery system encoding concrete, sensory experience and the verbal system encoding conceptual, abstract representations of the experience. Thus, both systems record parallel representations of the same experience.

In reviewing the psychophysiological studies of imagery, Lang (1979) suggested a connection between emotional imagery and physiological responses similar to those occurring when actual emotional situations are encountered. He noted that different somato-visceral response patterns were formed when differing emotional scenes were imagined, and that there was a positive relationship between the amplitude of these responses and the vividness of the image. In a series of studies investigating these relationships (Lang, Kozak, Miller, Levin, & McLean, 1980), differences in amplitude of somato-visceral responses were attributed to the instructional set

under which the subjects were trained. One group of subjects was trained with imagery scripts which emphasized the stimulus features of the scene. Another group was trained to emphasize the visceral response aspects of the images. Lang et al. (1980) found that only the response-trained subjects produced somato-visceral responses, and did so only when imagining response-oriented scripts. Visceral responding was not evidenced by the response-trained subjects imagining scenes emphasizing stimulus aspects or by the stimulus-trained subjects imagining scenes that emphasized either stimulus or response aspects. These results imply that, for subjects to attain the full emotional involvement in imagery that includes visceral responding, they must be trained to respond to the visceral as well as the stimulus aspects of the image.

More recently, a Triple Code Model of imagery has been developed by Ahsen (1984) which includes the psychophysiological responses associated with imagery and gives a more complete picture of the process by which an image moves from sensation to cognition. The Triple Code Model posits three basic modes that are necessary to explain psychophysiological processes. The image is defined by Ahsen (1984) as "a centrally aroused sensation. It possesses all the attributes of a sensation but it is internal at the same time" (p. 34). Outside events are represented by the image in such a realistic way that we can interact with it internally "as if we were interacting with a real world" (p. 34). Experiencing the image results in a somatic response which is always of a type that is specific to that evoked

image and can include motor neural impulses, sensory experience, and hormonal responses. The somatic responses are followed by the assignment of meaning or significance to the image which is accomplished by the establishment of "connections" that begin at the somatic level. The first meanings are the spontaneous physiological responses that are connected to the image and are confirmed by repetitive exposure to that image. Over time, the complete meaning of the image (and the somatic responses connected to it) is established at the lexical level. In this Triple Code (or ISM) Model, the natural sequencing of events is Image - Somatic response - Meaning (ISM). Disordered functioning can occur when this natural sequence is permanently disrupted. According to Ahsen (1982, 1984), many neurotics employ an MIS sequencing, generating images and their connected somatic responses based on preconceived meanings of reality.

Ahsen's (1982, 1984) Triple Code Model of imagery can be used to explain how the process of transforming fear into anger might occur. Individuals who become angry by this process are probably functioning mentally in a normal ISM sequence. Their only abnormality comes at the point where meaning is attributed to the image. It is at this point that they attribute an erroneous meaning to the image and its connected somatic responses. For example, consider the process as it might occur for a battering spouse. An image is generated, either internal or external in origin, of his wife's deserting him. This image produces extremely distressing somatic responses that are normally given the meaning "fear." This fearful interpretation of the image leaves the

batterer in a helpless situation; it gives him no information as to what action he can take to alleviate his distress, and his only recourse is to leave the situation--which is precisely the event he fears. This fearful existence cannot be tolerated for long, so the batterer reinterprets the image to mean "anger." With this new interpretation of the image, the batterer now has the means to lessen his distress and exert control over the situation by violently expressing his new-found anger. As this process of reinterpreting the image is repeated many times, it becomes more and more automatic and the anger interpretation may actually replace the fear interpretation altogether.

The somatic responses associated with fear and anger are similar (Ax, 1953; J. Schachter, 1957) and individuals may not be able to distinguish the difference between them. Weertz and Roberts (1976) studied the physiological effects of fear-provoking and anger-provoking imagery and found that heart rate and systolic blood pressure increased in relation to the vividness of the images but did not differentiate between the fear and anger contents of the images. However, diastolic blood pressure was found to increase significantly higher during anger imagery than during fear imagery. Similar results were obtained by Schwartz, Weinberger, and Singer (1979) with diastolic blood pressure being the only physiological measure that differentiated anger imagery from fear imagery. The similarity between somatic responding to fear images and to anger images may make the reinterpretation of fear to

anger consonant with the individual's somatic experience. In discussing the difficulties of attempting to isolate and describe pure emotions, Schwartz and Weinberger (1980) stated:

> Possibly only when explicitly defined structural cues within situations . . . can be linked to precisely discriminable and predictable psychophysiological response patterns will we be able to isolate the essence of an emotion both from verbal labeling and from its blending with other emotions. (p. 190)

Experimental Design and Hypotheses

The present study attempted to define and isolate the structural elements involved in the sequential development of the emotion of anger (Schwartz & Weinberger, 1980) by using the Triple Code Model (ISM) of imagery (Ahsen, 1984). It was assumed that the development of anger follows the ISM sequence. In the first step of this sequence, the image is generated, either spontaneously through a cognitive process or as a reaction to the perception of an external event. Experiencing the image results in the spontaneous production of a set of somatic responses specific to that image. These somatic responses are followed by the assignment of meaning or significance to the image. The initial meaning of the image for an infant consists of the spontaneous physiological responses he experiences which are confirmed through repetition (Ahsen, 1982). This is the process by which the infant learns the meanings of images. With the development of the ability to reason and to learn through concepts, the adult assigns additional

verbal meaning to the image. The adult learns to understand the image through the repeated assignment of this more complete meaning to it. The individual learns that, by assigning the meaning "fear" to an image, he has no power to control the situation that produced the image. By reinterpreting the image to mean "anger," he gains an element of control. In this way, anger develops as a defense against the powerlessness of fear. The present study attempted to demonstrate that the development of anger does indeed occur in this sequence.

This experiment was designed to follow, as closely as possible, the ISM sequence. Four groups of subjects were used: two in the experimental condition and two in a validation condition. In the experimental condition, one group of subjects, the fear imagery (FI) group, was exposed to a scene, using guided imagery, that was primarily fear-provoking; the other group of subjects, the anger imagery (AI) group, was exposed in the same manner to a primarily anger-provoking scene. The subjects were free to assign their own meaning to their images, but at no time was there any mention of the words "fear" or "anger" or any suggestion that the subjects should feel afraid or angry. Subjects were guided to involve themselves somatically in the scenes they were imagining (as in Lang et al., 1980). Both groups of subjects were then asked to self-generate, from memory, images that matched their somatic responding. This was done in order to give the subjects the opportunity to reinterpret the meanings of their guided images by switching to new images with different meanings. The subjects then assigned meaning to these self-generated images by rating

the amount of six different emotions they felt (as in Schwartz & Weinberger, 1980).

If anger results from a reinterpretation of an initially assigned "fear" meaning, the ratings of emotion in the FI-experimental group after self-generating their own image should represent less fear and more anger than ratings they would have made of the initial guided fear image. Ideally, it would be desirable to have these subjects rate their emotions after the initial guided imagery and after they self-generate their own image in order to compare the two ratings. Since images decay very rapidly when individuals' attention is directed elsewhere (Richardson, 1983), it was felt that interrupting the imagery by asking the subjects to rate their emotions would cause them to lose their image and accompanying somatic responses, making self-generation of a matching image impossible. To solve this problem, it was decided to employ two additional groups as manipulation checks in order to validate that the initial guided imagery was indeed producing either fear or anger meanings in these subjects. These two groups are henceforth referred to as "validation" groups. In the validation condition, one group of subjects, the fear imagery (FI) group, was exposed to the same guided fear image as the FI-experimental group; the other group of subjects, the anger imagery (AI) group, was guided through the same image as the AI-experimental group. Both groups then assigned meanings to these images by rating the amount of emotion they felt in the same manner as the experimental groups. It was assumed that these ratings made by the validation groups would be equivalent to ratings that would have been made by the experimental groups after the

initial guided imagery, had they been given the opportunity to do so. Therefore, a finding that the FI-experimental group rated fear significantly lower and anger significantly higher than the FI-validation group could be considered a reinterpretation of the meaning of the initial guided imagery by the experimental group.

In this way, the subjects in the experimental condition were exposed to images that were primarily fear-provoking or anger-provoking. They were guided to produce the typical somatic responses to these images and could assign their own meanings to them. They were then given the opportunity to self-generate images that matched their somatic responding and to reinterpret their somatic responding by assigning different meanings to the new images. If anger results as a defense against fear, the images generated by the Fear Imagery Group would tend toward anger.

If this phenomenon does indeed function as a defense mechanism, its effect should be amplified for subjects who have more defensive personalities. In order to further delimit the phenomenon, subjects were identified as being high or low in defensiveness, and the data was analyzed with defensiveness and gender as independent variables. Thus, a 2 x 2 x 2 x 2 x 2 between/within factorial design was employed with condition (experimental or validation), treatment (fear or anger imagery), gender (male or female subjects) and defensiveness (high or low) being the between subjects variables, and ratings of emotional intensity on two levels of within subjects variation (fear and anger) the within subjects variables. Ratings of the other four emotions

(happiness, sadness, depression, anxiety) were not considered since the emotions of interest (fear and anger) were simply embedded within them.

The role of subjects' feelings of control in the defensive functioning of anger (Sullivan, 1956; Rothenberg, 1971; Novaco, 1976a) was also investigated. Subjects in all four groups were asked to rate the amount of control they felt over the situation during their imagery. If anger represents a defensive attempt to gain control over a fearful situation, subjects who reinterpret fear situations to mean "anger" should also show a corresponding increase in felt-control over the situation. Thus, a second (2 x 2 x 2 x 2 factorial) design was employed using the same independent (between subjects) variables as the previous design (condition, treatment, gender and defensiveness), and using rating of control as the dependent variable.

The following hypotheses were made:

1. The major hypothesis of this study was that the FI-experimental group would rate fear significantly lower and anger significantly higher than the FI-validation group. This hypothesis would be confirmed by a significant condition (experimental/validation) x treatment (fear/anger imagery) x rating of emotion (fear and anger) interaction in the first experimental design, with the ordering of points as predicted. Confirmation of this hypothesis would indicate that, by self-generating their own image to match their somatic responding, subjects in the FI-experimental group had assigned new meaning to their somatic responses that was significantly more "angry" and less "fearful" than the meaning they would have asigned to those responses immediately after

experiencing the initial fear image (as represented by the ratings of the FI-validation group). This assignment of new meaning could be interpreted as a tendency to become angry in a fearful situation in order to escape fear.

2. It was hypothesized that the AI-experimental group would not rate fear or anger significantly different from the AI-validation group. This hypothesis would be supported by inspection of the same condition x treatment x rating of emotion interaction in the first experimental design. Support for this hypothesis would indicate that the reassignment of meaning hypothesized for the FI-experimental group did not occur with the AI-experimental group. This lack of assignment of new meaning could be interpreted as a tendency to remain angry in an anger situation, thereby demonstrating the uniqueness of the reassignment made by the FI-experimental group.

3. It was hypothesized that subjects in the FI-experimental group who were high in defensiveness would rate anger significantly higher and fear significantly lower than subjects in the same group who were low in defensiveness. This hypothesis would be confirmed by a significant condition x treatment x defensiveness (high/low) x rating of emotion interaction in the first experimental design, with the ordering of points as predicted. Confirmation of this hypothesis would indicate that high-defensive subjects tend to become more angry in fearful situations than do low-defensive subjects, thereby demonstrating the defensive function of the phenomenon.

4. It was hypothesized that the FI-experimental group would rate their feeling of control over the situation significantly higher than the FI-validation group. This hypothesis would be confirmed by a significant condition x treatment interaction in the second experimental design, with the ordering of points as predicted. Confirmation of this hypothesis would indicate that the reassignment of meaning demonstrated by the FI-experimental group in hypothesis 1 resulted in more felt-control over the situation. This increase in felt-control could be interpreted as a tendency to become angry in a fearful situation in an attempt to gain control over that situation.

5. It was hypothesized that subjects in the FI-experimental group who were high in defensiveness would rate their feeling of control over the situation significantly higher than subjects in the same group who were low in defensiveness. This hypothesis would be confirmed by a significant condition x treatment x defensiveness interaction in the second experimental design, with the ordering of points as predicted. Confirmation of this hypothesis would indicate that high defensive subjects tend to feel more control in angry situations than do low defensive subjects. This increase in felt-control could be interpreted as indicating that the defensive function of the phenomenon represents an attempt to gain control over the fearful situation.

6. No hypothesis was made regarding effects due to gender of subject. This variable was included simply to determine if the effects hypothesized above occurred to the same degree for both sexes.

CHAPTER TWO

METHODS

Subjects

Subjects were 144 introductory psychology students at the University of Montana who volunteered to participate in this study as part of the psychology class requirement. There were 72 males and 72 females, ranging in age from 18 to 42 years. These subjects were recruited through the announcement of an "Emotional Imagery Study" in the introductory psychology class. They were invited to participate in one of 12 sessions of the experiment with different meeting times on three different evenings with four sessions per evening. Nine male and nine female subjects were allowed to sign up for each session. The four sessions for each evening were randomly assigned to one of four groups: fear imagery (FI)-experimental condition, fear imagery (FI)-validation condition, anger imagery (AI)-experimental condition, and anger imagery (AI)-validation condition. Thus, there were three sessions in each group, one on each of three evenings. Of the 216 subjects who signed up for the experiment, 31 failed to attend. Subjects who participated in the study read and signed an Informed Consent Form (see Appendix A) which asked them not to participate if they found it difficult to expose themselves to their own strong feelings or if they were in psychological treatment, receiving medication for psychological reasons, or had ever been hospitalized for a mental or emotional disorder. Of 185 volunteers who read the

Informed Consent Form, four declined to participate in the experiment. One week before the first session, the entire introductory psychology class had attended a pre-screening where they were administered a measure of defensiveness (the Marlow-Crowne Social Desirability Scale). Of the 181 subjects who participated in the study, 14 had not attended the pre-screening, so their data were eliminated. In addition, two subjects did not completely fill out their answer booklets during the experimental session, so their data were also eliminated. Data from 21 additional subjects were randomly eliminated in order to achieve equal sample sizes and equal sex distribution in each of the four groups.

Thus, there were four groups of subjects (FI-experimental, FI-validation, AI-experimental and AI-validation) with 18 males and 18 females in each group. Each of the four groups contained subjects who participated in three different sessions, one on each of three different evenings.

The 18 males in each of the four groups were divided into two subgroups of nine each based on their scores on the Marlow-Crowne Social Desirability Scale (M-C SDS). Those with the nine highest M-C SDS scores were placed in the high-defensive (HD) subgroup, and those with the nine lowest scores were placed in the low-defensive (LD) subgroup. Subjects scoring at the median were randomly assigned to the HD or the LD subgroup. The 18 females in each of the four groups were divided into equal HD and LD subgroups by the same procedure.

Materials

Development of imagery scripts. A preliminary phase of this study involved the development and validation of fear-provoking and

anger-provoking imagery scripts. The first step in this development was to devise brief scenes, with fear and anger contents, to be imagined. The stimulus context of the scene was described along with the appropriate physiological responding of the participant to the situation. Physiological involvement included references to several physiological systems including cardiovascular, respiratory, sweat gland, and skeletal muscle systems.

These scenes were pre-tested as to their primarily fear-provoking or anger-provoking content in five pilot sessions, using as subjects 10 male and 20 female introductory psychology students, who had read and signed the Informed Consent Form (see Appendix A). These subjects were asked to fully involve themselves in the scene and to pay particular attention to the sensations that would be described. After a brief period of relaxation imagery to reduce background physiological levels, the guided imagery of the scene was administered. Immediately following imagery of the scene, the subjects were asked to open their eyes and rate the amount of emotion they felt during the scene on an "Emotion Survey" (see Appendices B and C). These surveys asked the subjects to rate the amount of six different emotions (happiness, sadness, fear, anger, depression, and anxiety) they felt during the imagery on a five-point scale, with 1 defined as "no emotion," 3 defined as "moderate emotion," and 5 defined as "the strongest emotion I can imagine." Two forms of the Emotion Survey were used: on Form 1 (see Appendix B) the rating for fear preceded the rating for anger, and on Form 2 (see Appendix C) the rating for anger preceded the rating for fear. Equal numbers of Forms 1 and 2 were randomly distributed to

counterbalance the order of presentation of the fear and anger ratings. The scenes were revised and adjusted for length and intensity so that ratings of the primary emotions (fear in fear scenes and anger in anger scenes) were roughly equivalent and so that ratings of the secondary emotions (anger in fear scenes and fear in anger scenes) were also similar.

Four imagery scripts were developed using these fear-provoking and anger-provoking scenes. All four scripts began by using identical relaxation imagery to reduce background physiological level and physiological variability between subjects. Next, the fear-provoking or anger-provoking scenes were presented. Both the FI-experimental script (see Appendix D) and the FI-validation script (see Appendix E) contained the same fear scene; both the AI-experimental script (see Appendix F) and the AI-validation script (see Appendix G) contained the same anger scene. After presentation of the fear or anger scenes, the FI-validation and AI-validation scripts instructed the subjects to open their eyes and answer the questions in their answer booklets. The FI-experimental and AI-experimental scripts continued the imagery by instructing the subjects to recall a time in their lives when they had the same somatic sensations they were currently experiencing. They were instructed to relive those experiences they had recalled and their somatic involvement was enhanced through additional imagery. At this point, the subjects were instructed to open their eyes and answer the questions in their answer booklets. When subjects had completed their answers, the scripts continued with a relaxation and elation procedure

designed to return the subjects to the mood in which they had begun the experiment. It is important to note that at no time was there any mention of the words "fear" or "anger" or any suggestions that the subjects should feel afraid or angry.

Additional materials. An "Emotional Experience Questionnaire" was used to record the subjects' responses to imagery in all four groups. This questionnaire asked the subjects to rate the amount of six emotions (happiness, sadness, fear, anger, depression, and anxiety) they felt while imagining their last scene on a five-point scale with 1 defined as "no emotion," 3 defined as "moderate emotion" and 5 defined as "the strongest emotion I can imagine." Two forms of this questionnaire were used; on Form 1 (see Appendix H) the rating for fear preceded the rating for anger, and on Form 2 (see Appendix I) the rating for anger preceded the rating for fear. The questionnaire also asked the subjects to rate the amount of control they felt over their last scene on a five-point scale with 1 defined as "no control," 3 defined as "moderate control," and 5 defined as "in complete control." Additional questions assessed the self-reported amount of imaginal and somatic involvement in the scene. Subjects in the FI-experimental and AI-experimental groups had a second page to their questionnaires (see Appendix J) which asked them to describe in detail the self-generated scene that they had imagined and to describe the somatic responses they experienced while imagining the scene.

The Marlowe-Crowne Social Desirability Scale (M-C SDS; Crowne & Marlowe, 1972; see Appendix K) was administered to the subjects at the

pre-screening as a measure of defensiveness. This scale consists of 33 true-false statements which, when answered in the social desirability direction, indicate a tendency to depict oneself in naively favorable terms. Crowne and Marlowe (1972) found significant positive correlations between the M-C SDS and the K scale (r = .40) and L scale (r = .54) on the Minnesota Multiphasic Personality Inventory (MMPI). Elevated scores on these scales are generally interpreted as an indication of defensiveness and an attempt by the individual to present himself in a favorable light (Lachar, 1974; Caldwell & O'Hare, 1975; Greene, 1980). Crowne and Marlowe (1972) define social desirability as "the need of Ss to obtain approval by responding in a culturally appropriate and acceptable manner" (p. 251). In a series of studies, Crowne and Marlowe (1964) found that approval-dependent persons (identified by high scores on the M-C SDS) tend to be less liked by peers who know them well and are seen by these peers as defensive. In addition, more approval-dependent patients in psychotherapy tend to terminate earlier than less approval-dependent patients and are characterized by their therapists as more defensive. Crowne and Marlowe (1964) stated, "The conformity of approval-dependent persons appears to represent avoidant, self-protective behavior in anticipation of social rejection and threat to self-esteem" (p. 165). The M-C SDS has an internal consistency coefficient of .88 and a test-retest correlation of .89 (Crowne & Marlowe, 1972), and normative data are available for a number of different populations. Females consistently score slightly higher than males on the M-C SDS (Crowne & Marlowe, 1964).

The materials to be completed by the subjects were assembled into booklets prior to the experiment. These booklets consisted of (in order of presentation) a cover sheet (see Appendix L), either Form 1 (see Appendix H) or Form 2 (see Appendix I) of the "Emotional Experience Questionnaire," followed by page 2 of this questionnaire (see Appendix J) for subjects in the experimental groups only. Equal numbers of booklets with Form 1 and Form 2 of the Emotional Experience Questionnaire were used in each experimental session to counterbalance the order of presentation of the fear and anger ratings.

Procedure

Subjects had been pre-screened at least one week earlier using the M-C SDS (see Appendix K). All 12 sessions of the experiment proper were conducted in the following manner. When all subjects had arrived and were seated, the experimenter handed out the Informed Consent Forms (Appendix A) and asked the subjects to read and sign them. When they had done so, the experimenter collected these forms. Next, the experimenter read aloud to the subjects a brief description of the experiment (see Appendix M). The experimenter then handed out the answer booklets and asked the subjects to fill in the information requested on the cover sheet. When all subjects had completed this task, the experimenter began the imagery, reading from the appropriate imagery script. On completion of the imagery script, the experimenter collected the answer booklets, gave the subjects their experimental credit slips, invited them to sign up so that they could receive a copy of the results of the experiment, and excused them.

CHAPTER THREE

RESULTS

Comparison of defensiveness subgroups

The mean M-C SDS scores for all subgroups are presented in Table 1. The mean M-C SDS score for all male subjects was 14.31; the mean for all females was 14.22.

Table 1

Mean scores on the M-C SDS for HD and LD males and females.

	Groups				
	FI	AI	FI	AI	Overall
Subjects:	Experimental	Experimental	Validation	Validation	(all groups)
HD males	17.78	18.56	19.22	17.00	18.14
LD males	10.22	10.89	12.00	8.78	10.47
HD females	15.56	16.33	20.00	20.89	18.19
LD females	6.78	10.11	12.22	11.89	10.25

Four one way analyses of variance (ANOVA) were performed on these subgroups--one on the four subgroups of HD males, one on the four subgroups of LD males, one on the four subgroups of HD females, and one

on the four subgroups of LD females--to ascertain whether or not the subgroups were significantly different in defensiveness, as measured by the M-C SDS. No significant differences were found between the HD males or between the LD males. Significant differences were found between the HD females [F (3,32) = 4.92, $p < .01$] and between the LD females [F (3,32) = 10.12, $p < .01$]. Examination of Table 1 reveals that the mean M-C SDS scores for the HD females in both validation groups were much higher than the mean scores for the HD females in both experimental groups. In addition, the mean M-C SDS score for the LD females in the FI-experimental group was much lower than the mean scores for LD females in the other three groups. A Newman-Keuls post-hoc comparison showed these differences to be significant ($p < .05$).

Analysis of ratings of emotion

A 2 x 2 x 2 x 2 (between subjects) x 2 (within subjects) split-plot analysis of variance (ANOVA) was employed for analyzing subjects' ratings of fear and anger. The between subjects factors were 1) condition: experimental or validation; 2) treatment: fear imagery (FI) or anger imagery (AI); 3) gender: male or female subjects; and 4) defensiveness: high defensive (HD) or low defensive (LD) subjects. The within subjects factor was the rating of emotion on two levels: fear and anger.

The significant condition x treatment x rating of emotion interaction necessary to confirm Hypothesis 1 (the major hypothesis) and Hypothesis 2 was not found. Examination of Figure 1 reveals that, in both the FI and AI treatment groups, subjects in the experimental

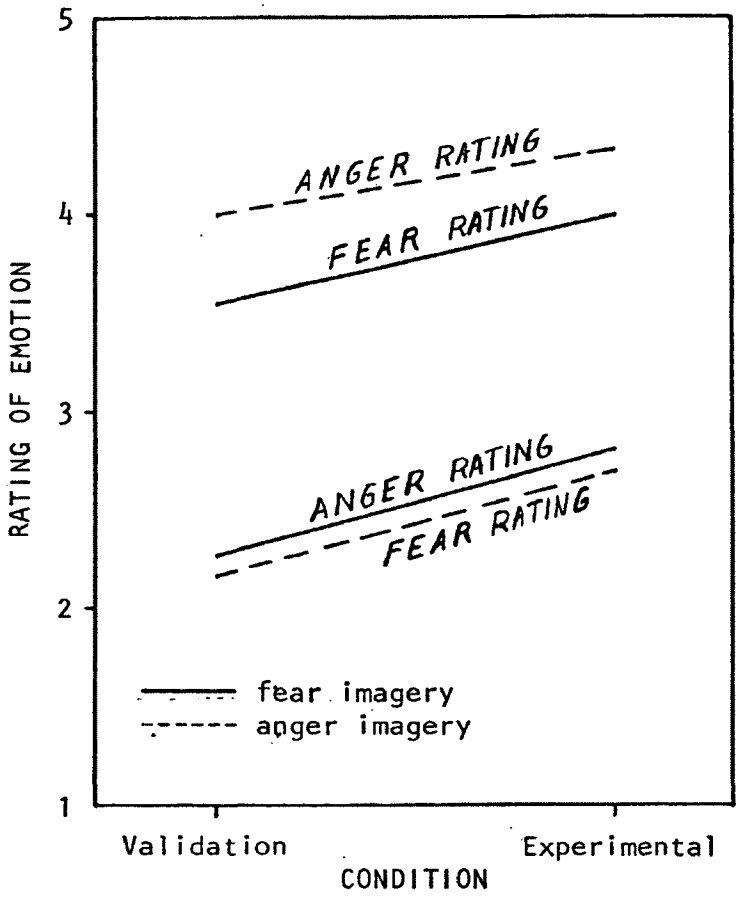

Figure 1. Interaction effect between experimental condition, imagery treatment and mean ratings of emotion.

condition rated both fear and anger higher than did subjects in the validation condition. The significant condition x treatment x defensiveness x rating of emotion interaction necessary to confirm Hypothesis 3 was also not found.

The mean rating of emotion (fear and anger combined) for subjects in the experimental condition was 3.48; the mean rating of emotion for subjects in the validation condition was 3.01. A significant main effect for condition [F (1,128) = 8.08, $p < .01$] was found. In addition, the mean rating of fear for all subjects was 3.11, while the mean rating of anger for all subjects was 3.38. A significant main effect for rating of emotion [F (1,128) = 4.17, $p < .05$] was also found.

A significant treatment x rating of emotion interaction [F (1,128) = 131.46, $p < .01$] was found. Examination of Figure 2 reveals that, when the results of experimental and validation groups are combined, mean fear ratings were high in the FI groups and low in the AI groups, and that mean anger ratings were high in the AI groups and low in the FI groups. A Newman-Keuls post-hoc comparison revealed that the mean rating of fear was significantly higher than the mean rating of anger in the FI groups, and that the mean rating of anger was significantly higher than the mean rating of fear in the AI groups ($p < .01$). The mean rating of fear in the FI groups was not significantly different from the mean rating of anger in the AI groups, and the mean rating of anger in the FI groups was not significantly different from the mean rating of fear in the AI groups.

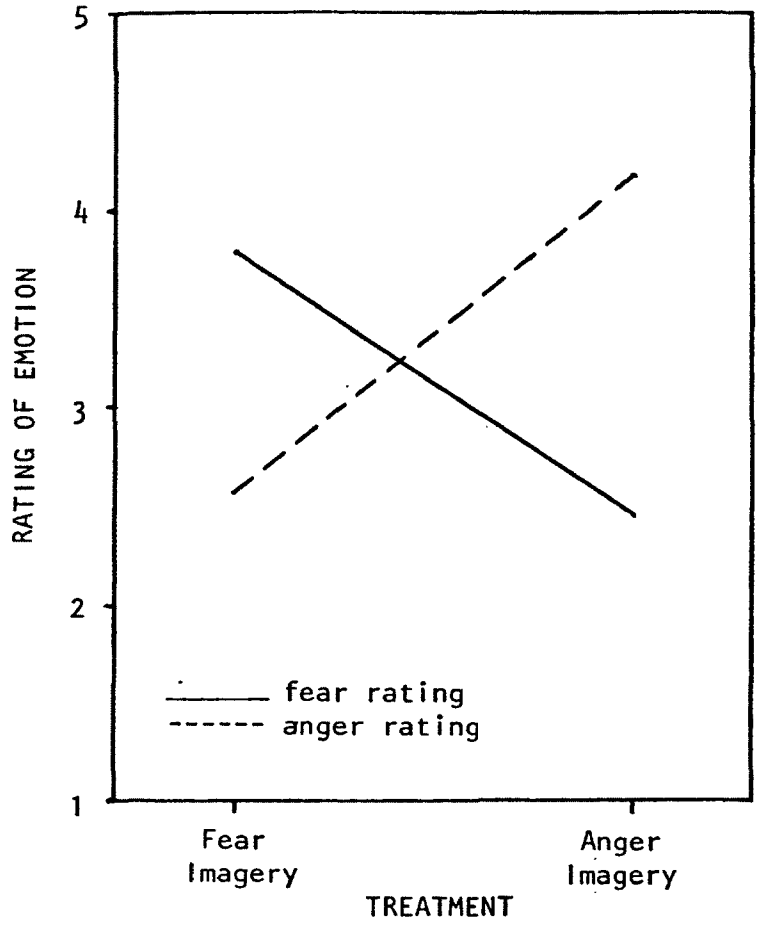

Figure 2. Interaction effect between imagery treatment and mean ratings of emotion.

A significant condition x treatment x gender x defensiveness interaction [F (1,128) = 4.09, $p < .05$] was found. Examination of Figure 3 reveals that HD and LD males and females in both the FI and AI treatment groups rated higher overall emotional intensity (fear and anger combined) in the experimental condition than did comparable subjects in the validation condition, with one exception: HD males in the AI treatment group rated less overall emotional intensity in the experimental condition than did comparable subjects in the validation condition. However, a Newman-Keuls post-hoc comparison did not reveal significant differences between any of the means. No other significant main effects or interactions were found in this analysis.

Analysis of ratings of control

A 2 x 2 x 2 x 2 factorial analysis of variance (ANOVA) was employed for analyzing subjects' ratings of their feelings of control over the imagery situations. The four factors were 1) condition: experimental or validation; 2) treatment: fear imagery (FI) or anger imagery (AI); 3) gender: male or female subjects; and 4) defensiveness: high defensive (HD) or low defensive (LD) subjects. The dependent measure was the subjects' rating of control over the situation.

The significant condition x treatment interaction necessary to confirm Hypothesis 4 [F (1,128) = 4.72, $p < .05$] was found. However, examination of Figure 4 reveals that the FI subjects in the validation condition rated their feelings of control higher than did the FI-experimental subjects. This ordering of points is the reverse of that predicted by Hypothesis 4; therefore, Hypothesis 4 was not confirmed. A Newman-Keuls post-hoc comparison revealed that the mean

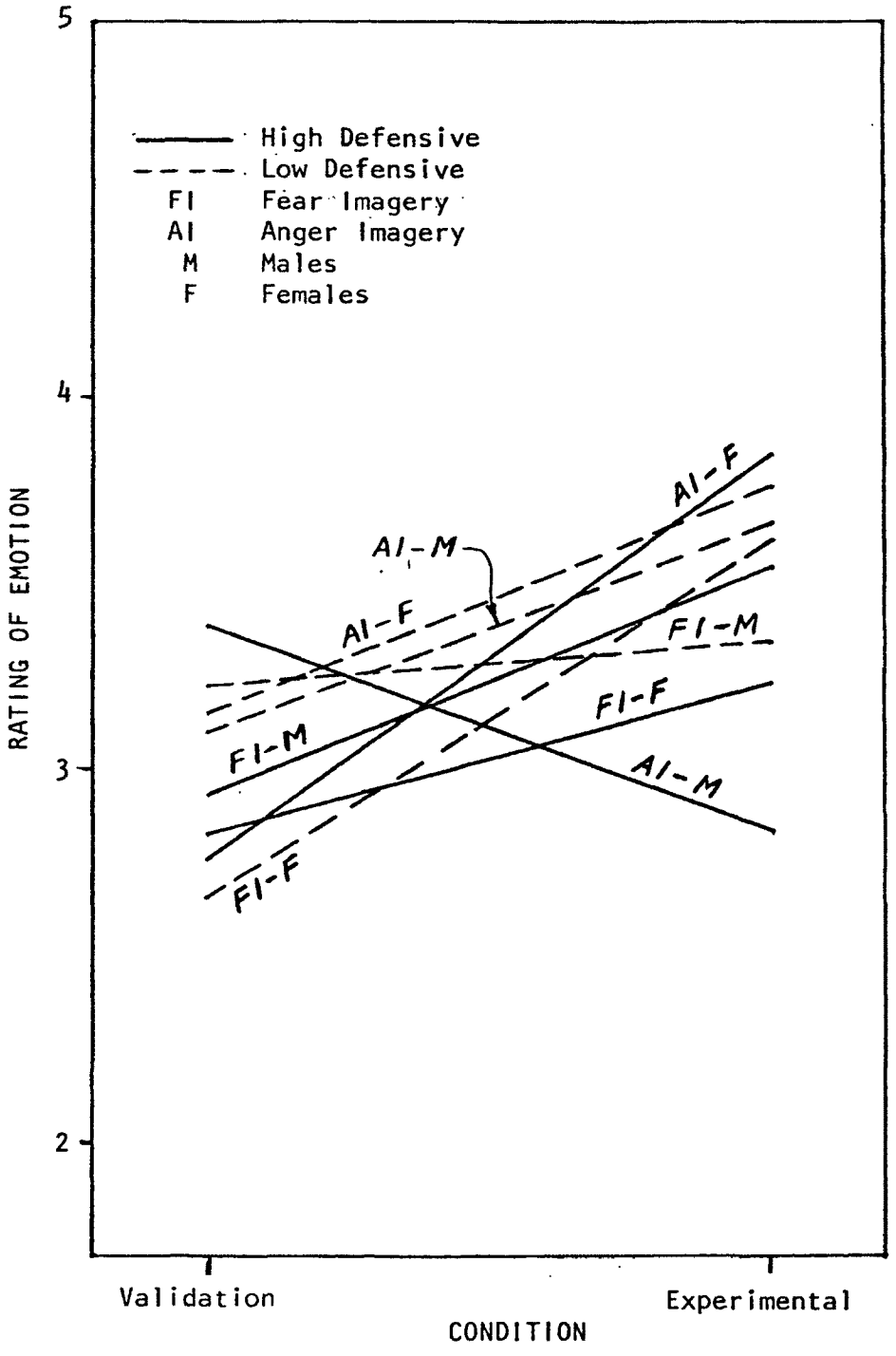

Figure 3. Interaction effect between experimental condition, imagery treatment, gender of subject, and mean ratings of emotion.

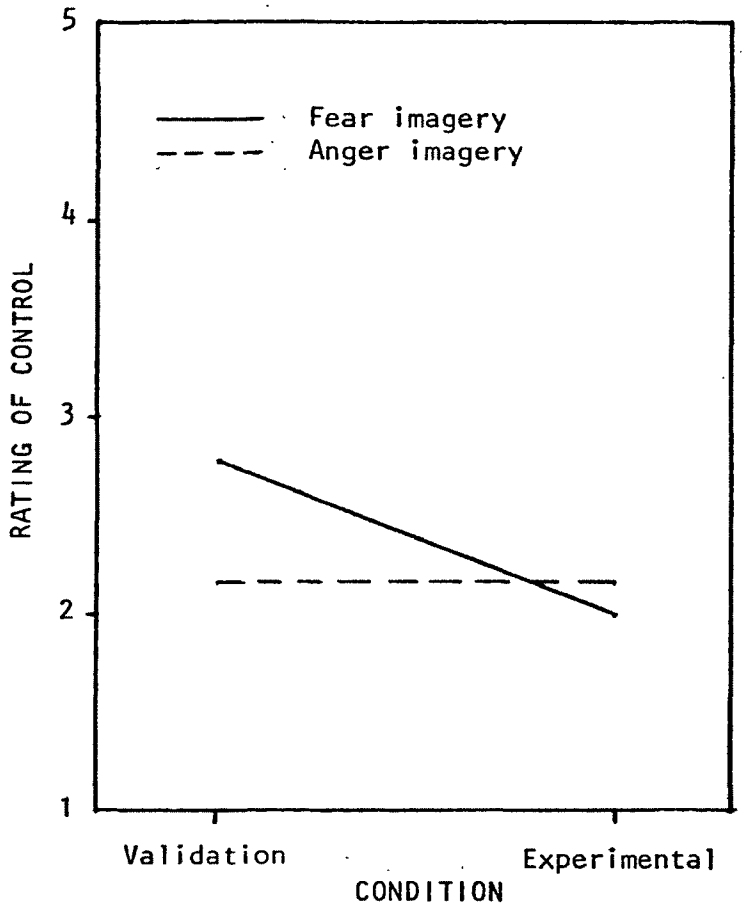

Figure 4. Interaction effect between experimental condition and imagery treatment on mean ratings of control.

rating of control given by the FI-validation subjects was significantly higher than the other three mean ratings ($p < .05$).

The significant condition x treatment x defensiveness interaction necessary to confirm Hypothesis 5 [F (1,128) = 5.28, $p < .05$] was also found. However, examination of Figure 5 reveals that LD subjects in both treatment groups and HD subjects in the FI group rated less control in the experimental condition than did comparable subjects in the validation condition. This ordering of points is the reverse of that predicted by Hypothesis 5; therefore, Hypothesis 5 was not confirmed. In addition, HD subjects in the AI group rated more control in the experimental condition than did comparable subjects in the validation condition. A Newman-Keuls post-hoc comparison revealed that the difference between validation condition and experimental condition ratings was significant for HD subjects in the FI group only ($p < .05$).

The mean rating of control for subjects in the validation condition was 2.48, while the mean rating of control for subjects in the experimental condition was 2.07. A significant main effect for condition [F (1,128) = 5.28, $p < .05$] was found. The mean rating of control for males was 2.47, and the mean rating for females was 2.07. A significant main effect for gender [F (1,128) = 5.07, $p < .05$] was found.

A significant condition x treatment x gender interaction [F (1,128) = 5.21, p, .05] was also found. Examination of Figure 6 reveals that female subjects in both treatment groups and male subjects in the FI group rated less control in the experimental condition than did comparable subjects in the validation condition. However, male

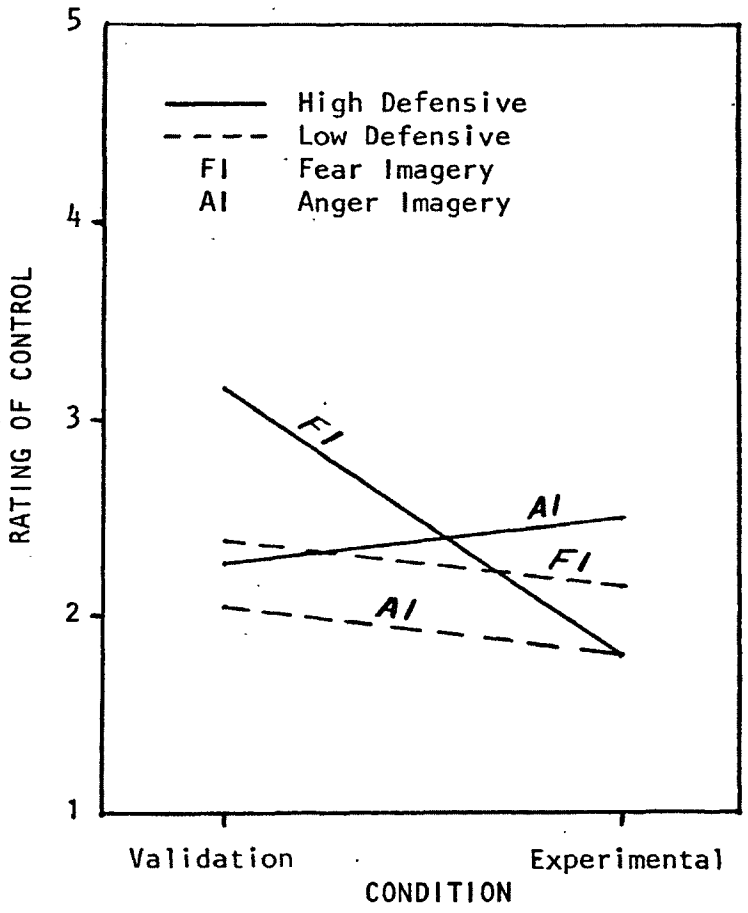

Figure 5. Interaction effect between experimental condition, imagery treatment, and defensiveness of subject on mean ratings of control.

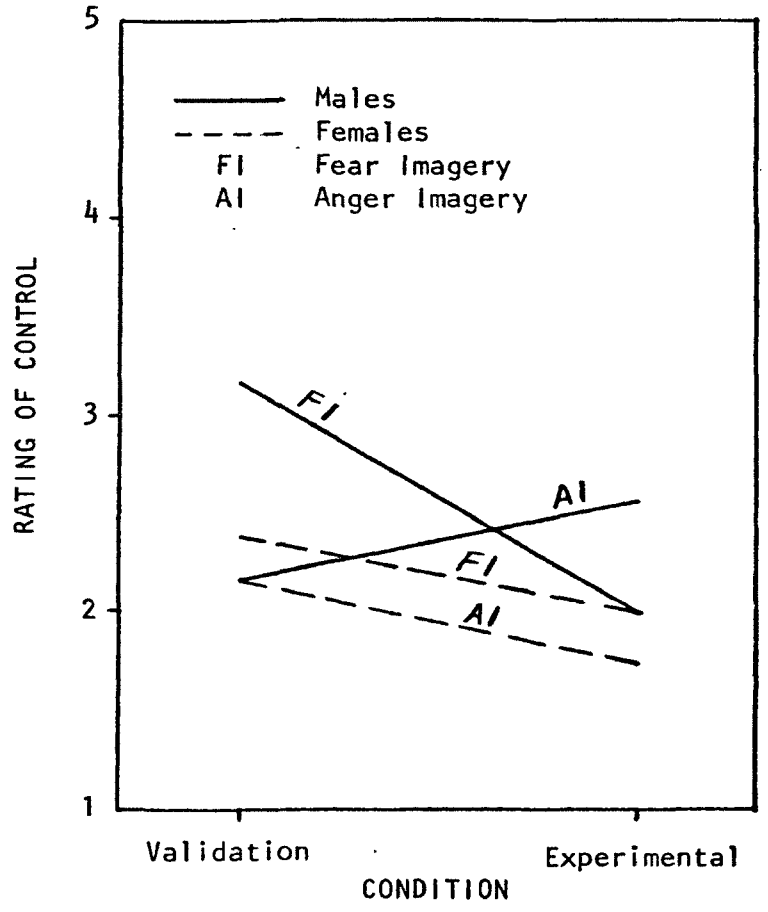

Figure 6. Interaction effect between experimental condition, imagery treatment, and gender of subject on mean ratings of control

subjects in the AI group rated more control in the experimental condition than did comparable subjects in the validation condition. A Newman-Keuls post-hoc comparison revealed that the difference between validation condition and experimental condition ratings was significant for FI males only ($p < .05$).

CHAPTER FOUR

DISCUSSION

The major hypothesis of this study predicted that the FI-experimental group would rate fear significantly lower and anger significantly higher than would the FI-validation group, thereby indicating that they had reassigned an anger meaning to their original fear image in order to escape fear. This hypothesis was not confirmed by the results. To the contrary, subjects in both the FI and AI treatment groups rated both fear and anger higher in the experimental condition than did subjects in the validation condition. Since all of the other hypotheses were dependent on confirmation of the major hypothesis, they also were not confirmed. It appears that the overall effect of the self-generated image produced by both experimental groups was to increase the intensity of their emotional experience, but not to change its meaning for the subjects.

This effect held true for subjects of both sexes in both defensiveness categories and both treatment groups with the exception of the HD males in the AI treatment group. For these high defensive males, self-generating their own image to match their somatic responding after anger imagery decreased the overall intensity of their emotional experience. They reported higher overall emotional intensity than any of the other groups during the initial anger imagery but lower overall emotional intensity than any of the other groups after

self-generating their matching image. These high defensive males apparently felt the initial anger image more strongly and reacted to it by either changing to a less intense image or by denying their angry feelings. This phenomenon did not occur with high defensive males in fear imagery or with any of the other subjects. Although the initial anger image appeared to be slightly more powerful than the initial fear image, it is doubtful that this difference would have been enough to cause this phenomenon, especially since it did not affect other anger imagery subjects in a similar way. It may be that highly defensive males feel more threatened by their own angry feelings than by their feelings of fear. They may feel anger more intensely than other people and try to reduce these feelings in some way.

Regarding the ratings of control, the overall effect of the self-generated image for females in both imagery treatments and for males in fear imagery was to reduce the amount of felt-control. Interestingly, males felt significantly less in control of the situation after the initial anger image and actually increased their felt-control over the situation when they self-generated their own image after anger imagery. A similar result was obtained for high defensive anger imagery subjects in general who felt less in control during the initial anger imagery, but gained some felt-control over the situation during their self-generated imagery.

These results suggest that there is a relationship between emotional intensity and feelings of control over the situation. Most subjects rated higher emotional intensity and less felt-control after

self-generating their own image. High defensive males, however, reported less emotional intensity after self-generation of their image, with a corresponding increase in felt-control. Although several authors (Sullivan, 1956; Rothenberg, 1971; Novaco, 1975, 1976a) have suggested that anger may develop as an attempt to gain control over a fearful situation, subjects in this experiment showed a general tendency to feel more in control during fear imagery than during anger imagery.

Although the subgroups of high defensive and low defensive females showed significant differences in defensiveness scores, there were no apparent systematic effects on the results that could be attributed to these differences. The M-C SDS scores of the female subjects in this experiment apparently showed more variability between subjects than did the males' scores. In addition, although Crowne and Marlowe (1964) indicated that females consistently score slightly higher than males, females in this experiment scored slightly lower than did males. Since the normative data referred to by Crowne and Marlowe are over 20 years old, it may be that updated norms would reflect these changes for females.

To summarize these findings, it appears that males who are high in defensiveness react more intensely and feel less in control in anger situations than they do in fear situations. It might be that, because of their defensiveness, they attempt to either change the situation or deny their angry feelings, resulting in an increase in the amount of control they feel. It may be that, through socialization, males accept

the stereotyped role of being strong and brave in the face of fear and gaining control over the source of their fear. Thus, they may tolerate and express fear more easily than they do anger; anger may be seen as less culturally appropriate and acceptable. With the advent of the Women's Movement, females may be learning to express their anger more easily and to accept their angry feelings as a natural part of their emotional makeup. Males, on the other hand, may still regard the expression of anger as a cause for social rejection and something to be avoided or denied. This could account for the results observed for the highly defensive males in this study.

This study failed to demonstrate that anger can develop as a defense against fear and it may, of course, be the case that this phenomenon simply does not occur. There is, however, a plausible explanation for this failure based on the demand characteristics that may have been inherent in the methodology of the experiment. In assuming that the ISM model of imagery was operating, it was predicted that subjects would assign an initial meaning to the somatic responses associated with the fear or anger image they experienced. The validation groups obviously did so appropriately. It was then predicted that, given the opportunity to self-generate an image to match their somatic responding, they would reinterpret this responding by assigning new anger meanings in place of previously assigned fear meanings, in order to escape the helplessness of fear. This did not occur.

During the initial imagery, it probably became obvious to the subjects that, even though the words "fear" and "anger" were never used, they were expected to feel afraid or angry. They may have complied with this expectation to the extent that they generated their own image to match both their somatic responding and what they perceived to be the demands of the experiment: to be either afraid or angry. Thus, they apparently retained the original meaning that they perceived was expected of them. Generating their own image increased their overall emotional intensity (with the exception of the HD males in anger imagery, who apparently sought to reduce emotional intensity), but may not have allowed them to change the meaning assigned to their responding due to the demand characteristics of the experiment.

If this is indeed the reason for the failure of this experiment, there are several possible ways in which the methodology could be revised to eliminate these demand characteristics. The obvious target for revision is the period in which the instructions are given for the subjects to self-generate their matching image. It may be necessary to simply instruct the subjects in some way that they need not continue with an image that holds the same meaning, but that they should concentrate more on their somatic responses as a bridge to another situation where they felt the same physical sensations. The imagery in this experiment was undoubtedly a novel experience for these subjects, and this novelty may have contributed to their inability to react to it in the same way in which they would react to everyday situations. It may be necessary to train subjects in experiencing guided imagery

before they feel comfortable enough with it to be able to respond in a natural manner.

The element of time may also play an important role in the defensive reinterpretation of fear. If the subjects were able to spend more time concentrating on their somatic responses, their originally assigned meaning may lose importance as the fear becomes more intolerable, and they might be more likely to switch to a different meaning. This may be what actually happens when people experience fear; they may ruminate about the sensations they are experiencing and, as their discomfort grows, so does their need to escape it. These subjects may simply not have had enough time for their emotional experience to grow to an intolerable level. Chronic, inescapable fear may be the emotion that subjects try to escape by a reinterpretation to anger.

Future investigations in this area should begin with a great deal of pilot work in which the subjects are thoroughly questioned as to the nature of their imagery experience and how it relates to or differs from the way they respond to real life situations. The experimental situation is only a crude approximation of what occurs in real life, and it may be desirable to let our research subjects guide our efforts in determining the sequential development of anger.

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APPENDIX A

INFORMED CONSENT FORM

Emotional Imagery Studies

This experiment is designed to find out how persons experience their emotions. We will be asking you to imagine emotional situations or to re-live situations when you felt strong emotions. You will be asked to close your eyes and to imagine and elaborate the scenes in great detail. In imagining the scenes, you will be guided to remember where you were, what thoughts you had, how your body felt and all the feelings you might have had. Then you will be asked to rate the strength of these emotions, and to describe the scene you were imagining and what you were feeling.

There is a very slight risk that this study will produce feelings of discomfort that will persist beyond the length of the experiment. If you feel that you are the kind of person who might have such a reaction, we ask you not to participate in this study.

In addition, if you find it difficult to expose yourself to your own strong feelings, or if you are in psychological treatment, or receiving medication for psychological reasons, or have ever been hospitalized for a mental or emotional disorder, please do not participate in this study.

However, we anticipate that most persons will feel relaxed and good at the conclusion of the experiment.

If for any reason you feel unable at any time to complete the experiment, please feel free to leave the experimental room. We will have a trained person available outside the door to chat with you about your experience and explain to you any aspects of the study which need clarification.

I HAVE READ THE ABOVE MATERIAL AND WISH TO PARTICIPATE IN THE EMOTIONAL IMAGERY STUDY.

NAME_____ AGE_____

DATE_____

APPENDIX B

EMOTION SURVEY

1. Mark on the scales below the amount of emotion you felt while you were imagining your scene. Note that there are six emotions to be separately rated. Since it is not uncommon for people to experience more than one emotion in a given situation, you should rate your scene on all six emotions.

	no emotion		moderate emotion		the strongest emotion I can imagine
HAPPINESS	1	2	3	4	5
SADNESS	1	2	3	4	5
FEAR	1	2	3	4	5
ANGER	1	2	3	4	5
DEPRESSION	1	2	3	4	5
ANXIETY	1	2	3	4	5

2. How <u>real</u> did your scene seem to be?

1	2	3	4	5
not real		moderately real		as real as I can imagine

3. How well could you <u>picture</u> your scene?

1	2	3	4	5
could not picture it		moderately well		as if I were really there

4. How strongly could you <u>feel</u> your body's emotional sensations during your scene?

1	2	3	4	5
could not feel them		moderately strong		as if it were really happening

APPENDIX C

EMOTION SURVEY

1. Mark on the scales below the amount of emotion you felt while you were imagining your scene. Note that there are six emotions to be separately rated. Since it is not uncommon for people to experience more than one emotion in a given situation, you should rate your scene on all six emotions.

	no emotion		moderate emotion		the strongest emotion I can imagine
HAPPINESS	1	2	3	4	5
SADNESS	1	2	3	4	5
ANGER	1	2	3	4	5
FEAR	1	2	3	4	5
DEPRESSION	1	2	3	4	5
ANXIETY	1	2	3	4	5

2. How <u>real</u> did your scene seem to be?

1	2	3	4	5
not real		moderately real		as real as I can imagine

3. How well could you <u>picture</u> your scene?

1	2	3	4	5
could not picture it		moderately well		as if I were really there

4. How strongly could you <u>feel</u> your body's emotional sensations during your scene?

1	2	3	4	5
could not feel them		moderately strong		as if it were really happening

APPENDIX D

FI-EXPERIMENTAL SCRIPT

As we begin, I'm going to help you to relax .....

Begin by making yourself comfortable in your chair, with both feet on the floor and your eyes closed .....

[RELAXATION]

Take a deep breath ..... and let it go .....

Now, concentrate your attention on your forehead .....

Notice a pleasant feeling of warmth beginning to develop in your forehead .....

As you concentrate on that peaceful, warm feeling, you will notice that it begins to spread .....

It begins to spread down your face .....

Your eyes are relaxing .....

Your jaw muscles are relaxing ..... and becoming loose .....

Your whole face is relaxing .....

Take another deep breath ..... and let it go .....

Notice that warm pleasant feeling of relaxation spreading down the back of your neck ..... into your shoulders ..... and down into your arms .....

Your neck muscles are becoming loose and relaxed .....

Your shoulders are relaxing .....

Your arms and hands are relaxing .....

Take another deep breath ..... and let it go .....

Feel all the tension draining out of your body ..... as that pleasant feeling of relaxation spreads ..... down the trunk of your body

..... into your legs ..... and down to your feet .....

Feel all the tension melt away ..... and your body become very relaxed ..... and peaceful .....

Take another deep breath ..... and let it go .....

Now, I want you to go to your favorite place--in your imagination ..... someplace where you really like to be. Maybe it's a warm, sunny day and you are lying in the cool green grass on a peaceful hillside ..... or maybe its the edge of a clear blue lake and you are listening to the water lapping gently at the shore ..... or maybe its just nowhere in particular, and you are enjoying the company of your friends or your family .....

I'll give you a few moments now to find your favorite place .....

You are somewhere that you really like to be .....

Someplace where you feel secure .....

A place where you find peace ..... and happiness .....

Someplace where you can relax ..... and feel good about yourself ..... and be comfortable with your world .....

Just enjoy being in your favorite place ..... for a little while .....

Feel how good it is ..... just to be there .....

I want you to know that you will be returning to your favorite place soon ..... but now, I'd like you to leave your favorite place and inagine yourself in another scene.

Picture the following scene and imagine that it is actually happening to you .....

[FEAR IMAGE]

It's shortly after sunset ..... and the light is getting dim .....

You're walking down a sidewalk ..... a few blocks from home .....

You walk slowly in front of a house with a picket fence along the sidewalk .....

As you near the gate in front of the house, you notice that it is open ..... partway .....

Suddenly your neck muscles begin to tense ..... you sense that something is wrong .....

As you step in front of the gate, you see a blur of movement out of the corner of your eye ..... and you hear a deep, rumbling snarl ..... just a foot away from you .....

You freeze in your tracks .....

As you slowly turn your head ..... you see a large black and brown dog ..... his lips are drawn back ..... and you can see his gleaming white teeth and hear another rumbling growl coming from deep in his throat .....

As you slowly turn to face him, you can hardly move ..... your whole body is tense and rigid .....

Your heart begins to pound ..... and your chest heaves as you try to take in enough air .....

You feel your armpits becoming cold and wet ..... as the perspiration begins to flow .....

You try to swallow ..... but you can't ..... your mouth is dry as cotton .....

You feel your whole body begin to tremble ..... and your head begins to ache as you feel the blood rushing to your temples .....

Concentrate on the scene you are in .....

Picture it ..... feel how it is to be there .....

Feel the tension in your body growing .....

Feel your heart pounding .....

Feel the tightness in your chest ..... how hard it is to breathe .....

Feel how dry your mouth is ..... and how you are perspiring .....

Feel your head throbbing ..... and your body trembling .....

Concentrate on your body and let those feelings grow stronger .....

[SELF-GENERATE IMAGE]

Now, as you concentrate on your body and those feelings that are growing stronger, I want you to remember a time in your life when your body felt the way it does now ..... recall a time when you felt just the way you do now .....

I'll give you a few moments now to remember .....

Begin to visualize the scene ..... as if it were really happening ..... and you were there all over again ..... feeling those same feelings .....

Look around you ..... what do you see .....

Look closely at the scene ..... as if you were back there in it again ..... feeling those same feelings .....

Notice all the details .....

What is there .....

What do you hear .....

What is happening ..... what are you thinking .....

Feel how it is to be there ..... in that same place ..... one more time .....

You are seeing ..... and hearing ..... and feeling the same things that you saw ..... and heard ..... and felt the first time .....

Let those feelings grow stronger ..... just like they were at the time .....

Think those same thoughts again .....

Feel those same feelings again .....

Feel the tension in your body growing .....

Feel your heart pounding .....

Feel the tightness in your chest ..... how hard it is to breathe .....

Feel how dry your mouth is ..... and how you are perspiring .....

Feel your head throbbing ..... and your body trembling .....

Concentrate on your body and let those feelings grow stronger .....

[ASSIGN MEANING]

Now, open your eyes and answer the questions in your answer booklet. Your answers should refer only to the <u>last</u> scene you imagined.

[When all have finished:]

Now, I'm going to help you to relax again. Make yourself comfortable in your chair, with both feet on the floor, and your eyes closed.

Take a deep breath ..... and let it go .....

Now, I want you to go back to your favorite place ..... in your imagination .....

I'll give you a few moments once again to go back to your favorite place .....

Feel how good it is ..... to be in your favorite place once again .....

It's a place where you find peace ..... and happiness ..... a place where you can relax ..... and feel comfortable ..... and secure.

Take another deep breath ..... and let it go .....

Feel all the tension draining out of your body ..... as you relax and enjoy being in your favorite place.

Feel the muscles relaxing in your forehead..... and around your eyes ..... feel your jaw muscles relaxing ..... and becoming loose ...

Feel the muscles in your neck ..... and your shoulders ..... and your arms ..... becoming warm ..... and relaxed .....

Take another deep breath ..... and let it go .....

Just enjoy being in your favorite place ..... feel how good it is ..... just to be there .....

You are feeling more and more relaxed ..... and content .....

All the tension has drained out of your body ..... and you are feeling good about yourself ..... and your world .....

Take another deep breath ..... and let it go .....

All your worries and tensions are gone ..... you feel secure ..... comfortable ..... and at peace .....

I want you to know that you can return to your favorite place ..... in your imagination ..... whenever you feel the need to relax and feel secure ..... when you are ready, you may open your eyes and you are free to go. Thank you for your participation.

APPENDIX E

FI-VALIDATION SCRIPT

As we begin, I'm going to help you to relax .....

Begin by making yourself comfortable in your chair, with both feet on the floor and your eyes closed .....

[RELAXATION]

Take a deep breath ..... and let it go .....

Now, concentrate your attention on your forehead .....

Notice a pleasant feeling of warmth beginning to develop in your forehead .....

As you concentrate on that peaceful, warm feeling, you will notice that it begins to spread .....

It begins to spread down your face .....

Your eyes are relaxing .....

Your jaw muscles are relaxing ..... and becoming loose .....

Your whole face is relaxing .....

Take another deep breath ..... and let it go .....

Notice that warm pleasant feeling of relaxation spreading down the back of your neck ..... into your shoulders ..... and down into your arms .....

Your neck muscles are becoming loose and relaxed .....

Your shoulders are relaxing .....

Your arms and hands are relaxing .....

Take another deep breath ..... and let it go .....

Feel all the tension draining out of your body ..... as that pleasant feeling of relaxation spreads ..... down the trunk of your body

..... into your legs ..... and down to your feet .....

Feel all the tension melt away ..... and your body become very relaxed ..... and peaceful .....

Take another deep breath ..... and let it go .....

Now, I want you to go to your favorite place--in your imagination ..... someplace where you really like to be. Maybe it's a warm, sunny day and you are lying in the cool green grass on a peaceful hillside ..... or maybe its the edge of a clear blue lake and you are listening to the water lapping gently at the shore ..... or maybe its just nowhere in particular, and you are enjoying the company of your friends or your family .....

I'll give you a few moments now to find your favorite place .....

You are somewhere that you really like to be .....

Someplace where you feel secure .....

A place where you find peace ..... and happiness .....

Someplace where you can relax ..... and feel good about yourself ..... and be comfortable with your world .....

Just enjoy being in your favorite place ..... for a little while .....

Feel how good it is ..... just to be there .....

I want you to know that you will be returning to your favorite place soon ..... but now, I'd like you to leave your favorite place and inagine yourself in another scene.

Picture the following scene and imagine that it is actually happening to you .....

[FEAR IMAGE]

It's shortly after sunset ..... and the light is getting dim .....

You're walking down a sidewalk ..... a few blocks from home .....

You walk slowly in front of a house with a picket fence along the sidewalk .....

As you near the gate in front of the house, you notice that it is open ..... partway .....

Suddenly your neck muscles begin to tense ..... you sense that something is wrong .....

As you step in front of the gate, you see a blur of movement out of the corner of your eye ..... and you hear a deep, rumbling snarl ..... just a foot away from you .....

You freeze in your tracks .....

As you slowly turn your head ..... you see a large black and brown dog ..... his lips are drawn back ..... and you can see his gleaming white teeth and hear another rumbling growl coming from deep in his throat .....

As you slowly turn to face him, you can hardly move ..... your whole body is tense and rigid .....

Your heart begins to pound ..... and your chest heaves as you try to take in enough air .....

You feel your armpits becoming cold and wet ..... as the perspiration begins to flow .....

You try to swallow ..... but you can't ..... your mouth is dry as cotton .....

You feel your whole body begin to tremble ..... and your head begins to

ache as you feel the blood rushing to your temples .....

Concentrate on the scene you are in .....

Picture it ..... feel how it is to be there .....

Feel the tension in your body growing .....

Feel your heart pounding .....

Feel the tightness in your chest ..... how hard it is to breathe .....

Feel how dry your mouth is ..... and how you are perspiring .....

Feel your head throbbing ..... and your body trembling .....

Concentrate on your body and let those feelings grow stronger .....

[ASSIGN MEANING]

Now, open your eyes and answer the questions in your answer booklet.

Your answers should refer only to the <u>last</u> scene you imagined.

[When all have finished:]

Now, I'm going to help you to relax again. Make yourself comfortable in your chair, with both feet on the floor, and your eyes closed.

Take a deep breath ..... and let it go .....

Now, I want you to go back to your favorite place ..... in your imagination .....

I'll give you a few moments once again to go back to your favorite place .....

Feel how good it is ..... to be in your favorite place once again .....

It's a place where you find peace ..... and happiness ..... a place where you can relax ..... and feel comfortable ..... and secure.

Take another deep breath ..... and let it go .....

Feel all the tension draining out of your body ..... as you relax and enjoy being in your favorite place.

Feel the muscles relaxing in your forehead ..... and around your eyes ..... feel your jaw muscles relaxing ..... and becoming loose...

Feel the muscles in your neck ..... and your shoulders ..... and your arms ..... becoming warm ..... and relaxed .....

Take another deep breath ..... and let it go .....

Just enjoy being in your favorite place ..... feel how good it is ..... just to be there .....

You are feeling more and more relaxed ..... and content .....

All the tension has drained out of your body ..... and you are feeling good about yourself ..... and your world .....

Take another deep breath ..... and let it go .....

All your worries and tensions are gone ..... you feel secure ..... comfortable ..... and at peace .....

I want you to know that you can return to your favorite place ..... in your imagination ..... whenever you feel the need to relax and feel secure ..... when you are ready, you may open your eyes and you are free to go. Thank you for your participation.

APPENDIX F

AI-EXPERIMENTAL SCRIPT

As we begin, I'm going to help you to relax .....

Begin by making yourself comfortable in your chair, with both feet on the floor and your eyes closed .....

[RELAXATION]

Take a deep breath ..... and let it go .....

Now, concentrate your attention on your forehead .....

Notice a pleasant feeling of warmth beginning to develop in your forehead .....

As you concentrate on that peaceful, warm feeling, you will notice that it begins to spread .....

It begins to spread down your face .....

Your eyes are relaxing .....

Your jaw muscles are relaxing ..... and becoming loose .....

Your whole face is relaxing .....

Take another deep breath ..... and let it go .....

Notice that warm pleasant feeling of relaxation spreading down the back of your neck ..... into your shoulders ..... and down into your arms .....

Your neck muscles are becoming loose and relaxed .....

Your shoulders are relaxing .....

Your arms and hands are relaxing .....

Take another deep breath ..... and let it go .....

Feel all the tension draining out of your body ..... as that pleasant feeling of relaxation spreads ..... down the trunk of your body ..... into your legs ..... and down to your feet .....

Feel all the tension melt away ..... and your body become very relaxed ..... and peaceful .....

Take another deep breath ..... and let it go .....

Now, I want you to go to your favorite place--in your imagination ..... someplace where you really like to be. Maybe it's a warm, sunny day and you are lying in the cool green grass on a peaceful hillside ..... or maybe its the edge of a clear blue lake and you are listening to the water lapping gently at the shore ..... or maybe its just nowhere in particular, and you are enjoying the company of your friends or your family .....

I'll give you a few moments now to find your favorite place .....

You are somewhere that you really like to be .....

Someplace where you feel secure .....

A place where you find peace ..... and happiness .....

Someplace where you can relax ..... and feel good about yourself ..... and be comfortable with your world .....

Just enjoy being in your favorite place ..... for a little while .....

Feel how good it is ..... just to be there .....

I want you to know that you will be returning to your favorite place soon ..... but now, I'd like you to leave your favorite place and inagine yourself in another scene.

Picture the following scene and imagine that it is actually happening to you .....

[ANGER IMAGE]

You are standing on a street corner, waiting for a break in the traffic so you can cross the street ..... and it's beginning to rain .....

You are on your way to an important job interview ..... and you are going to be late because ....

Your neighbor borrowed your car for an emergency errand and promised to bring it back right away ..... but never showed up .....

And now you are standing here ..... in your best clothes ..... in the drizzling rain ..... waiting to cross the street .....

As you look to your left, you see <u>your</u> car coming down the street .....

Your neighbor is driving ..... and there are two other people in the car ..... you can see one of them drinking from a can of beer .....

Your body begins to feel tense ..... and you can feel your heartbeat start to quicken .....

As the car approaches, you catch your neighbor's eye .....

Your neighbor smiles in recognition and playfully waves to you .....

As the car hits a puddle and you feel the cold, muddy water splashing all over your best clothes .....

Your heart begins to pound as you notice your neighbor turn around and wave to you again ..... smiling .....

You feel a tightness in your chest ..... it's hard to breathe ..... and your mouth becomes as dry as cotton .....

Your body begins to tremble all over .....and the perspiration starts to flow under your arms .....

Your body feels tense all over ..... and your head aches as the blood rushes to your temples .....

Concentrate on the scene you are in .....

Picture it ..... feel how it is to be there .....

Feel the tension in your body growing .....

Feel your heart pounding .....

Feel the tightness in your chest ..... how hard it is to breathe .....

Feel how dry your mouth is ..... and how you are perspiring .....

Feel your head throbbing ..... and your body trembling .....

Concentrate on your body and let those feelings grow stronger .....

[SELF-GENERATE IMAGE]

Now, as you concentrate on your body and those feelings that are growing stronger, I want you to remember a time in your life when your body felt the way it does now ..... recall a time when you felt just the way you do now .....

I'll give you a few moments now to remember .....

Begin to visualize the scene ..... as if it were really happening ..... and you were there all over again ..... feeling those same feelings .....

Look around you ..... what do you see .....

Look closely at the scene ..... as if you were back there in it again ..... feeling those same feelings .....

Notice all the details .....

What is there .....

What do you hear .....

What is happening ..... what are you thinking .....

Feel how it is to be there ..... in that same place ..... one more time .....

You are seeing ..... and hearing ..... and feeling the same things that you saw ..... and heard ..... and felt the first time .....

Let those feelings grow stronger ..... just like they were at the time

.....

Think those same thoughts again .....

Feel those same feelings again .....

Feel the tension in your body growing .....

Feel your heart pounding .....

Feel the tightness in your chest ..... how hard it is to breathe .....

Feel how dry your mouth is ..... and how you are perspiring .....

Feel your head throbbing ..... and your body trembling .....

Concentrate on your body and let those feelings grow stronger .....

[ASSIGN MEANING]

Now, open your eyes and answer the questions in your answer booklet. Your answer should refer only to the last scene you imagined.

[When all have finished:]

Now, I'm going to help you to relax again. Make yourself comfortable in your chair, with both feet on the floor, and your eyes closed.

Take a deep breath ..... and let it go .....

Now, I want you to go back to your favorite place ..... in your imagination .....

I'll give you a few moments once again to go back to your favorite place .....

Feel how good it is ..... to be in your favorite place once again .....

It's a place where you find peace ..... and happiness ..... a place where you can relax ..... and feel comfortable ..... and secure.

Take another deep breath ..... and let it go .....

Feel all the tension draining out of your body ..... as you relax and enjoy being in your favorite place.

Feel the muscles relaxing in your forehead ..... and around your eyes ..... feel your jaw muscles relaxing ..... and becoming loose .....

Feel the muscles in your neck ..... and your shoulders ..... and your arms ..... becoming warm ..... and relaxed .....

Take another deep breath ..... and let it go .....

Just enjoy being in your favorite place ..... feel how good it is ..... just to be there .....

You are feeling more and more relaxed ..... and content .....

All the tension has drained out of your body ..... and you are feeling good about yourself ..... and your world .....

Take another deep breath ..... and let it go .....

All your worries and tensions are gone ..... you feel secure ..... comfortable ..... and at peace .....

I want you to know that you can return to your favorite place ..... in your imagination ..... whenever you feel the need to relax and feel secure ..... when you are ready, you may open your eyes and you are free to go. Thank you for your participation.

APPENDIX G

AI-VALIDATION SCRIPT

As we begin, I'm going to help you to relax .....

Begin by making yourself comfortable in your chair, with both feet on the floor and your eyes closed .....

[RELAXATION]

Take a deep breath ..... and let it go .....

Now, concentrate your attention on your forehead .....

Notice a pleasant feeling of warmth beginning to develop in your forehead .....

As you concentrate on that peaceful, warm feeling, you will notice that it begins to spread .....

It begins to spread down your face .....

Your eyes are relaxing .....

Your jaw muscles are relaxing ..... and becoming loose .....

Your whole face is relaxing .....

Take another deep breath ..... and let it go .....

Notice that warm pleasant feeling of relaxation spreading down the back of your neck ..... into your shoulders ..... and down into your arms .....

Your neck muscles are becoming loose and relaxed .....

Your shoulders are relaxing .....

Your arms and hands are relaxing .....

Take another deep breath ..... and let it go .....

Feel all the tension draining out of your body ..... as that pleasant feeling of relaxation spreads ..... down the trunk of your body ..... into your legs ..... and down to your feet .....

Feel all the tension melt away ..... and your body become very relaxed ..... and peaceful .....

Take another deep breath ..... and let it go .....

Now, I want you to go to your favorite place--in your imagination ..... someplace where you really like to be. Maybe it's a warm, sunny day and you are lying in the cool green grass on a peaceful hillside ..... or maybe its the edge of a clear blue lake and you are listening to the water lapping gently at the shore ..... or maybe its just nowhere in particular, and you are enjoying the company of your friends or your family .....

I'll give you a few moments now to find your favorite place .....

You are somewhere that you really like to be .....

Someplace where you feel secure .....

A place where you find peace ..... and happiness .....

Someplace where you can relax ..... and feel good about yourself ..... and be comfortable with your world .....

Just enjoy being in your favorite place ..... for a little while .....

Feel how good it is ..... just to be there .....

I want you to know that you will be returning to your favorite place soon ..... but now, I'd like you to leave your favorite place and inagine yourself in another scene.

Picture the following scene and imagine that it is actually happening to you .....

[ANGER IMAGE]

You are standing on a street corner, waiting for a break in the traffic so you can cross the street ..... and it's beginning to rain .....

You are on your way to an important job interview ..... and you are going to be late because ....

Your neighbor borrowed your car for an emergency errand and promised to bring it back right away ..... but never showed up .....

And now you are standing here ..... in your best clothes ..... in the drizzling rain ..... waiting to cross the street .....

As you look to your left, you see <u>your</u> car coming down the street .....

Your neighbor is driving ..... and there are two other people in the car ..... you can see one of them drinking from a can of beer .....

Your body begins to feel tense ..... and you can feel your heartbeat start to quicken .....

As the car approaches, you catch your neighbor's eye .....

Your neighbor smiles in recognition and playfully waves to you .....

As the car hits a puddle and you feel the cold, muddy water splashing all over your best clothes .....

Your heart begins to pound as you notice your neighbor turn around and wave to you again ..... smiling .....

You feel a tightness in your chest ..... it's hard to breathe ..... and your mouth becomes as dry as cotton .....

Your body begins to tremble all over ..... and the perspiration starts to flow under your arms .....

Your body feels tense all over ..... and your head aches as the blood rushes to your temples .....

Concentrate on the scene you are in .....

Picture it ..... feel how it is to be there .....

Feel the tension in your body growing .....

Feel your heart pounding .....

Feel the tightness in your chest ..... how hard it is to breathe .....

Feel how dry your mouth is ..... and how you are perspiring .....

Feel your head throbbing ..... and your body trembling .....

Concentrate on your body and let those feelings grow stronger .....

[ASSIGN MEANING]

Now, open your eyes and answer the questions in your answer booklet. Your answer should refer only to the last scene you imagined.

[When all have finished:]

Now, I'm going to help you to relax again. Make yourself comfortable in your chair, with both feet on the floor, and your eyes closed.

Take a deep breath ..... and let it go .....

Now, I want you to go back to your favorite place ..... in your imagination .....

I'll give you a few moments once again to go back to your favorite place .....

Feel how good it is ..... to be in your favorite place once again .....

It's a place where you find peace ..... and happiness ..... a place where you can relax ..... and feel comfortable ..... and secure.

Take another deep breath ..... and let it go .....

Feel all the tension draining out of your body ..... as you relax and enjoy being in your favorite place.

Feel the muscles relaxing in your forehead ..... and around your eyes ..... feel your jaw muscles relaxing ..... and becoming loose .....

Feel the muscles in your neck ..... and your shoulders ..... and your arms ..... becoming warm ..... and relaxed .....

Take another deep breath ..... and let it go .....

Just enjoy being in your favorite place ..... feel how good it is ..... just to be there .....

You are feeling more and more relaxed ..... and content .....

All the tension has drained out of your body ..... and you are feeling good about yourself ..... and your world .....

Take another deep breath ..... and let it go .....

All your worries and tensions are gone ..... you feel secure ..... comfortable ..... and at peace .....

I want you to know that you can return to your favorite place ..... in your imagination ..... whenever you feel the need to relax and feel secure ..... when you are ready, you may open your eyes and you are free to go. Thank you for your participation.

APPENDIX H

(FORM 1)

EMOTIONAL EXPERIENCE QUESTIONNAIRE

1. Mark on the scales below the amount of emotion you felt while you were imagining your <u>last</u> scene. Note that there are six emotions to be separately rated. Since it is not uncommon for people to experience more than one emotion in a given situation, you should rate your <u>last</u> scene on all six emotions.

	no emotion		moderate emotion		the strongest emotion I can imagine
HAPPINESS	1	2	3	4	5
SADNESS	1	2	3	4	5
FEAR	1	2	3	4	5
ANGER	1	2	3	4	5
DEPRESSION	1	2	3	4	5
ANXIETY	1	2	3	4	5

2. In your last scene, how much <u>control</u> did you feel you had over the situation?

1	2	3	4	5
no control		moderate control		in complete control

3. How <u>real</u> did your scene seem to be?

1	2	3	4	5
not real		moderately real		as real as I can imagine

4. How well could you <u>picture</u> your scene?

1	2	3	4	5
could not picture it		moderately well		as if I were really there

5. How strongly could you <u>feel</u> your body's emotional sensations during your scene?

1	2	3	4	5
could not feel them		moderately strong		as if it were really happening

APPENDIX I

(FORM 2)

EMOTIONAL EXPERIENCE QUESTIONNAIRE

1. Mark on the scales below the amount of emotion you felt while you were imagining your last scene. Note that there are six emotions to be separately rated. Since it is not uncommon for people to experience more than one emotion in a given situation, you should rate your last scene on all six emotions.

	no emotion		moderate emotion		the strongest emotion I can imagine
HAPPINESS	1	2	3	4	5
SADNESS	1	2	3	4	5
ANGER	1	2	3	4	5
FEAR	1	2	3	4	5
DEPRESSION	1	2	3	4	5
ANXIETY	1	2	3	4	5

2. In your last scene, how much control did you feel you had over the situation?

1	2	3	4	5
no control		moderate control		in complete control

3. How real did your scene seem to be?

1	2	3	4	5
not real		moderately real		as real as I can imagine

4. How well could you picture your scene?

1	2	3	4	5
could not picture it		moderately well		as if I were really there

5. How strongly could you feel your body's emotional sensations during your scene?

1	2	3	4	5
could not feel them		moderately strong		as if it were really happening

APPENDIX J

EMOTIONAL EXPERIENCE QUESTIONNAIRE

PAGE 2

6. Describe your last scene in detail below. Describe where you were, who else was there (don't give names), and what was happening to make you feel the way you were feeling.

7. Describe below how you felt while you were imagining this scene--what your body felt like. For example, did you experience any of the following: heart pounding, perspiring, rapid breathing, headache, dry mouth, feeling nervous, tense, nauseated, hot, cold, feeling like screaming, crying, shouting, running away, hitting or kicking something or someone? You don't have to use these examples if you did not feel them. Please mention any other feelings you had.

APPENDIX K

NAME:_____

AGE:_____

SEX:_____

PSYC. 110 SECTION NO:_____

PERSONAL REACTION INVENTORY

Listed below are a number of statements concerning attitudes and traits. Read each item and decide whether the statement is true (T) or false (F) as it pertains to you personally.

_____ 1. Before voting, I thoroughly investigate the qualifications of all the candidates.

_____ 2. I never hesitate to go out of my way to help someone in trouble.

_____ 3. It is sometimes hard for me to go on with my work if I am not encouraged.

_____ 4. I have never intensely disliked anyone.

_____ 5. On occasion, I have had doubts about my ability to succeed in life.

_____ 6. I sometimes feel resentful when I don't get my way.

_____ 7. I am always careful about my manner of dress.

_____ 8. My table manners at home are as good as when I eat out in a restaurant.

_____ 9. If I could get into a movie without paying and be sure I was not seen, I would probably do it.

_____10. On a few occasions, I have given up doing something because I thought too little of my ability.

_____11. I like to gossip at times.

_____12. There have been times when I felt like rebelling against people in authority even though I knew they were right.

_____13. No matter who I'm talking to, I'm always a good listener.

_____14. I can remember "playing sick" to get out of something.

_____15. There have been occasions when I took advantage of someone.

_____16. I'm always willing to admit it when I make a mistake.

_____17. I always try to practice what I preach.

_____18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

_____19. I sometimes try to get even rather than forgive and forget.

_____20. When I don't know something, I don't at all mind admitting it.

_____21. I am always courteous, even to people who are disagreeable.

_____22. At times, I have really insisted on having things my own way.

_____23. There have been occasions when I felt like smashing things.

_____24. I would never think of letting someone else be punished for my wrongdoings.

_____25. I never resent being asked to return a favor.

_____26. I have never been irked when people expressed ideas very different from my own.

_____27. I never make a long trip without checking the safety of my car.

_____28. There have been times when I was quite jealous of the good fortune of others.

_____29. I have almost never felt the urge to tell someone off.

_____30. I am sometimes irritated by people who ask favors of me.

_____31. I have never felt that I was punished without cause.

_____32. I sometimes think when people have a misfortune they only got what they deserved.

_____33. I have never deliberately said something that hurt someone's feelings.

APPENDIX L

NAME:_____

AGE:_____

SEX:_____

PSYCH. 110 SECTION NO.:_____

EMOTIONAL IMAGERY STUDY

Please do not turn the page until told to do so.

APPENDIX M

DESCRIPTION OF THE EXPERIMENT

This experiment will begin with a procedure to help you relax and feel comfortable. Next, you will be asked to imagine a scene and to experience some strong emotions. You will then be asked to answer some questions about the emotions you are experiencing. After you answer these questions, another procedure will return you to feeling relaxed and good so that you will feel no discomfort when you leave the experiment.

Your cooperation is essential for this experiment to be a success. Please try your best to involve yourself fully in the scenes as they are described. The answers you give are strictly confidential. There is no deception involved in this study.