THE EFFECTS OF FIVE VARIETIES OF SELF-STATEMENTS ON EMOTIONAL RESPONSE

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ABSTRACT

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Beck (1976) and other cognitive-behavioral theorists have emphazized the role of cognition in emotional experience. The purpose of the present study was to investigate the fundamental assertion of cognitive-behavioral theory that self-statements mediate emotional arousal. Adapting Velten's (1968) procedure, subjects were administered one of five varieties of tape-recorded self-statements with instructions to imagine they were their own thoughts: 1) sad statements, 2) sad statements followed by a rational re-evaluation of those statements, 3) sad statements followed by a series of neutral statements, 4) sad statements followed by a period of silence, or 5) joy statements. Subjects' mood state was

assessed preceding and following the presentation of self-statements.

As predicted, the results indicated a significant increase in sadness for subjects administered the sad self-statements. Further, subjects who also received a rational re-evaluation of those statements experienced significantly less sadness than those who received only the sad statements or sad statements followed by a period of silence. However, no significant differences were found between subjects who received a rational rebuttal and those who received only neutral statements following the sad statements. Presenting happy self-statements proved ineffective in inducing positive mood.

These results were interpreted as support for Beck's theory that cognitions reflecting personal loss lead to feelings of sadness. In addition, the effectiveness of rational re-evaluation in reducing feelings of sadness offers support for the cognitive-behavioral treatment technique of logically disputing maladaptive cognitions. However, the failure to obtain differences between subjects receiving rational self-statements and subjects receiving only neutral statements suggests that the central feature of cognitive therapy, i.e., the logical analysis of irrational cognitions, may not be as necessary for the amelioration of negative mood as is usually

thought. Subjects may fare just as well learning to emit neutral or any kind of competing self-statements when they experience negative self-talk, even if those statements have no logical connection to the original maladaptive ones. The relationship of these findings to the concept of emotion in general and the impact of personality characteristics were also discussed. Recommendations for further research were offered.

To Lisa, my wife, whose love, faith, and sacrifice so often strengthened and encouraged me in this work.

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INTRODUCTION

The Cognitive Revolution

Dember (1974) states that with the advent of behavioral psychology early in this century psychology "lost its mind." In its attempt to achieve the status of a laboratory science, mentalistic concepts such as cognition and emotion were rejected as inappropriate for scientific investigation, and the study of observable events predominated. More recently, however, a major change has begun to take place. Two formerly oppositional viewpoints have begun to merge: cognitive psychology with its emphasis on inner or mental determinants of behavior and behavioral psychology with its emphasis on external determinants (Mahoney, 1977). This somewhat loosely defined hybrid takes into consideration the influence of traditional conditioning processes as well as the importance of private, covert events. Cognitive variables have begun to achieve acceptance into a "science of behavior."

For behavior therapy this cognitive trend has had a profound impact. Behavioral clinicians have begun to

recognize the inadequacies of purely conditioning-based therapies and have developed procedures which include the newly legitimized cognitive variables (Goldfried & Goldfried, 1975). One of the first to consider private events in the conditioning process was Homme (1965) who proposed "covert operants" as part of a response chain mediating beween stimulus and response. As responses whose occurence is observable to a public of one, these events are subject to the same operant conditioning principles as overt responses. Drawing from this analysis, Cautela (1966) proposed that covert events were susceptible to classical as well as operant conditioning and, further, could comprise both the US and CS in the conditioning process. Bandura and his colleagues presented evidence of learning that takes place vicariously in the absence of overt behavior via a centrally mediated process (Bandura, Grusec, & Menlove, 1967; Bandura, Blanchard, & Ritter, 1969). Recently Ellis (1980), Beck (1976), Meichenbaum (Meichenbaum & Cameron, 1974), and others have developed therapeutic methods in which these central processes are the primary "behaviors" to be modified.

As a result of these developments, there has lately been a proliferation of new techniques involving both cognitive and behavioral variables. Although quite varied

in their approach and the specific principles on which they are based, these methods share several fundamental concepts. According to Mahoney (1977)

> In its barest essence, this approach makes four rather general assertions:
> 1. The human organism responds primarily to cognitive representations of its environments rather than to those environments per se.
> 2. These cognitive representations are functionally related to the processes and parameters of learning.
> 3. Most human learning is cognitively mediated.
> 4. Thoughts, feelings, and behaviors are causally interactive (pp. 7-8).

This cognitive-learning approach, in its application to clinical problems, has alternately been called cognitive therapy, cognitive-behavioral therapy, or cognitive-behavior modification. This heterogeneity concerning both terminology and procedures reflects the developmental stage of the field, characterized by Mahoney and Arnkoff (1978) as "a relatively diversified amalgam of principles and procedures which have yet to be formulated into a monolithic system or model" (p. 692).

As Mahoney (1974) points out, his cognitive-learning formulation is not so much a comprehensive theory as it is simply an integration of current trends. One of the major trends contributing to this integration is the increasing prominence of cognitive or semantic theories. Their influence has provided the groundwork from which the

cognitive explanations of the generation of emotion have derived. These theories will be discussed in some detail.

The Cognitive Theorists

Rational-emotive therapy: Albert Ellis The first cognitive approach to achieve a significant popular and professional following was rational-emotive therapy (RET; Ellis, 1962). Trained as a psychoanalyst, Ellis gradually evolved his active-persuasive therapy out of frustration with the inability of analytic insight to effect behavior change. Since its initial public presentation in the mid-1950s, RET has grown in popularity until it now claims more practitioners than client-centered approaches (Garfield & Kurtz, 1976).

The roots of RET can be traced to the Stoic philosopher Epictetus (60 A.D.) whose teaching that "Men are disturbed not by things, but by the view which they take of them" is at the heart of Ellis' approach. Ellis holds that emotion and emotional disturbance are not the consequence of our experiences, but our beliefs, interpretations, and evaluations concerning those experiences.

> What we conventionally label "emotions" and "feelings of emotional disturbance" are largely - but not exclusively - the direct concomitants of people's thoughts, ideas, or constructs (Ellis, 1980, p. 3).

These beliefs or ideas are operationalized as "self-statements" or "things we say to ourselves" about a situation. These self-statements may either be rational or irrational depending on the degree to which they accurately reflect reality and are logically or empirically verifiable. Rational thinking leads to appropriate emotions such as sorrow, regret, and joy. Irrational thinking leads to inappropriate emotions such as depression, guilt, and most psychological disorders.

Ellis (1962) offered eleven basic irrational ideas responsible for emotional disturbance. They are:

1. The idea that it is a dire necessity for an adult human being to be loved or approved by virtually every significant other person in his community.
2. The idea that one should be thoroughly competent, adequate, and achieving in all possible respects if one is to consider oneself worthwhile.
3. The idea that certain people are bad, wicked, or villainous and that they should be severely blamed and punished for their villainy.
4. The idea that it is awful and catastrophic when things are not the way one would very much like them to be.
5. The idea that human unhappiness is externally caused and that people have little or no ability to control their sorrows and disturbances.
6. The idea that if something is or may be dangerous or fearsome one should be terribly concerned about it and should keep dwelling on the possibility of it occuring.
7. The idea that it is easier to avoid than to face certain life difficulties and self-responsibilites.
8. The idea that one should be dependent on others and needs someone stronger than oneself on whom to rely.
9. The idea that one's past history is an all-important determiner of one's present behavior and that because something once affected one's life, it should indefinetely have a similar effect.

10. The idea that one should become quite upset over other people's problems and disturbances.
11. The idea that there is invariably a right, precise and perfect solution to human problems and that it is catastrophic if this perfect solution is not found (pp. 61-87).

He later reduced this number to 10 (Ellis & Harper, 1975) and finally to three broad irrational beliefs with numerous derivatives (Ellis, 1980). Ellis considers the tendency to ascribe to these beliefs innate, as evidenced by the ubiquitousness of psychopathology, the difficulty of effecting cognitive change, and the tendency for clients to revert to dysfunctional thinking once change has occured. He states that "Most humans are born with a strong predisposition to think crookedly, to emote inappropriately, and to behave dysfunctionally....(Ellis, 1980, p. 9).

The RET practitioner, then, first seeks to identify the irrational self-statements contributing to the client's disturbance. The basic method for accomplishing this is the ABC technique. The client is taught to recognize the activating event (point A), the emotional consequence (point C), and the intervening self-talk or beliefs (point B) involved in the problem. For example, a test anxious client might identify the following sequence: A is an evaluative task such as a test; B is the irrational belief "I must succeed at this task and if I

don't I will be without value as a person," and C is the maladaptive emotion of anxiety. After the irrational beliefs have been identified, the client is taught to dispute them through a rational analysis of their validity. The therapist engages the client in a Socratic dialogue asking, for the example given, "Why must you succeed? Is it really a catastrophy if you fail? Where is the evidence that failing means you are a worthless person?" etc. In addition to this technique, the therapist may also employ a variety of other cognitive and behavioral procedures, including bibliotherapy, written analyses of irrational thinking, flooding, relaxation, and imaginal coping practice. In each case the function of the technique is to alter the client's irrational belief system.

Although Ellis himself has offered little empirical support for his theory, others have attempted to validate its major tenets. Several authors have investigated Ellis' assertion that irrational thinking is related to emotional disturbance. Correlational analyses between measures of irrational thinking and psychological disorders have indicated significant relationships between irrational thinking and: self-reported symptomatology and scores on the 16PF (Jones, 1968), five measures of social-evaluative anxiety (Goldfried & Sobocinski, 1975), the

number of responses on a problem checklist, manifest anxiety, dogmatism, and grade point average (Higgenbotham, 1976), and scores on the California Personality Inventory (MacDonald & Games, 1972). All correlations were in the expected direction. A second method of investigation has involved comparisons of irrational thinking in normal and disturbed subjects. Fox and Davies (1971), for example, compared patients in a mental hospital, alchoholics, and normals and found significantly less irrationality in the normal population. Similar differences have been found in comparisons of normals, neurotics, psychotics, and drug addicts (Laughridge, 1975), normals, neurotics, and subjects with a personality disorder (Newmark, Frierking, Cook, and Newmark, 1973), and subjects low and high in assertiveness (Alden & Safran, 1978). Contrary to these results, Spirito and Erikson (1979) were unable to demonstrate consistent relationships between irrationality and scores on a neuroticism scale and a behavior problem checklist.

Attempts have also been made to substantiate the hypothesized relationship between irrational self-statements and emotional arousal as represented in Ellis' ABC model. Rimm and Litvak (1969) administered a series of sentence triads intended to correspond to the ABC sequence. Each triad contained a factual observation

("People don't notice me enough'), an inference concerning the observation ("Maybe there is something unattractive about me"), and an evaluative conclusion ("How terrible"). The authors predicted a greater degree of emotional arousal, measured physiologically, to the inferential and evaluative statements than to the factual statement. No differential response to the component sentences was observed, however, triads having an emotional content produced significantly greater arousal than neutral triads.

Russell and Brandsma (1974) offered a critique of Rimm and Litvak's study and a reanalysis of the ABC sequence in classical conditioning terms. In this analysis, the consistent pairing of A and B prior to the emotional consequence (C) results in A assuming the power to evoke C directly, in the absence of B. Thus, Rimm and Litvak's failure to obtain differences among components of the sentence triad may simply indicate that the emotional response occured immediately at A, before B or C were administered. Only when no prior conditioning of A and B had occured would Rimm and Litvak's hypotheses be supported. The authors' results supported this analysis. When subjects were presented AB dyads low in personal relevance (for which little prior conditioning would have occured), a significantly greater physiological response

occured to the irrational belief statement than to the objective sentence. More recently, however, Master and Gershman (1983) failed to replicate these findings. In a related study, Rogers and Craighead (1977) were unable to establish any differences in emotional arousal between objective and evaluative sentences. These results highlight the inconsistency among these studies and call into question "the simple cognitive-behavioral contention that negative self-statements mediate physiological arousal" (Rogers & Craighead, 1977, p. 112).

Perhaps the area attracting the greatest amount of research interest is the clinical efficacy of RET. The current review will consider two types of outcome studies: those which seek only to establish the effectiveness of RET and those which seek to compare its effectiveness with other treatment approaches.

In an investigation of the effectiveness of RET in the treatment of test anxiety, an RET group receiving both insight into irrational beliefs and practice in disputing them was compared to an insight-only RET group and two controls (Straatmeyer & Watkins, 1974). No significant differences were obtained between any of the four groups. In a population of fifth and sixth grade subjects, Warren, Deffenbacher, and Bruding (1976) obtained significant reductions in test anxiety in both an RET and no treatment

group. Improvement in the RET condition was significantly greater than that of the control group. Trexler and Karst (1972) reported positive results in a comparison of RET and two controls in the treatment of speech anxiety. RET subjects reported significantly more confidence as a speaker and less irrationality than either control group. Related programs involving RET study or discussion groups have been demonstrated effective in improving self-esteem in inner-city sixth graders (Knaus & Bokor, 1975), reducing irrationality in college students (Maultsby, Knipping, & Carpenter, 1974), and decreasing irrationality and trait anxiety in the elderly (Keller, Croake, and Brooking, 1975).

Comparisons of RET with other treatment approaches have also produced somewhat conflicting reports. In a comparison of RET, "fixed-role therapy," and controls, fixed-role therapy proved more effective than RET in the alleviation of speech anxiety. RET proved superior to controls on only two of five self-report measures (Karst & Trexler, 1970). In the treatment of interpersonal and general anxiety, DiLoreto (1971) found RET and client-centered therapy to be equally effective, but neither as effective as systematic desensitization. All three treatments were superior to control groups. Tiegerman and Kassinove (1977) found RET, assertion training, and a

combined treatment to be superior to controls on a test of assertiveness. Other comparisons have demonstrated RET to be effective in the reduction of type A behaviors (Jenni & Wollersheim, 1979) and superior to desensitization in the alleviation of stuttering (Moleski & Tosi, 1976).

Several authors have developed treatment programs derived principally from the major tenets of RET. Meichenbaum, for example, developed a treatment for speech anxiety in which maladaptive self-statements were identified and replaced by more adaptive cognitions (Meichenbaum, Gilmore, & Fedoravicius, 1971). He found this "insight" procedure to be as effective as desensitization in reducing behavioral, cognitive, and self-report measures of test anxiety. Both treatments were more effective than a placebo or no treatment control. This program was later extended to include an imagery procedure in which subjects practiced coping with imagined anxiety-provoking situations (Meichenbaum, 1972). This extended treatment produced significant improvement in self-report and behavioral measures of anxiety. In a similar comparison, Holroyd (1976) found an RET insight procedure to be superior to desensitization in the treatment of test anxiety.

Goldfried, too, developed an RET-derived treatment program intended to provide specific procedures for

effecting the cognitive change required in Ellis' approach (Goldfried, Decenteceo, & Weinberg, 1974; Goldfried & Davison, 1976). His procedure, called systematic rational restructuring, includes four steps: 1) presentation of the rationale, in which the basic tenets of RET are explained, 2) an overview and logical analysis of some of Ellis' basic irrational ideas, 3) an analysis of the client's problem in RET terms, and 4) instruction in modifying maladaptive self-statements. This latter phase includes a desensitization variant in which the client imagines a hierarchy of anxiety-provoking situations and uses negative affect as a cue to identify and re-evaluate irrational self-statements. Two successful case studies have been reported in the application of systematic rational restructuring to speech anxiety (Goldfried, Decenteceo, & Weinberg, 1974) and the control of anger (Hamberger & Lohr, 1980). Goldfried, Linehan and Smith (1978) conducted a controlled study comparing rational restructuring to a partial treatment (hierarchy exposure only) and a no treatment control. Rational restructuring resulted in significantly less self-reported test anxiety than other conditions and produced significantly greater generalization of effects.

Overall, the clinical efficacy of RET, particularly when not used in combination with other procedures, is yet

to be conclusively established. Other recent reviews, i.e., Zettle and Hayes (1980), have reached similar conclusions. Even RET proponents acknowledge that the data are "generally positive and promising" yet "far from conclusive" (DiGuiseppe, Miller, & Trexler, 1977, p. 70). The most encouraging conclusions have been drawn by Smith and Glass (1977) in their meta-analysis of 375 therapy outcome studies comparing 10 varieties of therapeutic approach, including RET, behavior therapy, systematic desensitization, and dynamic psychotherapy. They found systematic desensitization to be the most effective treatment, followed by RET and then behavior modification. This analysis included therapy analogue studies, however, and did not control for relevant variables such as severity of subjects' disturbance, therapists' experience, etc.

Further, even though some empirical evidence has emerged which supports the efficacy of RET, little data exists to support Ellis' basic premise that psychotherapeutic change is the result of changes in irrational beliefs. Only one study was located which examined the extent to which changes in irrational beliefs were associated with therapeutic change in a clinical population (Smith, 1983). The author reports a significant correlation between changes on a measure of

irrational thinking and degree of change in clients receiving RET. However, similar correlations were also obtained for clients in a control condition, suggesting that the relationship between changes in belief and therapeutic change may be unrelated to the use of RET per se, but may instead be a product of nonspecific factors involved in any treatment approach.

Cognitive therapy: Aaron Beck The second major cognitive theorist is Aaron Beck (1976, 1979). Like Ellis, Beck is a psychoanalytically-trained therapist who gradually abandoned analysis in favor of a model stressing the mediational role of self-verbalization in emotion and psychological disturbance. But where Ellis emphasized a small number of general irrational beliefs, Beck carried this analysis further to specify the particular type of cognition associated with each emotion (LaPointe & Harrell, 1978). As Beck (1976) states

> The specific content of the interpretation of an event leads to a specific emotional response. Further,...we can generalize that, depending on the kind of interpretation a person makes, he will feel glad, sad, scared, or angry - or he may have no particular emotional reaction at all (Beck, 1976, pp. 51-52).

For example, in sadness the dominant interpretation is that something of value has been lost, whether tangible (money, friends) or intangible (prestige, love), or the

expectation of future loss. Conversely, euphoria results from the interpretation that something of value has been gained or the expectation of future gain. Beck refers to these interpretations as "automatic thoughts," suggesting their reflexive character and the individual's tendency to view them as accurate even when they represent significant distortions.

Although Beck does not present a list of basic irrational ideas which lead to emotional disturbance, he does suggest a specific relationship between ideational content and psychopathology. Given the relationship between particular emotions and psychological disorders, i.e., sadness and depression or elation and mania, Beck proposes that the disorders may be distinguished on the basis of the idiosyncratic ideational content characterizing the related emotion. For example, depression is associated with sadness and is thus characterized by a devaluation of the personal domain, phobias are associated with fear and are thus characterized by thoughts of danger related to a specific avoidable situation. Unlike Ellis, Beck regards these distortions not as the product of innate tendencies, but rather as the result of defective learning.

Since idiosyncratic thought processes are at the heart of psychological disturbance, cognitive therapy

focuses on identifying and correcting distorted automatic thoughts. The client is taught to: 1) monitor automatic thoughts, 2) recognize their relationship to affect and behavior, 3) examine the evidence supporting maladaptive cognitions, 4) replace distorted thoughts with more realistic appraisals, and 5) identify and modify underlying general beliefs creating specific distortions. A variety of cognitive and behavioral techniques may be used to achieve these goals, including the logical-persuasive methods advocated by Ellis, i.e., the ABC method. In addition, Beck adopts a "practical scientist" approach, formulating the clients' distorted thoughts into hypotheses to be tested empirically. For example, the client's belief that "If I were to act assertively, people would reject me" might be tested by instructing the client to perform selected assertive behaviors and observe the result.

Research in cognitive therapy has primarily concerned the nature and treatment of depression. Although limited, this research offers some support for the hypothesized relationship between cognition and emotional disturbance, at least with regard to depression. Beck (1963), for example, analyzed notes from therapy sessions with depressed clients and reported a distinctive ideational content characterized by themes of self

denigration, loneliness, hopelessness, and self-reproachment. Depressed thought content was also characterized by specific cognitive distortions, including arbitrary interpretation, overgeneralization, and magnification of negative consequences. This general negative quality of depressed thinking has also been demonstrated in more rigorous research, indicating greater "masochistic" dream, memory, and projective content (Beck, 1961) and fewer expectations of success (Loeb, Beck, & Diggory, 1971) in depressed than non-depressed subjects. Extending this analysis to non-client subject populations, Weintraub, Segal, and Beck (1974) administered measures of depression and cognitive content to normal subjects over a period of two months and found strong correlations between negative ideational content and depressed mood.

Researchers other than Beck and his colleagues have also reported the hypothesized dysfunctional attitudes and cognitive distortions in the thinking of depressed subjects. Missel and Sommer (1983), for example, found that hospitalized depressed clients exhibited significantly less positive self-verbalizations and more negative self-verbalizations than a group of non-depressed hospitalized clients. Further, they obtained a significant negative correlation between amount of positive self-talk and depth of depression and a

significant positive correlation between negative self-talk and depth of depression. Also employing a psychiatric inpatient population as subjects, Norman, Miller, and Klee (1983) found significantly more depressive cognitive distortions among depressed subjects than non-depressed.

Other researchers have attempted to verify the implication in Beck's theory that this style of depressive thinking represents a more general cognitive style that persists beyond the immediate depressive episode. That is, by assigning a causal role to depressive cognitions, Beck seems to indicate that there is a traitlike characteristic of depressive cognitions that precedes the onset of depression and generally characterizes the depression-prone individual's thinking. Hamilton and Abramson (1983), however, found that subjects recovered from a depressive episode were indistinguishable from normals and a non-depressed psychiatric group in cognitive style. Similarly, Wilkinson and Blackburn (1981) and Silverman, Silverman, and Eardley (1984) were unable to distinguish between the cognitive styles of formerly depressed clients and normals. These findings suggest that

> the cognitive style exhibited by clinically depressed individuals appear(s) to be more a feature of the depressive episode itself than an enduring cognitive characteristic of the depressed individual....(Hamilton

& Abramson, 1983, p. 182).

Riskind and Rholes (1984) attempted to reconcile these findings with Beck's theory by suggesting there might indeed be a traitlike negativistic character to the thinking of depression-prone individuals, but that these thinking patterns may not be apparent under most conditions. They propose that only when "primed" by certain stressful situations will these patterns become salient and produce the characteristic cognitive distortions and other symptoms of depression.

Treatment studies employing Beck's procedure, though not numerous, have produced consistent positive results. In an uncontrolled trial, Rush, Khatami, and Beck (1975) combined cognitive and behavioral methods in the treatment of three chronically depressed clients. Treatment produced a marked decrease in symptoms which was maintained at one year follow-up. Shaw (1977) compared cognitive therapy, behavior therapy, and nondirective and no treatment control groups. At postassessment, cognitive therapy was superior to all groups on self-reported depression and superior to controls on an observational measure. At one month follow-up, however, there were no significant differences between the cognitive and behavioral groups. In a similar comparison, Taylor and

Marshall (1977) employed a cognitive approach (based primarily on Beck and Ellis), behavior therapy, a combined procedure, and a no treatment control. Self-report data indicated all three treatment groups were superior to controls and that cognitive and behavioral treatments did not significantly differ. The combined treatment proved superior to the average of its individual components. Using both self-report and a clinician rating scale, Wilson, Goldin, and Charbonneou-Powis (1983) found cognitive and behavioral approaches to be equally effective and superior to a no treatment control condition.

Comparisons of cognitive therapy and psychopharmacological approaches to the treatment of depression have also been presented. Rush, Beck, Kovacs, and Hollon (1977) found that both cognitive therapy and tricyclic pharmacotherapy produced significant improvement on self-report and clinical ratings of depression. They obtained no significant differences between treatment approaches. It is relevant to note, however, that 68% of the pharmacotherapy subjects later re-entered therapy, as opposed to only 16% of the cognitive therapy subjects. These findings were essentially replicated by Murphy, Simons, Wetzel, and Lustman (1984) who compared cognitive therapy, tricyclic pharmacotherapy, cognitive therapy plus

pharmacotherapy, and cognitive therapy plus a placebo. All groups demonstrated significant improvement with no significant differences between groups. Thus, the effect of combining cognitive and pharmacological approaches was neither additive nor interfering. Finally, the particular therapeutic changes produced by cognitive and pharmacological methods do not appear to be specific to the type of treatment employed, i.e., both approaches produce similar changes in cognition despite the fact that only the cognitive methods specifically focus on cognition as a target behavior (Simons, Garfield, & Murphy, 1984).

Although originally conceived as "cognitive" or "semantic" therapies, in their current stage of development both RET and cognitive therapy seem more accurately described as cognitive-behavioral. Ellis (1977), for example, notes that RET has expanded from its original emphasis on cognitive disputing to include many other behavioral and cognitive techniques.

> ...although RET was once a special kind of rational-persuasive therapy, it no longer really is only of that nature any longer. It has grown significantly in recent years.... In many respects, it is now synonymous with what is often called cognitive-behavior (CB) therapy or cognitive-behavior modification....(pp. 73-74).

He then clarifies this relationship by drawing a distinction between "elegant" and "inelegant" RET.

Inelegant RET is essentially synonymous with cognitive-behavior modification and focuses primarily on symptom removal. Elegant RET goes beyond symptom removal to effect a change in the client's underlying philosophical outlook and, as such, is presumably more inclusive than cognitive-behavioral approaches. Beck, on the other hand, does not specifically acknowledge the close relationship between cognitive therapy and cognitive-behavior modification, but his theory and method of treatment indicate an essential agreement with the cognitive-learning model outlined by Mahoney (1974).

Although Beck, Ellis, and other cognitive-behaviorists write extensively concerning the relationship between emotion and cognition, emotion and psychological disturbance, etc., little is actually said about the nature of emotion itself. Its definition, nature, and general significance is left largely unexplored. Without a general understanding of emotion, however, the investigation of afffect will be limited by each individual's personal understanding or private experience. Therefore, a brief overview of research and theory of emotion will be presented.

Theories of Emotion

With the exception of anxiety, aggression, and perhaps a few other specific emotional phenomena, human emotion has been largely ignored by academic psychology (Izard, 1971). Emotion, like cognition, was considered too mentalistic for a scientific discipline and was generally subsumed under topics such as drive, motivation, and activation (Arnold, 1960). Since the 1960's, however, as interest in cognitive phenomena increased, so did interest in the emotions. Several comprehensive theories of emotion have been developed, drawing concepts and data from diverse disciplines, including psychology, biology, neurology, and ethology. Three of these current theories, particularly relevant to the differentiation and measurement of emotion, will be reviewed.

Robert Plutchik: Emotion as adaptive response A central concept in Plutchik's "psychoevolutionary" theory is the evolutionary significance of the emotions (Plutchik, 1962, 1970, 1980). He notes that all organisms, regardless of their position on the phylogenetic scale, possess certain classes of adaptive behavior which function to meet basic internal and environmental demands. Because these basic demands are consistent across species, their corresponding adaptive

behaviors are also common to all species. Plutchik postulates eight basic classes of adaptive behavior essential to the survival of the organism. Each adaptive process forms the prototypic pattern for a primary emotion in humans and animals. The eight adaptive processes, their definitions, and associated emotions are as follows.

Adaptive Process	Definition	Emotion
Incorporation	Ingestion of food	Acceptance
Rejection	Expulsion of wastes	Disgust
Destruction	Removal of barriers	Anger
Protection	Prevention of harm	Fear
Reproduction	Procreation	Joy
Reintegration	Response to loss	Sadness
Orientation	Response to new stimuli	Surprise
Exploration	Exploration of environment	Anticipation

The concept of primary emotions has a specific meaning in Plutchik's theory. A primary emotion must be: 1) relevant to a basic adaptive process, 2) identifiable in some form at all phylogenetic levels, 3) independent of introspection or particular neural structures for its definition, and 4) defined primarily in terms of goal-directed behavioral responses. As with the primary colors, from which the analogy is drawn, the primary

emotions vary in terms of intensity, hue, and degree of similarity to one another. At each level of intensity the primary emotions can be arranged into a circumplex, with similar emotions located adjacent to each other and becoming increasingly dissimilar as they are separated on the circle. As with color mixtures, any emotions on the circumplex may be combined to produce a mixed emotion, for example, combining joy and acceptance to form love.

With respect to the role of cognition in the emotion process, Plutchik's theory resembles those of Ellis and Beck. As Plutchik states:

> The existence of any emotion presupposes the prior occurence of an evaluation. This is true for human adults, for infants and for animals (1980, p.288).

Thus emotion is not the direct product of an environmental event, but is mediated by cognitive appraisal. Further, each primary emotion is the result of a specific class of appraisals, i.e., grief results from the evaluation of isolation, fear from the evaluation of danger. In higher animals these evaluations are primarily learned, while in lower animals some may be innate. In either case, the majority of cognitive appraisals must be accurate if the organism is to respond adaptively to its environment. The complete sequence of events involved in the emotion process is diagrammed below (from Plutchik, 1980).

Stimulus--Cognitive--Subjective--Behavioral--Function
Appraisal Reaction Reaction

For example:

Threat----"Danger"---Fear--------Flee--------Protection

The term "emotion" is properly applied to the entire sequence.

As indicated in the diagram, an important component in the emotion process is the impulse to action. Each primary emotion is accompanied by a tendency to behave in a certain way, i.e., to run when afraid, to reunite with the lost object when sad, etc. Thus the behavioral component provides an important "language" for the emotions which is particularly relevant from a clinical perspective.

> Although patients may not always be able to describe the emotions they feel in clear, subjective terms, it is likely that they will be able to describe the impulses to action that are mixed up in their internal conflicts (Plutchik, 1980, p. 360).

In contrast, physiological and neurological variables are de-emphasized.

Plutchik presents little empirical evidence to support his theory. Various rating procedures have offered some support for his concept of levels of intensity and emotion mixtures, but these data were not presented statistically (Plutchik, 1962). Perhaps the most supportive evidence is provided by Conte (cited in

Plutchik, 1980). She asked subjects to rate a list of 142 emotion words in terms of their similarity to three reference emotions. Similarity ratings were converted to angular placements and the words arranged on a circle. She found that terms with similar meanings tended to cluster on the circle and that clusters corresponding to Plutchik's eight primary emotions could be identified. The ordering of emotions was as predicted with only minor variation.

Much of the rest of Plutchik's work relates to the measurement of the primary emotions and their relationship to psychopathology and personality. Kellerman and Plutchik (1968) developed the Emotions Profile Index (EPI) on the assumption that personality traits are derived from a stable mixture of primary emotions. Subjects completing the EPI are asked to choose which term from a pair of personality traits is most like them and in so doing also describe themselves in terms of that trait's presumed underlying emotions. In a comparison of maladjusted and normal subjects, the authors found significant differences on most of the eight primary emotions, i.e., disturbed patients scored significantly lower on reproduction and higher on destruction than normals. Other studies have demonstrated that EPI scores can discriminate between patients in a manic or depressed state (Platman, Plutchik,

Fieve, & Lawlor, 1969), depressed inpatients and controls (Fahs, Hogan, & Fullerton, 1969), and patients on antidepressant medication or a placebo (Fiev, Platman, & Plutchik, 1968). The EPI has also been used to establish emotion profiles for various populations including psychiatric residents (Plutchik, Conte, & Kandler, 1971), drug addicts (Sheppard, Fiorentino, Collins & Merlis, 1969), and asthma patients (Plutchik, Williams, Jerrett, Darasu, & Kane, 1978).

Silvan Tomkins: Emotion as subcortical programs In Tomkins' system (Tomkins, 1962, 1963, 1970), the emotions are the product of biologically adaptive "subcortical programs." Each emotion is associated with a particular program which, when activated, imposes a specific pattern of response on various organs throughout the body, including the face, heart, and endocrines. When employed in the service of a different affect program, these same organs are organized into a different pattern. Tomkins, like Plutchik, originally proposed eight primary emotions associated with these subcortical programs, although he offered no rationale for his selection. The primary emotions, expressed in two-term labels indicating low and high intensity, are interest-excitement, enjoyment-joy, surprise-startle, distress-anguish, fear-terror, shame-humiliation, anger-rage, and contempt-disgust. The

contempt-disgust category was later split into separate emotions of contempt and disgust, yielding a total of nine primary emotions (Tomkins, 1970).

The activating stimuli for these programs are also considered innate and specific to the individual emotion. Thus there is a specific inherited activator for enjoyment-joy, which is distinct from the specific activator for distress-anguish, and so on. The general characteristic which distinguishes these activating stimuli is change in the density of neural stimulation, i.e., the number of neuronal firings per unit time. When the density of neural firing increases, either startle, fear, or interest is experienced depending on how suddenly the increase occurs. When the density of firing is maintained at a steady state, either anger or distress is experienced depending on the intensity of stimulation. When neuronal stimulation abruptly decreases, joy is experienced. It should be noted that changes in neuronal stimulation constitute the immediate cause of emotion and may themselves be evoked by a variety of stimuli. For example, the sharp decline in stimulation which characterizes joy may be evoked in the young child by the relief of being caught safely in a parent's hands after being tossed in the air or the sudden appearance of the doll in a jack-in-the-box after several moments of

mounting anticipation.

For Tomkins, the patterning of facial muscles plays an essential role in the subjective experience of emotion. When the subcortical program for a primary emotion is activated, a particular pattern of facial activity is evoked, i.e., the smile of enjoyment or the attentive gaze of interest. To a significant degree, it is the awareness of this facial activity which constitutes the emotional experience. Facial activity is not merely the expression of the emotion, but, in essence, it is the emotion. Thus we are happy when we smile, sad when we cry, contemptuous when we sneer, etc. Learning and cognition play only a secondary role in emotion:

> One does not learn to be afraid or to cry or to be startled any more than one learns to feel pain or to gasp for air (Tomkins, 1970, p. 106).

Tomkins also stresses the motivational properties of emotion. Although the biological drives are often considered the primary motivational system for human behavior, Tomkins maintains this is an error based on the confusion of drive "signal" with its affective "amplifier." He maintains that the drives provide only the signal and it is the emotions which serve to "boost the gain" and give the drives their intensity and motivational quality. For example, the deprivation of

oxygen provides a drive signal which is amplified by the emotion of panic to produce the highly motivated behaviors of gasping, struggling, etc. He notes that pilots during WWII who refused to wear an oxygen mask suffered a gradual oxygen deprivation which was insufficient to produce the motivating panic and thus resulted in suffocation. The drive signal alone was insufficient to motivate behavior without the accompanying affect.

Tomkins is primarily a theoretician and offers little original empirical support for his theory. However a colleague of Tomkins, Carroll Izard, has expanded and modified his theory and provided empirical data to support some of its tenets.

Carroll Izard: Emotion as neural, motor, and subjective response From Izard's perspective (Izard, 1971, 1972, 1977), a primary emotion consists of three interrelated processes: 1) observable patterns of expression, particularly in the face, 2) activity occuring in the brain and nervous system, and 3) subjective experience. Accordingly, at one level emotion is facial and bodily expression, but it is neurochemical activity at another level, and subjective experience at a third. These components are largely, but not entirely, interdependent and all three must be present in order for a complete discrete emotion to occur. Other systems are

also involved in emotion on a secondary basis, including reticular, glandular-visceral, cognitive, and motor systems.

Like Tomkins, Izard conceptualizes emotion in terms of subcortical programs which impose a series of patterned facial and bodily responses specific to each primary emotion. It is the sensory feedback from these activities which constitutes the emotional experience.

> When neurochemical activity, via innate programs, produces patterned facial and bodily activities, and the feedback from these activities is transformed into conscious form, the result is a discrete fundamental emotion...(Izard, 1971, p. 185).

Based on Tomkins' model, Izard first proposed nine (Izard, 1972) and then ten (Izard, 1977) fundamental emotions. This latter list included interest-excitement, enjoyment-joy, surprise-startle, distress-anguish, disgust-revulsion, anger-rage, contempt-scorn, fear-terror, shame/shyness-humiliation, and guilt.

According to Izard, the study of the fundamental emotions is made difficult by the fact that a "pure" emotion occurs only rarely. When one emotion is experienced it often serves as the stimulus for a second or third emotion, quickly resulting in a pattern of emotions rather than a single discrete emotion. Thus, although a single emotion may be dominant in a particular

situation, it typically occurs as part of a collection of related emotions. These interrelationships among emotions have resulted in certain combinations of fundamental affects which occur with sufficient regularity to form identifiable, stable patterns of emotion. These patterns of primary emotions are often themselves mistaken for unitary fundamental affects. For instance, anxiety, often viewed as a unitary emotion, has as its major component the primary affect of fear but also includes two or more other affects such as distress, anger, shame, or interest. Similarly, depression consists of the key affect of distress in addition to anger, disgust, contempt, fear, guilt, and shyness.

To support his theory of primary and mixed emotions, Izard (1971, 1972) developed the Differential Emotions Scale (DES). Several emotion terms representing each of the original nine fundamental affects were administered to 622 subjects with instructions to indicate their current emotional state. A factor analysis yielded 11 factors corresponding closely to the proposed fundamental affects. A second factor analysis of 1182 responses to a revised DES yielded a highly similar factor structure, as did an analysis of the responses of 163 black students to imaginal situations involving racial discrimination (Izard, Chappell, & Weaver, 1970).

In an investigation of the components of anxiety, Bartlett and Izard (1972) administered a 24-item DES and a self-report measure of anxiety prior to a midterm examination. As expected, highly anxious subjects yielded elevated scores on fear, distress, shyness, guilt, and anger in comparison to subjects low in anxiety. Simpson (cited in Izard, 1972) presented an imaginal anxiety-provoking stimulus (contemplation of death) and obtained highest mean scores on the fear dimension, followed by interest-excitement and distress. In the discrimination study mentioned above (Izard, Chappell, & Weaver, 1970), early discrimination experiences were compared with more recent experiences under the assumption that the former would be more anxiety-provoking. Early experiences yielded higher scores on fear-distress, guilt, shyness, and surprise than more recent experiences, which yielded higher anger-disgust-contempt scores. Using a similar approach, Marshall and Izard (cited in Izard, 1972) found that subjects asked to imagine a depressing situation reported highest scores on distress, followed by disgust, contempt, and anger.

A second major area of research related to Izard's theory concerns the role of facial expression in emotion. Izard proposes that each fundamental emotion is associated with a particular form of facial patterning which has as

its adaptive function the communication of affect. He reasoned further that if this communicative function is to operate, the ability to recognize these expressions must also be innate. Izard (1971) conducted two cross-cultural studies to test the hypothesis that facial expressions are universally recognized.

In the first, a series of facial photographs representing each of Tomkins' eight primary affects was administered to subjects from nine cultural groups: American, English, German, Swedish, French, Swiss, Greek, Japanese, and African (data from the African group was eliminated from most analyses due to a language problem). The subjects' task was to match each photograph to one of a list of eight emotion terms. The percent correct identifications ranged from 49.9 to 83.4 with an average of 78. In the second study, a revised set of photographs was used which included additional photographs representing separate disgust and contempt categories. Using the same procedure as before, the stimuli were adminstered to subjects from the U.S., Turkey, India, and Japan. Accuracy ranged from 56-73% with an average of 66%. The author attributed the lower identification rate in part to difficulties distinguishing disgust from contempt.

Eckman, Friesen, and Ellsworth (1972), in a critique

of the two preceding studies, suggested that Izard's high cross-cultural identification rate may have been due to shared cultural conventions regarding the expression of emotion. Eckman and his colleagues sought to minimize this difficulty by including preliterate cultures in their comparisons. Ekman, Sorenson, and Friesen (1969) administered a recognition task similar to Izard's to subjects from three literate and three preliterate groups. Subjects from literate cultures accurately identified almost all the photographs, whereas preliterate subjects identified from 37 to 60 percent. On the assumption that even subjects from a preliterate culture may have had exposure to mass media presentations, Ekman and Friesen (1971) selected only those subjects meeting specific criteria, i.e., those who understood no English, had seen no movies, etc. Subjects were read a story and asked to choose which of three photographs best depicted the emotion represented in the story. A significant proportion of the subjects' responses were correct, except when discriminating fear from surprise.

More recently, researchers have attempted to directly manipulate emotion through the posing of facial expression. Tourangeau and Ellsworth (1979) used a pretext to have subjects assume sad, fearful, or nonemotional expressions while viewing emotionally

arousing or neutral films. Self-report and physiological measures indicated facial expression was neither sufficient or necessary for emotional experience. Laird (1974), however, found posed expressions of happiness and anger resulted in the predicted changes in subjective experience and ratings of humor in cartoons. Similarly, the suppression of facial behavior was found to reduce GSR and subjective ratings of the painfulness of electric shock (Lanzetta, Cartwright-Smith, & Kleck, 1976). Buck (1980) after a review of the literature concludes that the evidence is insufficient to either support or refute the hypothesized relationship between facial feedback and emotion.

The Laboratory Induction of Mood States

A wide variety of techniques have been used to induce mood in the laboratory. In addition to imagery (Izard, 1972) and facial posturing (i.e., Laird, 1974) procedures described above, other methods have included viewing stressful films (Lazarus, Speisman, & Mordkoff, 1962), adrenalin injections (Schachter & Singer, 1962), verbal attack (Atkinson & Polivy, 1976), threat of electric shock (Herman & Polivy, 1975), and tape recorded vignettes (Williams, 1980). One of the most commonly used methods

is Velten's (1968) self-statement technique.

The purpose of Velten's study was to test the major tenet of the "semantic" theorists concerning the relationship between cognitive appraisal and emotion. Three sets of 60 self-statements were devised to represent elation, depression, and emotional neutrality. These stimuli were not derived from any particular theory or criteria and represented a combination of self-evaluatory statements and suggestions of somatic sensations. Depression, elation, and neutrality conditions were included, plus elation-demand and depression-demand control groups instructed to respond as if they had received elation or depression statements. Results indicated significant differences between elation and depression conditions on writing speed, decision time, adjective checklist scores, reaction time, and quantity of spontaneous verbalizations. The demand groups obtained means which were closer to the opposite mood treatment on five of seven measures, and on two measures differed significantly from their treatment counterparts in the direction of less arousal. Thus, demand characteristics appeared to play a minor role in treatment outcome.

Velten's procedure and its variants have been demonstrated to affect mood states on a variety of self report and behavioral measures. These have included

measures of general demeanor (Coleman, 1975), reaction time (Matheny & Blue, 1977), willingness to help others (Aderman, 1972), latency to recall of pleasant and unpleasant emotions and length of pause time on a counting task (Teasdale & Fogarty, 1979), graphic expansion and preference for social or solitary activity (Hale & Strickland, 1976), digit symbol performance and writing speed (Strickland, Hale, & Anderson, 1975), various aspects of speech patterns (Natale, 1977), hand gestures (Natale & Bolan, 1980), and scores on the Multiple Affect Adjective Checklist (Schare & Lesman, 1984).

Despite these positive results, this technique has been criticized on several grounds. Polivy and Doyle (1980), for example, suggested that the failure of Velten's demand groups to produce depressed or elated responses on fairly transparent response measures indicated a "demand not to produce demand effects." The authors replicated Velten's study with the addition of two counterdemand groups led to believe that mood statements would tend to elicit the affect opposite the one expressed. If this counterdemand manipulation was ineffective, subjects would experience the affect represented in the statements; if effective, subjects would experience the opposite emotion. The authors reported that subjects in the counterdemand condition

tended to respond like subjects in the neutral condition. These results were interpreted to suggest that a combination of both demand effects and genuine mood induction was produced.

A second criticism concerns the content of Velten's self-statements (Frost, Graf, & Becker, 1979). Velten's depressive self-statements consisted of a mixture of negative self-evaluations and suggestions of fatigue-related somatic sensations. As a result, subjects' affective responses may have been the result of simple somatic suggestion rather than critical self-evaluations. The authors divided Velten's stimuli into self-evaluative and somatic statements and administered them individually. The results demonstrated that only the somatic suggestion group differed significantly from a neutral condition.

Velten's statements may also be criticized for their lack of a clear theoretical basis. Although apparently intended to be relevant to Ellis' theory, no criteria or rationale for the selection of statements was provided. Thus, it is not possible to generate additional items based on the same criteria nor are the theoretical implications for the understanding of emotion clear.

Finally, Polivy (1981), basing her argument on Izard's (1972) theory of patterns of emotion, contends that laboratory methods of inducing affect do not simply

induce a single emotion, but a cluster of emotions. Thus, previous studies of the induction of single affect states may also have yielded changes in other emotions had they been measured. She employed three methods of inducing a target emotion, including Velten's procedure, but assessed for a range of possible affects. In each instance, she found the induction procedure elicited the target affect along with significant increases in other, nontargeted, emotions as well.

Statement of the Problem

The cognitive-behavioral approach to emotion and emotional disturbance appears to be achieving increased professional acceptance. In addition to the literature reviewed above, a number of cognitive-behavioral texts, i.e., Grieger and Boyd, (1980), Meichenbaum, (1977), Foreyt and Rathjen (1976), and Kendall and Hollon (1979, 1981) have recently been published. However, the empirical evidence supporting this approach is lacking in several respects.

1) Much of the evidence, particularly as it concerns Beck's theory, consists of treatment outcome or therapy analogue studies. Such studies may provide support for the efficacy of treatment but do not necessarily imply support for the underlying theory.
2) The mood induction procedure employed by Velten and others, while related to cognitive-behavioral theory in a general way, lacks sufficient theoretical grounding to provide explicit support for any particular theorist, such as Beck or Ellis.
3) Those few studies which do attempt to directly investigate the underlying cognitive-behavioral

theory (i.e., Rimm & Litvak, 1969; Rogers & Craighead, 1977) do not provide convincing support (Coyne & Gotlib, 1983).

4) The role of personality variables has sometimes been investigated in the treatment outcome literature, but has generally been overlooked in self-statement research. It is unclear whether the emotion-arousing effects of self-statements are mediated by personality characteristics.
5) Most studies concerning self-statements and emotion have included only female subjects, i.e., Velten (1968) and Natale (1977).

The purpose of the present study was to investigate the fundamental assertion of cognitive-behavioral theory that self-statements mediate emotional arousal. This hypothesis is most clearly formulated by Beck (1976) who relates specific self-statement content to particular emotions. The approach used to induce affect was a modification of Velten's procedure employing sadness and joy statements constructed explicitly to meet criteria outlined by Beck. Five experimental conditions were included which differed in the type of self-statement presented. The first two conditions consisted either of a series of sad self-statements or a series of happy statements. The third condition, the disputing group,

consisted of the original set of sad statements plus a series of statements designed to rationally re-evaluate them in the manner advocated by Ellis and Beck. The psuedo-disputing condition consisted of the series of sad statements plus a series of neutral statements designed to have no affective impact. In the last condition, the sad statements were presented followed by a period of silence in which no statements were administered.

Based on cognitive-behavioral theory and previous empirical research, it was expected that presenting subjects with either happy or sad statements would result in corresponding feelings of happiness or sadness. In addition, it was predicted that providing a logical re-analysis of the content of the sad statements would reduce the intensity of affect elicited by the items. The effect of this rational process was expected to exceed the effects of simply presenting any statements following the sad statements or merely allowing the passage of time without presenting any further stimuli.

METHOD

Overview

The nature of the study was explained and subjects were asked to sign a consent form. A series of personality questionnaires was administered, consisting of the Repression-Sensitization Scale (RSS), Eysenck Personality Inventory (EPI), and Irrational Beliefs Test (IBT). This was followed by four measures of emotional state including the Differential Emotions Scale (DES), Depression Adjective Check Lists (DACL), Picture Choice Scale (PCS), and Emotion Behaviors Scale (EBS). A series of tape-recorded statements was then administered representing one of five possible treatment conditions. In the joy condition, subjects were presented 15 statements reflecting a happy mood. Similarly, in the sad condition subjects were administered 15 statements reflecting a sad mood. In the disputing condition, subjects were presented the same 15 sad statements followed by a rational reanalysis of those statements. This condition was designed as an analogue to the cognitive-behavioral treatment technique of rationally reanalyzing maladaptive thoughts. Subjects in the

psuedo-disputing group received the series of sad statements followed by a series of emotionally neutral statements. This condition was intended as a control for the effects of simply presenting any kind of statement following the sad statements. Lastly, as a control for the passage of time, subjects in the wait condition were presented the sad statements followed by a period of silence in which no statements were administered. Immediately following the experimental manipulation, subjects were readministered the four measures of emotion, plus a Post-Assessment Questionnaire (PAQ). All subjects were run on a group basis. See Table 1 for a summary of the design of the study.

Subjects

One hundred thirty-five students (55 male, 80 female) enrolled in an undergraduate psychology course served as subjects. Data collection was begun at Michigan State University (n=16) and completed at Purdue University (n=119). Class credit was provided in exchange for subjects' participation in the study.

Table 1
Design Summary

Initial Assessment Instruments for Each Group		Experimental and Control Groups					Post-assessment Instruments for Each Group
Personality Measures	Emotion Measures	Disputing	Psuedo-disputing	Wait	Sadness	Joy	Emotion Measures
RSS EPI IBT	DES DACL PCS EBS	15 sad statements 15 disputing statements	15 sad statements 15 neutral statements	15 sad statements time	15 sad statements	15 joy statements	DES DACL PCS EBS

Experimenter

All procedures were administered by the author. Possible experimenter bias was held constant through the use of tape-recorded stimuli.

Stimuli

Stimuli consisted of a series of tape-recorded sentences ("self-statements") presented at the rate of 1 every 20 seconds. Subjects were asked to focus their attention on the statements and imagine they were their own thoughts. Four types of self-statements were constructed: happy, sad, neutral, and disputing.

Self-statements reflecting sadness and joy were developed based on the following criteria adapted from Beck's (1976) theory of emotion.

> Sadness items must suggest that something of value has been lost from the speaker's "personal domain." This loss may take any of several forms:
>
> 1) The loss of a tangible object, i.e., money, friends, physical characteristics,
> 2) The loss of an intangible object, i.e, self-esteem, popularity, respect, love, status,
> 3) A reversed evaluation, i.e., something once regarded as positive is now viewed negatively,
> 4) A discrepancy between what is expected and what is received, i.e., a disappointment,
> 5) The expectation of future loss,
> 6) A hypothetical loss, i.e., no loss has actually occured but it "could" happen,
> 7) A psuedo-loss, i.e., something which is not actually a loss is perceived as such.

> That which is lost may be stated explicitly in the item, or only implied.
>
> Happiness statements must suggest that something of value has been added to the speaker's "personal domain." This may involve the addition of something tangible, or the expectation of future pleasure or gain. That which is gained may be stated explicitly in the item or only implied.

Neutral items were also constructed to reflect an absence of emotional content. These items were typically informational statements devoid of self-reference.

A panel of three judges was selected to review sadness and joy items for adherence to Beck's criteria. Judges were graduate students in clinical psychology in at least their third year. Items rejected by any judge were eliminated from the set. Only one judge eliminated any items. This pool of items plus neutral items were administered to a group of 35 undergraduate raters in a preliminary study to select the 15 sad, happy, and neutral self-statements to be used in the present study. Each statement was rated on a scale of 1-9, where high and low scores reflected happiness and sadness respectively, and middle scores reflected emotional neutrality. Statements with the highest and lowest mean scores were selected as joy and sadness items, and statements with ratings closest to five were chosen to represent neutrality. The average of the mean scores for the 15 happy items selected for use

in the current study was 7.5 (males) and 8.3 (females). Corresponding scores for the 15 sad items were 2.42 (males) and 1.69 (females), and for the 15 neutral items the average was 5.1 for both sexes. It is interesting to note that male subjects were less emotionally reactive to the statements than females. Male subjects reported less sadness in response to the sad statements and less happiness in response to the happy statements than their female counterparts. This suggests the influence of different cultural expectations for men and women regarding the expression of affect.

One other kind of self-statement was included in the study. A series of disputing statements was developed as an experimental analogue to the treatment technique of rationally re-analyzing maladaptive statements. These items were developed on a logical basis as an objective re-evaluation of the series of sad self-statements and were designed to reduce the emotional arousal suggested in these statements.

Measures

Personality measures Three personality measures were administered prior to the experimental procedures.

a) Repression-Sensitization Scale (RSS) The RSS (Byrne, 1961; Byrne, Barry, & Nelson, 1963) was designed to identify subjects' typical mode of response to threatening stimuli. The repressive extreme of the repression-sensitization continuum is characterized by avoidance defenses, such as denial, and a relatively low level of emotional responsivity. The sensitizing extreme is characterized by approach defenses, such as intellectualization, and a relatively high level of emotional responsivity. Byrne's original scale (Byrne, 1961), a revision of an earlier measure by Altrocchi, Parsons, and Dickoff (1960), contained 182 items drawn from the MMPI. One hundred fifty-six were scorable and 26 were buffer items. Validational studies indicated RSS scores were related to measures of similar personality dimensions, i.e., authoritarianism and inhibition-facilitation, tendencies toward negative self-description, and for males, the number of sexual responses to the TAT.

Byrne, Barry, and Nelson (1963) performed an item analysis of the RSS and retained only those items significantly correlated with total scores. This process resulted in 127 scorable items and 55 buffers. The authors report the new scale has a split-half reliability of .94, and a test-retest reliability of .82 over a 3-month period. With regard to validity, two studies were

reported in addition to those reported for the original form of the scale. In the first, staff members at a mental health center were asked to respond to the RSS "as they thought a represser would." Concurrence by 7 of the 9 judges was achieved on 82% of the items, and of the 127 scored items, judges' reponses corresponded to the key 90% of the time. Second, defensive style was predicted to influence acknowledgement of conflictual material. Subjects' ratings of behaviors on dimensions of like-dislike, good-bad, and pleasant-unpleasant revealed significant correlations between RSS scores and incongruency between ratings.

In the present study, only the 127 scorable items were administered. Byrne (personal communication, April 2, 1982) has suggested that changes in the number of buffer items administered may alter mean scores on the RSS but is not likely to affect the relative positions of individuals.

b) Eysenck Personality Inventory (EPI) The EPI (Eysenck & Eysenck, 1964) provides measures of two independent dimensions of personality: extraversion (I)-introversion (E) and neuroticism (N). The typical extravert is one who is

> sociable, likes parties, has many friends, needs to have people to talk to, and does not like reading or studying by himself. He craves excitement, takes chances, often sticks his neck out, acts on the spur

> of the moment, and is generally an impulsive individual. He is fond of practical jokes, always has a ready answer, and generally likes changes; he is carefree, easy going, optimistic, and likes to 'laugh and be merry'. He prefers to keep moving and doing things, tends to be aggressive and lose his temper quickly; altogether his feelings are not kept under tight control, and he is not always a reliable person (Eysenck & Eysenck, 1963a, p. 52).

The typical introvert, on the other hand,

> is a quiet retiring sort of person, introspective, fond of books rather than people; he is reserved and distant except to intimate friends. He tends to plan ahead, 'looks before he leaps,' and distrusts the impulse of the moment. He does not like excitement, takes matters of everyday life with proper seriousness, and likes a well-ordered mode of life. He keeps his feelings under close control, seldom behaves in an aggressive manner, and does not lose his temper easily. He is reliable, somewhat pessimistic, and places great value on ethical standards (Eysenck, & Esyenck, 1963a, p. 52).

Neuroticism is defined only in the most broad terms as "a general 'emotional overresponsiveness'" (Eysenck & Eysenck, 1963b, p. 5).

The EPI is a revised version of the Maudsley Personality Inventory (MPI; Eysenck, 1959), a factor analytically-derived instrument designed to measure the same personality dimensions as the EPI. The EPI has two 57-item forms, each consisting of a 24-item N scale, 24-item E scale, and 9-item lie scale. Much of the EPI's validity depends upon its close association with the previously validated MPI (see Eysenck, 1959). Eysenck and Eysenck (1964) state that "in virtue of the close

similarity of the E.P.I. scales to those of the M.P.I." (p. 12) it seems reasonable to argue that the validational support of the MPI would also apply to the new scales. Others have supported this conclusion (e.g., Linden, 1970). Form A (to be used in this study) has a test-retest reliablility of .82 for E and .84 for N over a period of 1 year, and corresponding values of .97 and .88 over a 9-month interval.

c) Irrational Beliefs Test (IBT) The IBT (Jones, 1968) provides an objective measure of the irrational ideas hypothesized by Ellis (1962) and others to be the root cause of psychological disturbance. Using factor analytic procedures, the author sought to demonstrate that

> the irrational beliefs enunciated by Ellis are sufficiently distinct in content and stable in structure to be measureable as separate constructs defined by factors which can be replicated in a separate nonhomogeneous population (p. 35).

A factor analysis of the original pool of rational and irrational belief statements revealed 10 factors, each defined by one of Ellis' (1962) basic irrational beliefs. Analysis of responses to a final 100-item version completed by a second heterogeneous population replicated this factor structure. IBT scores have been found to differentiate psychiatric patients from normals and to correlate significantly with self-reported symptomatology

and six factors from the 16PF indicative of psychological disturbance (Jones, 1968). Similarly, Richie (1975) found IBT scores to be associated with maladjustment as measured by the California Personality Inventory. Homogeneity values for the various subscales range from .662 to .801, with an average value of .737. Test-retest reliability over a 24-hour period is .921 for the entire scale, with subscale values ranging from .675 to .872.

Measures of emotional response Four measures of emotional response were administered immediately prior to and following the experimental procedures (samples of some measures are included in the appendix). These measures address three components of emotional experience: subjective arousal, facial expression, and behavioral preference.

a) Differential Emotions Scale (DES) The DES (Izard, 1972) is a measure of the subjective experience of emotion based on Izard's theoretical framework. The author's purpose in the construction of the test was to develop relatively independent scales or factors to reflect each of the hypothesized primary emotions. Repeated factor analyses of emotion adjectives have substantially affirmed Izard's conceptualization of the primary affects and have formed the basis for various versions of the DES (Izard, 1972). Two studies by

Bartlett and Izard (1972) have provided validational support for the DES. In the first, subjects were asked to recall a situation in their lives in which a specific emotion was strongly experienced. For each emotion situation the highest DES mean was on the scale corresponding to that emotion category. In a second study, subjects were administered the DES and an anxiety inventory immediately prior to a classroom examination. Anxious subjects had higher fear scores and lower joy scores than subjects low in anxiety. The form of the DES to be used in this study is a 30-item version adapted from Pretzer (Reference Note 1). Pretzer reports alpha coefficients for 6 of the 10 subscales ranging from .620 to .926. The two DES subscales of interest in this study were the DES-joy and DES-distress (sadness) scales.

b) Picture Choice Scale (PCS) The PCS was developed for use in this study as a means of employing facial expression in the measurement of emotional response. The rationale for this approach is based on the work of Izard (1971), Tomkins (1962), and Ekman (1973) whose theories emphasize the importance of facial expression in emotional experience. The scale consists of six photographs of human faces representing the following emotions: happiness, disgust, surprise, sadness, anger, or fear. Ekman and his colleagues (Ekman, 1973; Ekman, Sorenson, &

Friesen, 1969) have demonstrated that subjects from various cultures can identify the emotion expressed in each photograph with a high degree of agreement, i.e., ranging from 67-97% for subjects in the United States. Subjects in the present study were asked to rate the degree to which each photograph reflected their current emotional experience. Two PCS subscales were utilized in this study, e.g., the PCS-sad and PCS-happy scales.

c) Emotion Behaviors Scale (EBS) The EBS, also developed for use in this study, assesses behavioral preferences as an index of emotional response. Items were selected from a pool of overt and covert behaviors chosen to reflect five of the six emotions measured by the PCS (surprise was excluded). Forty-five subjects in a preliminary study were asked to imagine they were experiencing each emotion and to rate the extent to which they felt like performing each of the behaviors listed. The 8 items with the highest ratings for each of the 5 emotions were selected to construct a 40-item scale. The two subscales of interest in this study were the EBS-sad and EBS-joy scales.

d) Depression Adjective Check Lists (DACL) Each checklist of the DACL (Lubin, 1967) consists of 32 (forms A-D) or 34 (forms E-G) self-descriptive adjectives selected on the basis of ability to discriminate normals

from depressed psychiatric patients. Subjects are instructed to check those items reflecting their current emotional state. Lubin cites several validation studies indicating DACL scores effectively discriminate depression from other diagnostic categories and correlate significantly with other related measures, i.e., the Beck Inventory of Depression, Zung Depression Scale, D scale of the Multiple Affect Adjective Checklist, and a global rating of depression. The two forms used in this study, forms B and C, have split-half reliabilities of .92 each and internal consistency indices of .81 (form B) and .88 (form C) for males, and .87 (form B) and .88 (form C) for females. The correlation between the two forms is .90.

Procedure

Subjects were run in small groups ranging in size from 2-11, with an average size of 7.5. Groups of subjects representing all five treatment conditions were run until a minimum of 10 males and 10 females per condition was achieved. In order to obtain the desired number of male subjects per group, three of the five groups were run an additional time with male subjects only. Each time the groups were run, they were presented in randomized order. On one occasion there was an error

in randomization, i.e., the conditions were presented in the same order as in the previous administration.

Subjects were informed of the nature of the study both on the experiment sign-up sheet and at the beginning of the experimental session. Each subject was asked to read and sign a consent form (see appendix). The experimenter introduced the procedures as follows:

> In this study I am interested in finding out how you think about things and the way in which you experience feelings. Since everyone's thoughts and feelings are different, I'd like to begin by asking you to complete several surveys of your attitudes, beliefs, and feelings.

At this point, a test booklet was distributed to each subject containing the RSS, IBT, and EPI:

> Please take the next 45 minutes or so to answer the questions in this packet. Fill out the forms as honestly as you can but work quickly without spending too much time on any one item. Your first impression is usually best. Be sure to read the directions for each form carefully since they change from form to form. Do you have any questions?...

When all questionnaires were completed, the booklets were collected and subjects given a five minute break. A second booklet containing the DES, PCS, EBS, and DACL (form B) was then distributed. Subjects were instructed to complete the forms in the same manner as the first (approximately 15 minutes).

After the questionnaires had been completed, the following instructions were presented:

> Now I'm going to be playing a five (ten) minute series of recorded statements. I would like for you to listen to the statements and imagine they are your own thoughts. Think them over in your head as though YOU were the person thinking them. You may find that some of the statements are things you probably would not say to yourself under normal circumstances. Some statements may simply seem untrue about you. That's ok. I don't expect the statements to really be a true and accurate picture of you. But for now temporarily imagine that they ARE true about you. Think them over in your head as if you really did believe them.
>
> As you do this, you may begin to experience one or more emotions. As with the statements, these feelings may not reflect how you actually feel about yourself. Again, just temporarily allow yourself to experience them anyway as you might if you went to a movie that briefly aroused some feeling in you. The purpose here is not to see how you really feel about yourself; the purpose is to see if you can think over these statements and allow yourself to temporarily experience any emotions that may arise. Are there any questions?...Ok, please listen to the statements and if your mind begins to wander from the tape, just refocus on the feeling you had been experiencing.

Each group then received one of five possible treatment conditions.

a) Joy Five seconds of blank tape were provided followed by 15 happy statements presented at the rate of 1 every 20 seconds. Thus the total presentation time was five minutes plus five seconds.

b) Sadness The sadness condition was identical to the joy condition except that sad statements were presented instead of joy statements.

c) Disputing In this condition the same 15 sad statements were presented as above, followed immediately

by 15 disputing statements. These statements were designed to reduce the emotion-eliciting impact of the sadness statements through a process of rational re-evaluation. The rate of presentation of statements was the same as before, yielding a total presentation time of 10 minutes plus 5 seconds.

d) Psuedo-disputing In this condition the 15 sad statements were presented followed by 15 neutral statements. This condition was included to assess the effect of presenting any verbal stimuli following the sad statements. Presentation time was 10 minutes, 5 seconds.

e) Wait group The instructions for this condition were identical to those presented above except the second paragraph was modified to read as follows:

> As you do this, you may begin to experience one or more emotions. As with the statements, these feelings may not reflect how you actually feel about yourself. Again, just temporarily allow yourself to experience them anyway, as you might if you went to a movie that briefly aroused some feeling in you. The purpose here is not to see how you really feel about yourself; the purpose is to see if you can think over these statements and allow yourself to temporarily experience any emotions that may arise. These statements will be followed by five minutes of silence. During this time sit quietly without talking, reading, or any other activity and simply let your thoughts go where they may. Are there any questions?..Ok, please listen to the statements and if your mind begins to wander from the tape, just refocus on the feeling you had been experiencing. During the silence let your thoughts go where they may.

Subjects were then presented the 15 sad statements followed by 5 minutes of silence. This condition was intended to control for the effect of the passage of time following the administration of the sad statements. Presentation time was the same as the disputing and psuedo-disputing conditions.

A summary of the experimental and control conditions is presented in Table 2. A list of the statements included in each condition is presented in the appendix.

When each experimental manipulation was concluded, subjects were readministered the DES, PCS, EBS, and DACL (form C). In addition, subjects were asked to complete a post-assessment questionnaire concerning their response to the study (see appendix). The experiment was concluded with the following announcement:

> If any feelings arose during the experiment that you don't feel comfortable with, please don't hesistate to talk with me about it now, or contact me later...(instructions for future contact varied depending on the circumstances).

Experiment cards were then signed and subjects dismissed. No subjects contacted the experimenter following the study.

Table 2
Summary of Experimental and Control Conditions

Disputing		Psuedo-disputing		Wait	
5 minutes	15 sad statements	5 minutes	15 sad statements	5 minutes	15 sad statements
5 minutes	15 disputing statements	5 minutes	15 neutral statements	5 minutes	no statements

Sadness		Joy	
5 minutes	15 sad statements	5 minutes	15 joy statements

HYPOTHESES

Based on Beck's theory and previous self-statement research, it was expected that statements consistent with criteria for sadness- and joy-eliciting cognitions would produce their respective emotions.

1) The sadness group was expected to show significant pre-post increases in sadness on the DES, EBS, PCS, and DACL.
2) The joy group was expected to show significant pre-post increases in joy on the DES, EBS, and PCS.

Although subjects in the sadness and disputing conditions both received sadness statements, subjects in the latter condition also received an objective re-evaluation of the sad self-statements. Therefore, it was predicted that subjects in the disputing condition would be less affected by the sadness-eliciting stimuli. In addition, this rational re-evaluation was expected to be more effective in reducing sadness than either neutral statements or a five minute period of silence.

3) The disputing group was expected to show significantly less pre-post increase in sadness on the DES, EBS, PCS, and DACL than the sad,

psuedo-disputing, or wait conditions.

As an extrapolation of Beck's theory concerning the role of maladaptive cognitions in the generation of sadness, it was expected that simply replacing negative self-statements with neutral statements would be more effective in reducing sadness than presenting no additional statements following the sad statements.

4) The psuedo-disputing group was expected to show significantly less pre-post increase in sadness on the DES, EBS, PCS, and DACL than the wait condition.

No specific hypotheses concerning the relationship between personality variables and outcome were proposed. Instead, correlations between all personality variables and outcome measures were computed on an exploratory basis. Similarly, an exploratory analysis of sex differences was also planned.

RESULTS

A 2 (sex) X 5 (group) multivariate analysis of variance (MANOVA) with sex and group as between subjects factors and pre-test/post-test as a within subject factor was conducted to test for the influence of sex on outcome measures (see Table 3). Data from measures of both sadness and joy were included in this analysis. The results yielded a non-significant main effect for sex, multivariate $F(7,113)=0.67$, $p>.05$, indicating that males and females did not respond to the self-statements in a significantly different manner on measures of these two emotions. The group X sex interaction was also non-significant, multivariate $F(28,464)=0.70$, $p>.05$. Therefore, data for males and females were pooled for the remainder of the analysis.

A 5 (groups) X 2 (tests) MANOVA was then computed to test for differences among treatment conditions (see Table 4). Again, data from measures of both sadness and joy were included in the analysis. A significant main effect for groups was obtained, mulitvariate $F(28,484)=2.24$, $p<.001$, revealing significant differences among groups on these variables. Therefore, the previously specified comparisons were carried out.

Table 3

Multivariate Analysis of Sex x Group
Using Difference Scores

Source of variance	F	df	p
Sex	0.67	7,113	>.05
Y1: DACL			
Y2: DES-enjoyment			
Y3: DES-distress			
Y4: PCS-sad			
Y5: PCS-happy			
Y6: EBS-sad			
Y7: EBS-joy			
Group	2.21	28,464	<.001
Y1: DACL			
Y2: DES-enjoyment			
Y3: DES-distress			
Y4: PCS-sad			
Y5: PCS-happy			
Y6: EBS-sad			
Y7: EBS-joy			
Group x Sex	0.70	28,464	>.05
Y1: DACL			
Y2: DES-enjoyment			
Y3: DES-distress			
Y4: PCS-sad			
Y5: PCS-happy			
Y6: EBS-sad			
Y7: EBS-joy			

Table 4
Multivariate Analysis of Groups Using Difference Scores

Source of variance	F	df	p
Group	2.24	28,484	<.001

Y1: DACL
Y2: DES-enjoyment
Y3: DES-distress
Y4: PCS-sad
Y5: PCS-happy
Y6: EBS-sad
Y7: EBS-joy

Table 5
Mean Pre-Post Difference Scores and Standard Deviations

		Group				
Variables		Sad (n=25)	Disputing (n=21)	Psuedo-Disputing (n=29)	Wait (n=28)	Joy (n=26)
DACL	$\bar{x}$=	9.92[3]	4.05[1]	5.83[3]	9.21[3]	-0.23
	sd=	9.74	7.22	5.94	8.95	4.07
DES-distress	$\bar{x}$=	3.56[3]	0.57	0.90	3.04[3]	-0.96
	sd=	3.95	3.03	2.77	3.80	2.76
PCS-sad	$\bar{x}$=	1.76[3]	0.62[1]	0.83[1]	1.75[3]	-0.46
	sd=	2.17	1.20	1.67	1.82	1.73
EBS-sad	$\bar{x}$=	5.56[2]	-1.19	3.03	6.50[2]	-3.88
	sd=	10.44	5.63	8.32	9.36	7.36
DES-enjoyment	$\bar{x}$=	-2.20[3]	0.05	-1.76[2]	-1.96[2]	1.38[1]
	sd=	2.47	2.78	2.49	2.74	2.84
PCS-happy	$\bar{x}$=	-2.44[3]	-0.81[1]	-1.41[2]	-2.11[3]	0.42
	sd=	2.00	1.54	1.94	1.99	1.06
EBS-joy	$\bar{x}$=	-10.44[3]	-7.52[1]	-8.86[3]	-11.75[3]	3.42
	sd=	10.24	12.12	9.28	14.22	9.97

2-tailed t-test
1=$p<.05$
2=$p<.01$
3=$p<.001$

Pre-post difference scores were computed for each measure of sadness and joy. The four sadness scales (DACL, DES-distress, PCS-sad, and EBS-sad) and three joy scales (DES-enjoyment, PCS-happy, and EBS-joy) produced a total of seven dependent variables. Mean difference scores and standard deviations of these scores for each cell are presented in Table 5. It was expected that the sad group would evidence the greatest increase in sadness, followed by the wait, psuedo-disputing, disputing, and joy groups. An inspection of the cell means indicates that the expected pattern was obtained on three of the four measures of sadness, e.g., DACL, DES-distress, and PCS-sad. On the fourth measure of sadness, the EBS-sad scale, the same pattern was obtained except the order of the wait and sad groups was reversed. On two of the three measures of joy, the ordering of groups was exactly the opposite. The joy condition evidenced the greatest increase in joy, followed by the disputing, psuedo-disputing, wait, and sad groups. On the third measure of joy, the EBS-joy scale, the order of groups was the same except, again, the order of the sad and wait groups was reversed.

In the first hypothesis it was expected that the sadness group would show significant pre-post increases on the DES-distress, EBS-sad, PCS-sad, and DACL. Considering these four sadness measures as a whole, significant

pre-post differences were revealed, multivariate $F(4,121)=12.63$, $p<.001$ (see Table 6). Following Cohen and Cohen (1975), since the multivariate F was significant, univariate F-tests were carried out with alpha set at .05. Univariate tests revealed significant pre-post differences on the DACL, $F(1,124)=44.30$, $p<.001$, DES-distress, $F(1,124)=29.06$, $p<.001$, PCS-sad, $F(1,124)=25.05$, $p<.001$, and EBS-sad, $F(1,124)=10.76$, $p<.05$. This indicates strong support for the hypothesis that subjects presented with a series of sad self-statements will respond with the corresponding affect of sadness.

The second hypothesis predicted that the joy group would show significant pre-post increases on the DES-enjoyment, EBS-joy, and PCS-happy. Considering these three joy measures as a whole, no significant pre-post differences were revealed, multivariate $F(3,124)=2.41$, $p>.05$ (see Table 6). However, univariate F-tests did indicate significant increases on one measure of joy, DES-enjoyment, $F(1,126)=7.12$, $p<.01$. This finding should be viewed as only suggestive, since the multivareate F was not significant. The other two analyses yielded non-significant results: PCS-happy, $F(1,126)=1.50$, $p>.05$ and EBS-joy, $F(1,126)=2.40$, $p>.05$. Unlike subjects presented with sad self-statements, subjects who received happy self-statements in general failed to respond with

Table 6

Analysis of Pre-post Changes in Sadness and Joy

Source of variance	F	df	p
Pre vs post - sad group			
Multivariate	12.63	4,121	<.001
Univariate			
Y1: DACL	44.30	1,124	<.001
Y2: DES-distress	29.06	1,124	<.001
Y3: PCS-sad	25.05	1,124	<.001
Y4: EBS-sad	10.76	1,124	=.001
Pre vs post - joy group			
Multivariate	2.41	3,124	>.05
Univariate			
Y1: DES-enjoyment	7.12	1,126	<.01
Y2: PCS-happy	1.50	1,126	>.05
Y3: EBS-joy	2.40	1,126	>.05

increases in the corresponding affect.

In the third hypothesis it was expected that the disputing group would show significantly less pre-post increase in sadness on the DES-distress, EBS-sad, PCS-sad, and DACL than the sad, psuedo-disputing, or wait conditions. A comparison of the disputing vs sad groups revealed significant differences on the four measures of sadness, multivariate $F(4,121)=2.61$, $p<.05$ (see Table 7). Univariate F-tests yielded significant differences on the DACL, $F(1,124)=7.09$, $p<.01$, DES-distress, $F(1,124)=9.35$, $p<.01$, PCS-sad, $F(1,124)=4.81$, $p<.05$, and EBS-sad, $F(1,124)=7,24$, $p<.01$. Similar results were obtained on

Table 7
Multivariate Analysis of Selected Group Comparisons

Source of variance	F	df	p
Disp vs sad			
Multivariate	2.61	4,121	<.05
Univariate			
Y1: DACL	7.09	1,124	<.01
Y2: DES-distress	9.35	1,124	<.01
Y3: PCS-sad	4.81	1,124	<.05
Y4: EBS-sad	7.24	1,124	<.01
Disp vs Wait			
Multivariate	2.63	4,121	<.05
Univariate			
Y1: DACL	5.77	1,124	<.05
Y2: DES-distress	6.68	1,124	<.05
Y3: PCS-sad	4.96	1,124	<.05
Y4: EBS-sad	9.88	1,124	<.01
Disp vs psuedo			
Multivariate	1.00	4,121	>.05
Univariate			
Y1: DACL	0.69	1,124	>.05
Y2: DES-distress	0.12	1,124	>.05
Y3: PCS-sad	0.17	1,124	>.05
Y4: EBS-sad	3.03	1,124	>.05
Psuedo vs wait			
Multivariate	1.70	4,121	>.05
Univariate			
Y1: DACL	2.94	1,124	>.05
Y2: DES-distress	5.98	1,124	<.05
Y3: PCS-sad	3.92	1,124	=.050
Y4: EBS-sad	2.38	1,124	>.05

the disputing vs wait comparison, multivariate $F(4,121)=2.63$, $p<.05$. Univariate F-tests again yielded significant differences on the DACL, $F(1,124)=5.77$, $p<.05$, DES-distress, $F(1,124)=6.68$, $p<.05$, PCS-sad, $F(1,124)=4.96$, $p<.05$, and EBS-sad, $F(1,124)=9.88$, $p<.01$. Differences between the disputing and psuedo-disputing groups, although in the predicted direction, were not significant, mulitivariate $F(4,121)=1.00$, $p>.05$. All univariate F-tests were also non-significant: DACL, $F(1,124)=0.69$, $p>.05$, DES-distress, $F(1,124)=0.12$, $p>.05$, PCS-sad, $F(1,124)=0.17$, $p>.05$, and EBS-sad, $F(1,124)=3.03$, $p>.05$.

Thus the hypothesis that sad self-statements followed by a rational rebuttal of those statements will result in lessened feelings of sadness was supported. Further, this effect does not appear to be due simply to the passage of time, as indicated by the significant difference between the disputing and wait groups. However, the failure to find significant differences between the disputing and psuedo-disputing conditions suggests the obtained reduction in sadness may not have been due to the specific rational content of the disputing statements but may have been a generic effect of presenting any kind of self-statement following the sad self-statements.

The final hypothesis predicted the psuedo-disputing

group would show significantly less pre-post increase in sadness on the DES-distress, EBS-sad, PCS-sad, and DACL than the wait condition. When these four measures were considered as a whole, no significant differences were revealed, multivariate $F(4,121)=1.70$, $p>.05$ (see Table 7). However, when univariate F-tests were performed, significant differences between groups were found on the DES-distress, $F(1,124)=5.98$, $p<.05$, and PCS-sad, $F(1,124)=3.92$, $p=.050$. Again, these findings should be viewed as only suggestive. No significant differences were indicated on the DACL, $F(1,124)=2.94$, $p>.05$ or EBS-sad, $F(1,124)=2.38$, $p>.05$. Although equivocal, this suggests the possibility that presenting any form of self-statement following the sad self-statements, even if the content is irrelevant to the situation described in the sad statements, may result in less sadness than if no statements were presented at all.

Other planned exploratory analyses were also conducted. It was expected that subjects would differentially label the emotion they experienced during the experimental manipulation, depending on the type of self-statement presented. Similarly, subjects were expected to differentially label the affect expressed by the statements, depending on the type of self-statement presented.

Table 8
Multivariate Analysis of Differences Among Groups on PAQ-items 3 and 4

Source of variance	F	df	p
Group			
Multivariate	1.45	8,250	>.05
Univariate			
Y1: PAQ-item 3	0.83	4,125	>.05
Y2: PAQ-item 4	1.95	4,125	>.05

To test these expectations, data from the Post-assessment Questionnaire (PAQ) items three and four were included as variables in a MANOVA. When these two items were considered as a whole, no significant differences among groups were obtained, multivariate $F(8,250)=1,45$, $p>.05$ (see Table 8). Univariate F tests also revealed no significant differences between groups on either the PAQ-item 3, univariate $F(4,125)=0.83$, $p>.05$, or PAQ-item 4, univariate $F(4,125)=1.95$, $p>.05$. Thus, there were no significant differences among groups in the manner in which they labeled their feelings or the way in which they labeled the affect expressed on the tape.

Four personality traits were considered as potential mediators of the intensity of affect induced by the self-statements: repression-sensitization, neuroticism, extraversion-introversion, and irrationality. Scores on measures of these variables were correlated with pre-post

changes on each dependent variable. The resulting correlations are presented in Table 9. Two other subject variables were also expected to be related to the intensity of induced affect: the degree to which subjects thought the statements affected their feelings (PAQ-item 1) and the degree to which subjects allowed themselves to experience the statements as their own thoughts (PAQ-item 2). These variables are also included in Table 9.

Almost all correlations between change scores and personality variables were non-significant, suggesting that these personality dimensions were irrelevant to the amount of affect experienced. Correlations for PAQ-item 1, however, produced significant results on all measures except DES-enjoyment. On these measures, the amount of emotion induced by the statements appeared significantly related to the extent subjects thought the statments affected their feelings. In essence, it might be considered a measure of the subjects' self-awareness of their emotional reactivity. PAQ-item 2 also yielded two significant results, suggesting that perhaps the more subjects were able to experience the statements as their own thoughts, the more affect they experienced.

Intercorrelations among the difference scores for each dependent variable were also computed and are presented in Table 10. As might be expected, all measures

Table 9
Correlations Between Subject Variables and Pre-post Change Scores on Emotion Measures

	Subject Variables					
Measure	RSS	EPI-N	EPI-I	IBT	PAQ-item 1	PAQ-item 2
DACL	-.05	-.01	.05	.06	.22[2]	.12
	n= 129	134	134	134	129	129
DES-distress	.01	-.02	-.02	.00	.28[3]	.16[1]
	n= 125	130	130	130	125	125
PCS-sad	-.09	-.04	.01	.14	.26[3]	.08
	n= 130	135	135	135	130	130
EBS-sad	-.14	-.14[1]	-.02	-.00	.25[2]	.07
	n= 130	135	135	135	130	130
DES-enjoyment	-.07	-.03	.05	-.02	-.12	.16[1]
	n= 126	131	131	131	126	126
PCS-happy	.07	.09	-.07	-.09	-.33[3]	-.06
	n= 130	135	135	135	130	130
EBS-joy	.09	.02	-.03	-.05	-.22[2]	.05
	n= 130	135	135	135	130	130

1 $p <$ or $= .05$
2 $p <$ or $= .01$
3 $p <$ or $= .001$

of sadness were significantly and positively correlated with all other measures of sadness. Similarly, all measures of happiness were significantly and positively correlated with all other measures of positive mood. Correlations between measures of negative mood and measures of positive mood were consistently significant and in the negative direction. These results suggest that the different modalities of affective expression reflected in the various dependent measures, i.e., subjective, facial, and behavioral, are related and to some degree form a conceptual whole. This indicates, for example, that the changes in behavioral preference, subjective experience, and facial expression which occured on the sadness measures were not independent, but "hung together" to suggest a general concept of "sadness."

Table 10

Intercorrelations Among Change Scores on Each Dependent Variable

	DACL	DES-dis	PCS-sad	EBS-sad	DES-enj	PCS-hap	EBS-joy
DACL	1.00						
	n=134						
DES-dis	.77	1.00					
	n=129	130					
PCS-sad	.68	.58	1.00				
	n=134	130	135				
EBS-sad	.72	.66	.65	1.00			
	n=134	130	135	135			
DES-enj	-.49	-.39	-.45	-.52	1.00		
	n=130	130	131	131	131		
PCS-hap	-.71	-.58	-.70	-.68	.60	1.00	
	n=134	130	135	135	131	135	
EBS-joy	-.69	-.53	-.60	-.59	.56	.73	1.00
	n=134	130	135	135	131	135	135

*All correlations are significant, $p<.001$.

DISCUSSION

One of Beck's primary hypotheses states that there is a particular kind of cognition or self-statement associated with each emotion. For example, self-statements which indicate something of value has been gained are thought to produce feelings of joy, and statements suggesting something of value has been lost are expected to lead to feelings of sadness. The results of the present study provide partial support for this hypothesis. Subjects who were presented statements judged to reflect the notion of personal loss did indeed report significantly increased levels of sadness. This finding was consistent across measures reflecting various components of sadness, i.e., subjective experience, facial expression, and behavioral inclination.

However, subjects presented with statements judged to reflect personal gain failed to evidence significantly increased levels of joy. These results might be construed as evidence that Beck's hypothesis is incorrect, e.g., that this type of self-statement is not associated with happiness. However, an alternate explanation of this finding suggests a potential problem in the manner in which items were selected for inclusion in the joy

condition. Subjects in a preliminary study rated each potential item on the happiness (or sadness) of its content, and those items rated most euphoric were chosen for use. By selecting only those items judged most intensely joyful, it is possible that the items reflected an unnatural or unrealistic sense of well-being. An item such as "It's great to know that someone loves me; I feel light and excited, like I could just fly away" is obviously joyful, but may be beyond the scope of that with which most subjects could legitimately identify . Therefore, subjects may have responded to such items with an attitude of skepticism or rejection, precluding the kind of uncritical acceptance conducive to affect induction.

In the case of the sadness items, it appears that subjects were not as skeptical in their approach to the statements and were able to consider them in a more accepting fashion. This suggests that, on an absolute scale, perhaps the sad statements were less emotionally intense than the joy statements and were thus more within the realm of believability for most subjects. It might also imply that additional factors may need to be involved in the generation of positive as opposed to negative affect, such as appropriate levels of physiological arousal, antecedent environmental events, etc.

Although Beck's hypothesis concerning the induction of emotion was not fully supported, some evidence was found to support cognitive-behavioral approaches to the amelioration of negative affect. Cognitive therapists hold that rationally disputing the self-statements associated with feelings of sadness will reduce or eliminate the negative mood. As expected, in the current study subjects who were led to rationally re-evaluate the sad self-statements reported significantly less sadness than those who received the sad statments alone, without rational re-evaluation. Further, a comparison between the disputing and wait conditions indicated that the reduced sadness of those who rationally disputed the statments was not due merely to the passage of time. Disputing subjects reported significantly less sadness than subjects who, following the sad statements, simply sat quietly with no further self-statements presented. Accordingly, it may be concluded that the cognitive activity of logically examining the validity of irrational self-statements will result in reduced negative affect.

However, the notion that it is this process of rational re-evaluation per se that produces the reduction in negative mood was not completely supported. Subjects who engaged in rational disputing failed to differ significantly from subjects receiving irrelevant,

non-disputing self-statements following the sad statements. Further, this latter group of non-disputing subjects evidenced significantly less sadness than subjects who received only sad statements (the wait group) on two of four measures of sadness. This suggests that perhaps the central feature of cognitive therapy, i.e., the logical analysis of irrational cognitions, may not be as necessary for effective treatment as is usually thought. Subjects may fare just as well learning to emit any kind of self-statement when they experience negative self-talk, even if these statements have no logical connection to the original maladaptive ones. The potency of these interventions would appear to lie in the employment of competing self-talk regardless of its content. The nature of the substituted cognitions may not be as important as the fact that they exist at all and are used to compete for the subjects' focus of attention. This failure to obtain clear support for Beck's theory is consistent with Coyne and Gotlib (1983) whose review of the literature suggests that previous attempts to validate Beck's theory have overall produced equivocal results.

It should be noted briefly that conclusions based on comparisons with the wait condition must be tempered by the fact that the cognitive activity of subjects in this condition was essentially uncontrolled. The outcome of

these comparisons would depend at least in part on the kind of cognitive activity subjects engaged in during the period of silence, i.e., whether their thoughts were sad, joyful, or neutral. It might have been informative had subjects in this condition been asked to report the content of their cognitions during this period of time.

The proposal presented above concerning the importance of rational re-analysis is not wholly at odds with the primary thrust of the cognitive therapies. It could be argued that the essential aim of cognitive treatment is the elimination of the irrational cognitions and that rational re-evaluation is only one means by which this end may be accomplished. Other means, such as emitting irrelevant competing self-statements, may be just as effective as long as the primary goal of eliminating the maladaptive cognitions is accomplished. If this is the case, it may be a far more efficient use of therapists' time to simply teach the client to use the experience of negative affect as a cue to "block out" irrational thoughts through the use of alternative cognitions, rather than the more time-consuming method of teaching the technique of rational re-evaluation. Objections might be raised based on the notion, expressed most clearly in Ellis' concept of basic underlying irrational belief systems, that the irrational thoughts

will continue to re-occur as long as the deeply-ingrained irrational belief system remains in place. Therefore, simply "blocking out" irrational self-statements without rationally disputing them would be at best a temporary measure. The primary irrational beliefs which triggered the maladaptive thoughts in the first place would still be operative. Thus, further maladaptive thinking and consequent negative mood would be expected. It is interesting to note that this argument is basically a cognitive restatement of the concept of symptom substitution: if one treats only the symptom (the immediate irrational thought) without treating the underlying cause (the underlying belief), the symptom or new symptoms will continue to occur. As such, it is an empirical issue which may be resolved through outcome research comparing the two approaches.

It could be maintained that the positive outcomes reported in clinical studies of cognitive therapy might be explained in terms of this process of using competing cognitions to "block out" irrational thoughts. Although these studies conceptualize treatment effectiveness in terms of teaching rational thinking, these rational thoughts may simply serve as an alternate set of cognitions which compete for the subjects' attention. Because this new set of cognitions is rational, it is

assumed it is this quality which accounts for its effectiveness in reducing negative emotions. However, it may be the case that any set of alternative cognitions, rational or otherwise, would have produced similar results.

The analysis of the PAQ-item 3 indicated that subjects were unable to accurately label the feelings they were experiencing at the end of the experimental manipulation. Subjects in one condition did not label their feelings significantly differently than subjects in other conditions. This result may be explained in terms of the apparent failure of the joy condition to induce a significant increase in the corresponding affect. It seems likely that any significant differences between groups would have resulted from a sharp contrast between positive and negative emotion. In order to achieve this contrast it would have been necessary for one or more groups to experience sadness and the joy group (the only group designed to induce positive affect) to experience happiness. The results indicate that significant increases in sadness were achieved but the opposite affect, joy, was not successfully induced. Without this marked positive-negative contrast the subjects' experience was not sufficiently differentiated to allow for between group differences.

An alternate explanation of these results concerns a potential problem in the nature of the response alternatives on the PAQ. The alternatives provided on the questionnaire represented a variety of positive and negative emotions which may not always have been sufficiently distinct from one another to allow subjects to differentiate between them. For example, discriminating between anger and disgust or happiness and surprise involves making some rather fine distinctions. Greater success may have been achieved had less exacting discriminations been required, i.e., if response choices had involved more global distinctions such as happy vs sad or positive vs negative.

Perhaps more puzzling was the subjects' inability to clearly identify the emotions expressed by the recorded statements (as indicated on the PAQ-item 4). In light of the manner in which the items were created, judged, and selected, it was expected that subjects would be able to discriminate among them. Again, the potential problem differentiating between response alternatives on the PAQ may have played a significant role in this finding. In addition, the discrimination task was likely further complicated by the fact that two of the sets of self-statements contained more than one type of statement, i.e., sad plus disputing or sad plus psuedo-disputing.

The personality variables included in the study were selected on the basis of their theoretical relevance to the experience of emotion. In accordance with the definitions of these variables presented earlier, it was expected that neuroticism, extraversion, sensitization, and irrationality would correlate positively with scores on the emotion measures. The results indicate, however, that these personality characteristics were essentially irrelevant to the amount of affect elicited. Similarly, outcome was not significantly related to the subjects' sex. If these variables are indeed related to the experience of emotion, it may be that they influence the chain of events leading to emotional experience at an earlier point than could be assessed by the present experiment. For example, the present study explored the effect of cognitions on emotion by providing subjects with a particular form of self-statement. Therefore, the type and intensity of self-statement was a given. It may be the case that personality variables do influence emotion, but at a point in the chain prior to the production of self-statements. These variables may dictate whether or not affective self-statements are emitted and, if so, their nature and strength. Since the type of self-statement was predetermined in this study, the role of individual differences may have been effectively

neutralized.

The results of this study may also be considered with respect to their implications for the understanding of emotion as a general concept. Strong support is provided for theorists such as Plutchik who view emotion as integrally linked with cognitive processes. The presentation of a brief series of self-statements proved sufficient to produce reliable differences in subjects' emotional state. The importance of cognitive mediation in this process is further emphasized by the significant correlation between affective change and subject's ability to think of the statements as their own thoughts and allow themselves to experience the suggested emotion. In addition, the introduction of additional cognitive manipulations, such as the rational reanalysis of sad statements, produced significant reductions in induced affect.

Although it is apparent from these data that cognition and emotion are interrelated, it is not evident that cognition is the only factor influencing emotion or that the relationship between cognition and emotion is necessarily one-way. A simplistic conceptualization of emotion, such as Ellis' A-B-C model, may accurately represent one aspect of the emotion process, but there may be other factors as well which play a role in generating

emotion. It is relevant to note that in the present study the cognitive manipulation employed resulted not only in changes in the subjective aspects of emotion (as reflected in the DES and DACL), but in facial expressive (PCS) and behavioral (EBS) components as well. This inter-relatedness implies that the process of emotion may involve several components, including (at least) cognitive, subjective, behavioral, and facial modalities. This is consistent with Simons, Garfield, and Murphy (1984) who conclude that although cognition appears to influence emotion, it is unjustified to assign to it a primary causal role. Rather, it is more useful to view emotion as a set of interrelated processes, any one of which may affect the others. This viewpoint is supported by the present finding that emotion measures reflecting various modalities were significantly inter-related. In this sense, emotion may be viewed as a system which can be entered via any one component to produce change in the others. The results of this study indicate that the components of this system would include at least the four modalities outlined above (cognitive, subjective, behavioral, and facial), and do not rule out the possibility of additional factors. The term "emotion," then, as Plutchik suggests, is most properly applied to this system as a whole, rather than any one component

part.

This understanding of emotion, however, does vary from that of Plutchik, Izard, and Tomkins, as well as the cognitive theorists, in its emphasis on the nonlinearity of the process of emotion. Each of these theorists suggests a linear progression of events which eventually results in the experience of emotion, i.e., factor A leads to factor B and so on. Tomkins' model, for example, posits that changes in neural stimulation result in the activation of a subcortical program which in turn leads to changes in facial expression and the subsequent experience of emotion. This type of conceptualization seems to unnecessarily limit the flexibility of emotion and the means by which it may be engendered. A conceptualization of emotion as a system emphasizes the interrelatedness of the components of emotion and the lack of a necessary ordering of events in the production of emotion. All components affect the others in a series of interactions which are subject to variation depending on circumstance.

It is interesting to note that all three of the emotion theorists discussed previously have stresed the evolutionary aspects of affect, either directly (Plutchik) or indirectly through an emphasis on presumably inherited subcortical programs (Tomkins, Izard). This study suggests that although emotion may indeed be present at

all levels of the phylogenetic scale (as Plutchik suggests), in some respects it is a more characteristically learned human process. The appraisal of loss to one's personal domain which was found to result in sadness is likely not limited to humans. However, to the extent that a rational reanalysis (or at least the ability to intentionally replace one set of cognitions with another) is capable of affecting the emotion typically induced by this appraisal, the process reflects a more distinctly human character. Human cognitive processes allow one to intervene in the typical course of events which would otherwise produce a given emotion.

From Plutchik's perspective, this would to some extent appear to allow us to dissociate each affect from its respective adaptive process. For example, a greater degree of cognitive mediation of emotion permits anger to be separated from the adaptive process of destruction, joy to be separated from reproduction, fear from protection, and so on. Affect becomes more of an independent entity, at times related to its original evolutionary function and at times not. Despite Tomkins' assertion that affect is independent of learning, it is difficult to conceptualize how human affect could develop this degree of independence from its prototypic function if not by learned cognitive control. This study suggests that the ability to alter

cognitive content in a specific manner (presumably a learned skill) allows one to significantly affect the emotion process.

Finally, the present research offers support for Velten's (1968) approach to the laboratory induction of mood states. Perhaps the most significant criticism which may be levelled against this approach is its seeming transparency and openness to the influence of demand characteristics. Because the affective content of the self-statements may be viewed as too obvious, it is tempting to assume that subjects will be able to reason out the type of affective response desired and respond accordingly. Although subjects in this study who received sad self-statements exhibited corresponding increases in sadness, it is significant to note that subjects in the joy condition failed to demonstrate corresponding increases in positive affect. If subjects were simply providing what they perceived to be the desired response, reliable increases in both the sadness and joy conditions would have been expected. That this was not the case suggests there were factors other than (or in addition to) demand characteristics that were influencing outcome.

A possible explanation for this limited role of demand characteristics is that the affective content of the self-statements may not have been as obvious to

subjects as might have been expected. If in fact subjects were not able to clearly distinguish what affect was being expressed by the statements, they would have been unable to provide the "expected" type of affective response. The inability of subjects in this study to accurately label the affect expressed by the statements (PAQ-item 4) suggests that this may have been the case. Apparently this type of manipulation is not as transparent as it would seem on first examination. This is consistent with Velten (1968) and Polivy and Doyle (1980) who found that the demand characteristics inherent in this procedure were either negligible or insufficient to alone account for the outcomes obtained.

Although straightfoward and easily administered, this procedure appears to be a valid and relatively powerful method for inducing mood states in the laboratory. Significant increases in sadness were produced through the presentation of only 15 statements (as opposed to Velten's original set of 60). Relatively simple variations in the set of stimuli employed, i.e., adding a series of disputing statements, were capable of producing significant differences in subjects' emotional response. In addition, this study suggests that it is not necessary, as is frequently supposed, to limit subject selection to females only. No significant differences between the

responses of males and females were observed. Lastly, the procedure appears to be relatively impervious to the effects of personality characteristics. Of the personality measures included in the study (selected on the basis of their hypothetical relevance to emotion), none were related to outcome in any consistent way. Thus, Velten's procedure appears to be an effective and sensitive method for the laboratory induction of mood states which is relatively independent of the effects of demand characteristics or subject variables such as sex or personality characteristics.

In conclusion, perhaps the most important outcome of this study is the finding that rationally disputing maladaptive self-statements may not be neccessary for the alleviation of sadness. It may be sufficient to simply provide a set of alternative cognitions which can effectively compete for the subject's attention. Further research might productively focus on clinical comparisons of depressed subjects taught to rationally dispute maladaptive cognitions and subjects taught simply to emit a set of alternative, non-disputing cognitions. The use of actual clinical populations appears especially important, since interventions that are effective in a "normal" population may lose potency with clinically depressed subjects. It may be the case, for example, that

rational disputing may be a necessary intervention for the alleviation of the more intense sadness found in clinical populations. The outcome of such research could be of significance to both the theory and practical application of cognitive approaches to the understanding of emotion.

APPENDICES

APPENDIX A

PICTURE CHOICE SCALE

APPENDIX A

PICTURE CHOICE SCALE

Picture Choice Scale

Instructions:

The photographs on the attached sheet express various emotions which people sometimes experience. Rate the extent to which each photograph expresses the way you feel RIGHT NOW.

Circle the number which best represents your answer. DO NOT place your circle between numbers.

1) Picture 1 expresses my feelings:

1	2	3	4	5	6	7
not at all		slightly		some-what		very much

2) Picture 2 expresses my feelings:

1	2	3	4	5	6	7
not at all		slightly		some-what		very much

3) Picture 3 expresses my feelings:

1	2	3	4	5	6	7
not at all		slightly		some-what		very much

4) Picture 4 expresses my feelings:

1	2	3	4	5	6	7
not at all		slightly		some-what		very much

5) Picture 5 expresses my feelings:

1	2	3	4	5	6	7
not at all		slightly		some-what		very much

6) Picture 6 expresses my feelings:

1	2	3	4	5	6	7
not at all		slightly		some-what		very much

PLEASE DO NOT MARK ON THIS SHEET

(The actual pictures used on the PCS are copyrighted and thus not included in this document. They may be found in Eckman, 1973).

Picture 1

Picture 2

Picture 3

Picture 4

Picture 5

Picture 6

APPENDIX B

EMOTION BEHAVIORS SCALE

APPENDIX B

EMOTION BEHAVIORS SCALE

Emotion Behaviors Scale

Instructions:

When people experience an emotion they often feel like DOING something to express that emotion. Sometimes they actually carry out these behaviors, but often they do not. Below is a list of 32 such behaviors. Use the following scale to rate how much you feel like doing each behavior RIGHT NOW. Again, this means only that you would FEEL LIKE doing it, not that you necessarily WOULD do it.

1	2	3	4	5	6	7
do NOT feel like doing it			indifferent about doing it			DO feel like doing it

Write your answer in the blank to the right of the item. USE ONLY WHOLE NUMBERS, i.e., 1, 2, 3, 4, 5, 6, or 7--do NOT use fractions.

(Answers)

1. look for someone to cheer me up _____
2. slump down in a chair _____
3. throw something against the wall _____
4. do nothing _____
5. sit alone in a darkened room _____
6. faint _____
7. celebrate _____
8. be sarcastic _____
9. take something to soothe my stomach _____
10. try to catch my breath _____

11. cower or cringe _____
12. ask someone for help _____
13. break something _____
14. feel nauseous _____
15. go somewhere where I feel safe _____
16. criticize myself _____
17. tell somebody off _____
18. smile _____
19. cry _____
20. tickle someone _____
21. mourn _____
22. give someone "the finger" _____
23. sing at the top of my lungs _____
24. mope around _____
25. glare at someone _____
26. criticize someone _____
27. get revenge _____
28. tell a good joke _____
29. stutter or choke on my words _____
30. play _____
31. laugh _____
32. do a lively dance _____

APPENDIX C

POST-ASSESSMENT QUESTIONNAIRE

APPENDIX C

POST-ASSESSMENT QUESTIONNAIRE

Post-assessment Questionnaire (Form B)

Instructions:
Please answer the following questions concerning your reactions to the experiment. Circle the number corresponding to your answer. Please do NOT place your circle between numbers.

1) During the tape presentation, how much do you think the recorded statements affected how you felt?

1	2	3	4	5	6	7
none		slightly		somewhat		very much

2) To what extent were you able to think of the statements as your own thoughts and let yourself go with the feelings they suggested (if any)?

1	2	3	4	5	6	7
none		slightly		somewhat		very much

3) Which of the following terms best describes how you were feeling at the end of the five minute silence? Circle ONE.

1. disgust 2. anger 3. happiness 4. sadness

5. surprise 6. fear 7. other

4) Which of the following terms best describes the feelings expressed by the statements? Circle ONE.

1. disgust 2. anger 3. happiness 4. sadness

5. surprise 6. anger 7. other

APPENDIX D

RESEARCH CONSENT FORM

APPENDIX D

RESEARCH CONSENT FORM

Departmental Research Consent Form

1. I have freely consented to take part in a scientific

   study being conducted by:_____

   under the supervision of:_____

   Academic Title:_____

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

3. I understand that I am free to discontinue my participation at any time without penalty.

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

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

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

Signed:_____

Date: _____

TITLE OF RESEARCH PROJECT:_____

_____

APPENDIX E

LIST OF SELF-STATEMENTS INCLUDED IN EACH EXPERIMENTAL CONDITION

APPENDIX E

LIST OF SELF-STATEMENTS INCLUDED IN EACH EXPERIMENTAL CONDITION

Self-Statements Presented in Experimental and Control Conditions

A. Statements presented in the sad condition

1. I've just got so many problems I'm really afraid I can't deal with them all. I feel overwhelmed.
2. Back home I used to really be somebody; now I'm just nothing.
3. Without someone to love me I'm not worth anything; and right now there's no one who really cares.
4. I am shallow and empty and everyone can see it.
5. I've messed up so many things in my life I wonder why I bother trying.
6. When I think back all I can remember are failures in things that were important to me. No reason for that to change now.
7. I am a hateful, worthless person.
8. As a person I am essentially defective, unworthy of love and normal human interaction.
9. The only people who seem to care about me anymore are just doing it because they think they ought to.
10. I'm disappointed in myself. I've tried, but things just aren't like I'd hoped they'd be.
11. I will always be alone. I will never belong.
12. No one loves me because I am such a nothing.
13. I suppose I could try to do something about my

problems, but I just don't have anything left to give.

14. More and more things in my life keep getting messed up; I guess I'm just not handling things very well. I'll never succeed.

15. Sometimes I feel so insignificant around here I wonder if anyone really cares.

B. Statements presented in the disputing condition (in addition to the 15 sad statements listed above)

1. To give up when I have problems doesn't make sense. If I keep working at it, then at least I'll have a decent chance of making it through.

2. It only makes sense that I feel a little "lost in the crowd" here. But it doesn't mean I'm nothing. I don't have to be the most popular person around to be worthwhile.

3. My worth as a person doesn't depend on whether or not someone loves me. I know I have some good qualities regardless of how others feel about me.

4. When I critize myself it only makes me feel worse. What a waste of time! Instead of putting myself down, why not try to figure out how I can improve?

5. Just because I've messed some things up doesn't mean I'm doomed to keep doing it. The fact that I've done SOME things right shows me it's worth it to keep trying.

6. When I only remember my failures I'm not being fair to myself. Objectively I know I've had some successes-just making it into college proves THAT.

7. Having done some bad things doesn't make me a bad PERSON-just a person who's done some things I regret. And who can CHANGE.

8. Of course I have faults. All that means is I'm a fallible human being just like everyone else - and no less worthy of love and friendship because of it.

9. Instead of assuming the worst about how other's feel about me it would make more sense to check it out with them first - then if there IS a problem we can work on it.

10. Even when things don't go how I'd hoped, there's no use putting myself down. I'd be better off accepting that things will never be perfect.

11. To think I'll never fit in or belong doesn't make sense. I've made friends before - and if I could do it then, why not now?

12. When I get down on myself I think what I'm really saying is that I'm not yet the kind of person I'd like to be - but with effort perhaps I could be.

13. Sometimes I almost feel like I'm defeated. But it's really just me defeating MYSELF. Dropping the self-pity may help me get going and DO something about my problems.

14. When things aren't going well one thing is for sure - putting myself down won't help. I'm better off figuring out what went wrong and how I can change it.

15. Not everybody can be that well-known or popular with everyone. Fortunately I DO have my own circle of friends who know and appreciate me.

C. Statements presented in the psuedo-disputing condition (in addition to the 15 sad statements listed above)

1. Natives of Indiana are called "hoosiers" although the origin of the term is uncertain.

2. Many universities have their own publishing companies to publish books by local authors.

3. Many common words have great variation in meaning from region to region, even within the same country.

4. There have been many changes in the past two decades in the way in which reading is taught in the schools.

5. The state capitol is not always the largest city in the state.

6. Latin is considered a dead language because it is no longer the native tongue of any living group of people.

7. All U.S. dollar bills carry the inscription, "This note is legal tender for all debts, public and private."

8. There are certain kinds of fish that many people

refuse to eat. Catfish is one example.

9. The president of the United States is often addressed as "Mr. President" even after he leaves office.

10. The United States Senate has fewer members than the House of Representatives.

11. J. B. Watson is considered the father of American behavioral psychology.

12. Sociology, psychology, and anthropology are all considered social sciences.

13. There are very few active volcanoes in North America but occasionally one does erupt. Mt. St. Helens is an obvious example.

14. Copernicus supported the theory that the earth rotated around the sun, rather than vice-versa.

15. When the price of meat goes up, there is an increased demand for other "main dish" type foods.

D. Statements presented in the wait condition were identical to those presented in the sad condition. They were followed by five minutes of silence.

E. Statements presented in the joy condition.

1. Making friends has been getting easier and easier; I'm sure I'll always feel loved and cared about.

2. Before I came here I never really expected to do so well; I'm really making it!

3. I've never felt so independent and in control of my own life - now this is the way to live!

4. I never thought I could do so well: this is really something!

5. I can tell that I really am important to my friends. How wonderful to know that I really do matter to them.

6. I'm doing so well now, I just know things will continue to get better and better.

7. This is great: I really do feel good all over!

8. The closeness I feel with certain people surpasses

what I had ever hoped for!

9. My schoolwork, my relationships with friends - everything keeps getting better and better.

10. I can make it. Just watch me!

11. I feel great today; one of those days when I feel like I could do anything!

12. Things are looking up for me; everything I hoped for is gradually falling into place.

13. It's great to know that someone loves me; I feel light and excited, like I could just fly away.

14. I'm more alert and energetic than ever before; I feel wonderful!

15. I feel energetic and ready to work; I'm confident I can get the job done and do it well.

APPENDIX F

INTERCORRELATIONS AMONG ALL VARIABLES

Table 11. Intercorrelations Among All Variables

PEARSON CORRELATION COEFFICIENTS

	SEX	GRP	RSS	EPIN	EPII	IBT	DACLPRE	DACLPOST	DACLDIF	DESPREDI
SEX	1.0000 (135) P=*****	0.0 (135) P=0.500	-0.1216 (130) P=0.084	-0.0040 (135) P=0.482	0.0311 (135) P=0.360	0.0845 (135) P=0.165	-0.0683 (134) P=0.216	-0.0232 (135) P=0.395	0.0346 (134) P=0.346	0.0885 (134) P=0.155
GRP	0.0 (135) P=0.500	1.0000 (135) P=*****	0.0120 (130) P=0.446	-0.0137 (135) P=0.437	0.0967 (135) P=0.132	-0.0120 (135) P=0.445	-0.0727 (134) P=0.202	-0.0250 (135) P=0.387	0.0367 (134) P=0.337	-0.0209 (134) P=0.405
RSS	-0.1216 (130) P=0.084	0.0120 (130) P=0.446	1.0000 (130) P=*****	0.8380 (130) P=0.000	-0.2338 (130) P=0.004	0.3037 (130) P=0.000	0.4943 (129) P=0.000	0.3330 (130) P=0.000	-0.0520 (129) P=0.279	0.3232 (129) P=0.000
EPIN	-0.0040 (135) P=0.482	-0.0137 (135) P=0.437	0.8380 (130) P=0.000	1.0000 (135) P=*****	-0.1412 (135) P=0.051	0.3657 (135) P=0.000	0.4066 (134) P=0.000	0.3104 (135) P=0.000	-0.0059 (134) P=0.473	0.3441 (134) P=0.000
EPII	0.0311 (135) P=0.360	0.0967 (135) P=0.132	-0.2338 (130) P=0.004	-0.1412 (135) P=0.051	1.0000 (135) P=*****	-0.0484 (135) P=0.289	-0.1601 (134) P=0.032	-0.0754 (135) P=0.193	0.0502 (134) P=0.282	-0.0349 (134) P=0.344
IBT	0.0845 (135) P=0.165	-0.0120 (135) P=0.445	0.3037 (130) P=0.000	0.3657 (135) P=0.000	-0.0484 (135) P=0.289	1.0000 (135) P=*****	0.0995 (134) P=0.126	0.1342 (135) P=0.060	0.0582 (134) P=0.252	0.3122 (134) P=0.000
DACLPRE	-0.0683 (134) P=0.216	-0.0727 (134) P=0.202	0.4943 (129) P=0.000	0.4066 (134) P=0.000	-0.1601 (134) P=0.032	0.0995 (134) P=0.126	1.0000 (134) P=*****	0.4132 (134) P=0.000	-0.3717 (134) P=0.000	0.6070 (133) P=0.000
DACLPOST	-0.0232 (135) P=0.395	-0.0250 (135) P=0.387	0.3330 (130) P=0.000	0.3104 (135) P=0.000	-0.0754 (135) P=0.193	0.1342 (135) P=0.060	0.4132 (134) P=0.000	1.0000 (135) P=*****	0.6918 (134) P=0.000	0.1898 (134) P=0.014
DACLDIF	0.0346 (134) P=0.346	0.0367 (134) P=0.337	-0.0520 (129) P=0.279	-0.0059 (134) P=0.473	0.0502 (134) P=0.282	0.0582 (134) P=0.252	-0.3717 (134) P=0.000	0.6918 (134) P=0.000	1.0000 (134) P=*****	-0.2846 (133) P=0.000
DESPREDI	0.0885 (134) P=0.155	-0.0209 (134) P=0.405	0.3232 (129) P=0.000	0.3441 (134) P=0.000	-0.0349 (134) P=0.344	0.3122 (134) P=0.000	0.6070 (133) P=0.000	0.1898 (134) P=0.014	-0.2846 (133) P=0.000	1.0000 (134) P=*****
DESPOSDI	0.0612 (130) P=0.245	-0.0036 (130) P=0.484	0.2631 (125) P=0.002	0.2536 (130) P=0.002	-0.0451 (130) P=0.305	0.2474 (130) P=0.002	0.2529 (129) P=0.002	0.7719 (130) P=0.000	0.5965 (129) P=0.000	0.3096 (130) P=0.000

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	SEX	GRP	RSS	EPIN	EPII	IBT	DACLPRE	DACLPOST	DACLDIF	DESPREDI
DESDIDIF	-0.0139 (130) P=0.438	0.0332 (130) P=0.354	0.0050 (125) P=0.478	-0.0178 (130) P=0.420	-0.0241 (130) P=0.393	0.0007 (130) P=0.497	-0.2140 (129) P=0.007	0.5690 (130) P=0.000	0.7656 (129) P=0.000	-0.4574 (130) P=0.000
PCSPRESA	-0.0804 (135) P=0.177	-0.0207 (135) P=0.406	0.4207 (130) P=0.000	0.3448 (135) P=0.000	-0.0836 (135) P=0.167	0.0835 (135) P=0.168	0.6092 (134) P=0.000	0.3143 (135) P=0.000	-0.1614 (134) P=0.031	0.4963 (134) P=0.000
PCSPOSSA	0.0572 (135) P=0.255	0.0456 (135) P=0.300	0.2689 (130) P=0.001	0.2583 (135) P=0.001	-0.0587 (135) P=0.249	0.2022 (135) P=0.009	0.3034 (134) P=0.000	0.7323 (135) P=0.000	0.5103 (134) P=0.000	0.2569 (134) P=0.001
PCSSADIF	0.1315 (135) P=0.064	0.0660 (135) P=0.223	-0.0921 (130) P=0.149	-0.0390 (135) P=0.327	0.0136 (135) P=0.438	0.1361 (135) P=0.058	-0.2289 (134) P=0.004	0.4822 (135) P=0.000	0.6756 (134) P=0.000	-0.1779 (134) P=0.020
EBSPRESA	-0.0432 (135) P=0.309	-0.0255 (135) P=0.385	0.4544 (130) P=0.000	0.4504 (135) P=0.000	-0.0696 (135) P=0.211	0.3111 (135) P=0.000	0.6140 (134) P=0.000	0.3225 (135) P=0.000	-0.1558 (134) P=0.036	0.5818 (134) P=0.000
EBSPOSSA	0.0674 (135) P=0.218	0.0672 (135) P=0.219	0.2535 (130) P=0.002	0.2478 (135) P=0.002	-0.0725 (135) P=0.202	0.2579 (135) P=0.001	0.2638 (134) P=0.001	0.7144 (135) P=0.000	0.5246 (134) P=0.000	0.3080 (134) P=0.000
EBSSADIF	0.1148 (135) P=0.092	0.0981 (135) P=0.129	-0.1392 (130) P=0.057	-0.1420 (135) P=0.050	-0.0160 (135) P=0.427	-0.0020 (135) P=0.491	-0.2760 (134) P=0.001	0.4936 (135) P=0.000	0.7245 (134) P=0.000	-0.1958 (134) P=0.012
DESPREEN	0.1027 (135) P=0.118	0.0789 (135) P=0.182	-0.2937 (130) P=0.000	-0.3008 (135) P=0.000	0.0919 (135) P=0.145	-0.1734 (135) P=0.022	-0.4332 (134) P=0.000	-0.2804 (135) P=0.000	0.0591 (134) P=0.249	-0.1664 (134) P=0.027
DESPOSEN	0.0302 (131) P=0.366	-0.0392 (131) P=0.328	-0.3217 (126) P=0.000	-0.2926 (131) P=0.000	0.1087 (131) P=0.108	-0.1700 (131) P=0.026	-0.4168 (130) P=0.000	-0.7102 (131) P=0.000	-0.3969 (130) P=0.000	-0.1348 (130) P=0.063
DESENDIF	-0.0525 (131) P=0.276	-0.1359 (131) P=0.061	-0.0740 (126) P=0.205	-0.0312 (131) P=0.362	0.0482 (131) P=0.292	-0.0211 (131) P=0.406	-0.0431 (130) P=0.313	-0.5026 (131) P=0.000	-0.4859 (130) P=0.000	0.0115 (130) P=0.448
PCSPREHA	0.1743 (135) P=0.022	0.0471 (135) P=0.294	-0.3548 (130) P=0.000	-0.3473 (135) P=0.000	0.1241 (135) P=0.076	-0.0300 (135) P=0.365	-0.6476 (134) P=0.000	-0.2661 (135) P=0.001	0.2433 (134) P=0.002	-0.3537 (134) P=0.000

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

- - - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - - -

	SEX	GRP	RSS	EPIN	EPII	IBT	DACLPRE	DACLPOST	DACLDIF	DESPREDI
PCSPOSHA	0.0782	-0.0122	-0.2454	-0.2207	0.0377	-0.1110	-0.3813	-0.7635	-0.4779	-0.1616
	(135)	(135)	(130)	(135)	(135)	(135)	(134)	(135)	(134)	(134)
	P=0.184	P=0.444	P=0.002	P=0.005	P=0.332	P=0.100	P=0.000	P=0.000	P=0.000	P=0.031
PCSHADIF	-0.0772	-0.0553	0.0688	0.0867	-0.0735	-0.0874	0.1929	-0.5476	-0.7149	0.1496
	(135)	(135)	(130)	(135)	(135)	(135)	(134)	(135)	(134)	(134)
	P=0.187	P=0.262	P=0.218	P=0.159	P=0.198	P=0.157	P=0.013	P=0.000	P=0.000	P=0.042
EBSPREJO	0.2166	0.0795	-0.3715	-0.2461	0.1682	-0.1243	-0.5773	-0.2878	0.1644	-0.3632
	(135)	(135)	(130)	(135)	(135)	(135)	(134)	(135)	(134)	(134)
	P=0.006	P=0.180	P=0.000	P=0.002	P=0.026	P=0.075	P=0.000	P=0.000	P=0.029	P=0.000
EBSPOSJO	0.0910	-0.0198	-0.2495	-0.1937	0.1198	-0.1495	-0.3463	-0.7123	-0.4538	-0.1606
	(135)	(135)	(130)	(135)	(135)	(135)	(134)	(135)	(134)	(134)
	P=0.147	P=0.410	P=0.002	P=0.012	P=0.083	P=0.042	P=0.000	P=0.000	P=0.000	P=0.032
EBSJODIF	-0.1123	-0.1030	0.0873	0.0229	-0.0302	-0.0485	0.1795	-0.5371	-0.6926	0.1766
	(135)	(135)	(130)	(135)	(135)	(135)	(134)	(135)	(134)	(134)
	P=0.097	P=0.117	P=0.162	P=0.396	P=0.364	P=0.288	P=0.019	P=0.000	P=0.000	P=0.021
PQUES1	0.0868	-0.1010	0.0182	-0.0004	-0.1171	0.1469	-0.0876	0.1478	0.2226	-0.0421
	(130)	(130)	(127)	(130)	(130)	(130)	(129)	(130)	(129)	(129)
	P=0.163	P=0.126	P=0.419	P=0.498	P=0.092	P=0.048	P=0.162	P=0.047	P=0.006	P=0.318
PQUES2	0.0805	-0.0908	0.1277	0.1075	-0.1439	0.1105	-0.1084	0.0370	0.1247	0.0421
	(130)	(130)	(127)	(130)	(130)	(130)	(129)	(130)	(129)	(129)
	P=0.181	P=0.152	P=0.076	P=0.112	P=0.051	P=0.105	P=0.111	P=0.338	P=0.079	P=0.318
PQUES3	-0.1078	0.0645	-0.1065	-0.0711	-0.0040	-0.0483	-0.0354	-0.1895	-0.1634	-0.0281
	(130)	(130)	(127)	(130)	(130)	(130)	(129)	(130)	(129)	(129)
	P=0.111	P=0.233	P=0.117	P=0.211	P=0.482	P=0.293	P=0.345	P=0.015	P=0.032	P=0.376
PQUES4	0.0169	0.0309	0.0466	0.0686	-0.1013	0.0568	-0.0153	-0.1181	-0.1074	0.1301
	(130)	(130)	(127)	(130)	(130)	(130)	(129)	(130)	(129)	(129)
	P=0.424	P=0.363	P=0.301	P=0.219	P=0.126	P=0.261	P=0.432	P=0.090	P=0.113	P=0.071

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	DESPOSDI	DESDIDIF	PCSPRESA	PCSPOSSA	PCSSADIF	EBSPRESA	EBSPOSSA	EBSSADIF	DESPREEN	DESPOSEN
SEX	0.0612 (130) P=0.245	-0.0139 (130) P=0.438	-0.0804 (135) P=0.177	0.0572 (135) P=0.255	0.1315 (135) P=0.064	-0.0432 (135) P=0.309	0.0674 (135) P=0.218	0.1148 (135) P=0.092	0.1027 (135) P=0.118	0.0302 (131) P=0.366
GRP	-0.0036 (130) P=0.484	0.0332 (130) P=0.354	-0.0207 (135) P=0.406	0.0456 (135) P=0.300	0.0660 (135) P=0.223	-0.0255 (135) P=0.385	0.0672 (135) P=0.219	0.0981 (135) P=0.129	0.0789 (135) P=0.182	-0.0392 (131) P=0.328
RSS	0.2631 (125) P=0.002	0.0050 (125) P=0.478	0.4207 (130) P=0.000	0.2689 (130) P=0.001	-0.0921 (130) P=0.149	0.4544 (130) P=0.000	0.2535 (130) P=0.002	-0.1392 (130) P=0.057	-0.2937 (130) P=0.000	-0.3217 (126) P=0.000
EPIN	0.2536 (130) P=0.002	-0.0178 (130) P=0.420	0.3448 (135) P=0.000	0.2583 (135) P=0.001	-0.0390 (135) P=0.327	0.4504 (135) P=0.000	0.2478 (135) P=0.002	-0.1420 (135) P=0.050	-0.3008 (135) P=0.000	-0.2926 (131) P=0.000
EPII	-0.0451 (130) P=0.305	-0.0241 (130) P=0.393	-0.0836 (135) P=0.167	-0.0587 (135) P=0.249	0.0136 (135) P=0.438	-0.0696 (135) P=0.211	-0.0725 (135) P=0.202	-0.0160 (135) P=0.427	0.0919 (135) P=0.145	0.1087 (131) P=0.108
IBT	0.2474 (130) P=0.002	0.0007 (130) P=0.497	0.0835 (135) P=0.168	0.2022 (135) P=0.009	0.1361 (135) P=0.058	0.3111 (135) P=0.000	0.2579 (135) P=0.001	-0.0020 (135) P=0.491	-0.1734 (135) P=0.022	-0.1700 (131) P=0.026
DACLPRE	0.2529 (129) P=0.002	-0.2140 (129) P=0.007	0.6092 (134) P=0.000	0.3034 (134) P=0.000	-0.2289 (134) P=0.004	0.6140 (134) P=0.000	0.2638 (134) P=0.001	-0.2760 (134) P=0.001	-0.4332 (134) P=0.000	-0.4168 (130) P=0.000
DACLPOST	0.7719 (130) P=0.000	0.5690 (130) P=0.000	0.3143 (135) P=0.000	0.7323 (135) P=0.000	0.4822 (135) P=0.000	0.3225 (135) P=0.000	0.7144 (135) P=0.000	0.4936 (135) P=0.000	-0.2804 (135) P=0.000	-0.7102 (131) P=0.000
DACLDIF	0.5965 (129) P=0.000	0.7656 (129) P=0.000	-0.1614 (134) P=0.031	0.5103 (134) P=0.000	0.6756 (134) P=0.000	-0.1558 (134) P=0.036	0.5246 (134) P=0.000	0.7245 (134) P=0.000	0.0591 (134) P=0.249	-0.3969 (130) P=0.000
DESPREDI	0.3096 (130) P=0.000	-0.4574 (130) P=0.000	0.4963 (134) P=0.000	0.2569 (134) P=0.001	-0.1779 (134) P=0.020	0.5818 (134) P=0.000	0.3080 (134) P=0.000	-0.1958 (134) P=0.012	-0.1664 (134) P=0.027	-0.1348 (130) P=0.063
DESPOSDI	1.0000 (130) P=*****	0.7039 (130) P=0.000	0.2138 (130) P=0.007	0.6580 (130) P=0.000	0.4889 (130) P=0.000	0.2999 (130) P=0.000	0.7563 (130) P=0.000	0.5606 (130) P=0.000	-0.1570 (130) P=0.037	-0.4851 (130) P=0.000

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	DESPOSDI	DESDIDIF	PCSPRESA	PCSPOSSA	PCSSADIF	EBSPRESA	EBSPOSSA	EBSSADIF	DESPREEN	DESPOSEN
DESDIDIF	0.7039 (130) P=0.000	1.0000 (130) P=*****	-0.1704 (130) P=0.026	0.4102 (130) P=0.000	0.5814 (130) P=0.000	-0.1512 (130) P=0.043	0.4597 (130) P=0.000	0.6599 (130) P=0.000	-0.0220 (130) P=0.402	-0.3529 (130) P=0.000
PCSPRESA	0.2138 (130) P=0.007	-0.1704 (130) P=0.026	1.0000 (135) P=*****	0.4749 (135) P=0.000	-0.3989 (135) P=0.000	0.5465 (135) P=0.000	0.2702 (135) P=0.001	-0.2061 (135) P=0.008	-0.2695 (135) P=0.001	-0.2511 (131) P=0.002
PCSPOSSA	0.6580 (130) P=0.000	0.4102 (130) P=0.000	0.4749 (135) P=0.000	1.0000 (135) P=*****	0.6175 (135) P=0.000	0.3761 (135) P=0.000	0.7202 (135) P=0.000	0.4504 (135) P=0.000	-0.1072 (135) P=0.108	-0.4946 (131) P=0.000
PCSSADIF	0.4889 (130) P=0.000	0.5814 (130) P=0.000	-0.3989 (135) P=0.000	0.6175 (135) P=0.000	1.0000 (135) P=*****	-0.0966 (135) P=0.133	0.5089 (135) P=0.000	0.6535 (135) P=0.000	0.1291 (135) P=0.068	-0.2868 (131) P=0.000
EBSPRESA	0.2999 (130) P=0.000	-0.1512 (130) P=0.043	0.5465 (135) P=0.000	0.3761 (135) P=0.000	-0.0966 (135) P=0.133	1.0000 (135) P=*****	0.5288 (135) P=0.000	-0.3390 (135) P=0.000	-0.3525 (135) P=0.000	-0.2597 (131) P=0.001
EBSPOSSA	0.7563 (130) P=0.000	0.4597 (130) P=0.000	0.2702 (135) P=0.001	0.7202 (135) P=0.000	0.5089 (135) P=0.000	0.5288 (135) P=0.000	1.0000 (135) P=*****	0.6192 (135) P=0.000	-0.1460 (135) P=0.046	-0.5064 (131) P=0.000
EBSSADIF	0.5606 (130) P=0.000	0.6599 (130) P=0.000	-0.2061 (135) P=0.008	0.4504 (135) P=0.000	0.6535 (135) P=0.000	-0.3390 (135) P=0.000	0.6192 (135) P=0.000	1.0000 (135) P=*****	0.1643 (135) P=0.028	-0.3213 (131) P=0.000
DESPREEN	-0.1570 (130) P=0.037	-0.0220 (130) P=0.402	-0.2695 (135) P=0.001	-0.1072 (135) P=0.108	0.1291 (135) P=0.068	-0.3525 (135) P=0.000	-0.1460 (135) P=0.046	0.1643 (135) P=0.028	1.0000 (135) P=*****	0.5828 (131) P=0.000
DESPOSEN	-0.4851 (130) P=0.000	-0.3529 (130) P=0.000	-0.2511 (131) P=0.002	-0.4946 (131) P=0.000	-0.2868 (131) P=0.000	-0.2597 (131) P=0.001	-0.5064 (131) P=0.000	-0.3213 (131) P=0.000	0.5828 (131) P=0.000	1.0000 (131) P=*****
DESENDIF	-0.4031 (130) P=0.000	-0.3856 (130) P=0.000	-0.0020 (131) P=0.491	-0.4317 (131) P=0.000	-0.4475 (131) P=0.000	0.0710 (131) P=0.210	-0.4034 (131) P=0.000	-0.5235 (131) P=0.000	-0.3342 (131) P=0.000	0.5712 (131) P=0.000
PCSPREHA	-0.0578 (130) P=0.257	0.2052 (130) P=0.010	-0.6248 (135) P=0.000	-0.2079 (135) P=0.008	0.3418 (135) P=0.000	-0.3953 (135) P=0.000	-0.0956 (135) P=0.135	0.2598 (135) P=0.001	0.5031 (135) P=0.000	0.4153 (131) P=0.000

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PEARSON CORRELATION COEFFICIENTS

	DESPOSDI	DESDIDIF	PCSPRESA	PCSPOSSA	PCSSADIF	EBSPRESA	EBSPOSSA	EBSSADIF	DESPREEN	DESPOSEN
PCSPOSHA	-0.5427	-0.3776	-0.3257	-0.6430	-0.3788	-0.2709	-0.6121	-0.4279	0.3256	0.7863
	(130)	(130)	(135)	(135)	(135)	(135)	(135)	(135)	(135)	(131)
	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.001	P=0.000	P=0.000	P=0.000	P=0.000
PCSHADIF	-0.5065	-0.5760	0.2296	-0.4758	-0.7009	0.0784	-0.5456	-0.6773	-0.1195	0.4292
	(130)	(130)	(135)	(135)	(135)	(135)	(135)	(135)	(135)	(131)
	P=0.000	P=0.000	P=0.004	P=0.000	P=0.000	P=0.183	P=0.000	P=0.000	P=0.084	P=0.000
EBSPREJO	-0.1626	0.1101	-0.4210	-0.1452	0.2250	-0.3274	-0.1287	0.1602	0.5035	0.4711
	(130)	(130)	(135)	(135)	(135)	(135)	(135)	(135)	(135)	(131)
	P=0.032	P=0.106	P=0.000	P=0.046	P=0.004	P=0.000	P=0.068	P=0.032	P=0.000	P=0.000
EBSPOSJO	-0.5052	-0.3460	-0.2837	-0.5555	-0.3252	-0.2156	-0.5147	-0.3710	0.3576	0.7529
	(130)	(130)	(135)	(135)	(135)	(135)	(135)	(135)	(135)	(131)
	P=0.000	P=0.000	P=0.000	P=0.000	P=0.000	P=0.006	P=0.000	P=0.000	P=0.000	P=0.000
EBSJODIF	-0.4430	-0.5322	0.0944	-0.4986	-0.6040	0.0793	-0.4679	-0.5919	-0.0917	0.4214
	(130)	(130)	(135)	(135)	(135)	(135)	(135)	(135)	(135)	(131)
	P=0.000	P=0.000	P=0.138	P=0.000	P=0.000	P=0.180	P=0.000	P=0.000	P=0.145	P=0.000
PQUES1	0.2741	0.2825	0.0081	0.2597	0.2640	-0.0600	0.1813	0.2540	0.0242	-0.0863
	(125)	(125)	(130)	(130)	(130)	(130)	(130)	(130)	(130)	(126)
	P=0.001	P=0.001	P=0.464	P=0.001	P=0.001	P=0.249	P=0.019	P=0.002	P=0.392	P=0.168
PQUES2	0.1977	0.1570	-0.0190	0.0629	0.0825	0.0136	0.0757	0.0709	-0.0352	0.1177
	(125)	(125)	(130)	(130)	(130)	(130)	(130)	(130)	(130)	(126)
	P=0.014	P=0.040	P=0.415	P=0.239	P=0.175	P=0.439	P=0.196	P=0.211	P=0.345	P=0.095
PQUES3	-0.2684	-0.2302	-0.0381	-0.1447	-0.1174	-0.0739	-0.1825	-0.1335	0.0164	-0.0487
	(125)	(125)	(130)	(130)	(130)	(130)	(130)	(130)	(130)	(126)
	P=0.001	P=0.005	P=0.333	P=0.050	P=0.092	P=0.202	P=0.019	P=0.065	P=0.426	P=0.294
PQUES4	-0.0618	-0.1632	-0.0061	0.0663	0.0745	0.1299	0.0385	-0.0758	0.1329	0.1517
	(125)	(125)	(130)	(130)	(130)	(130)	(130)	(130)	(130)	(126)
	P=0.247	P=0.034	P=0.473	P=0.227	P=0.200	P=0.070	P=0.332	P=0.196	P=0.066	P=0.045

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	DESENDIF	PCSPREHA	PCSPOSHA	PCSHADIF	EBSPREJO	EBSPOSJO	EBSJODIF	PQUES1	PQUES2	PQUES3
SEX	-0.0525 (131) P=0.276	0.1743 (135) P=0.022	0.0782 (135) P=0.184	-0.0772 (135) P=0.187	0.2166 (135) P=0.006	0.0910 (135) P=0.147	-0.1123 (135) P=0.097	0.0868 (130) P=0.163	0.0805 (130) P=0.181	-0.1078 (130) P=0.111
GRP	-0.1359 (131) P=0.061	0.0471 (135) P=0.294	-0.0122 (135) P=0.444	-0.0553 (135) P=0.262	0.0795 (135) P=0.180	-0.0198 (135) P=0.410	-0.1030 (135) P=0.117	-0.1010 (130) P=0.126	-0.0908 (130) P=0.152	0.0645 (130) P=0.233
RSS	-0.0740 (126) P=0.205	-0.3548 (130) P=0.000	-0.2454 (130) P=0.002	0.0688 (130) P=0.218	-0.3715 (130) P=0.000	-0.2495 (130) P=0.002	0.0873 (130) P=0.162	0.0182 (127) P=0.419	0.1277 (127) P=0.076	-0.1065 (127) P=0.117
EPIN	-0.0312 (131) P=0.362	-0.3473 (135) P=0.000	-0.2207 (135) P=0.005	0.0867 (135) P=0.159	-0.2461 (135) P=0.002	-0.1937 (135) P=0.012	0.0229 (135) P=0.396	-0.0004 (130) P=0.498	0.1075 (130) P=0.112	-0.0711 (130) P=0.211
EPII	0.0482 (131) P=0.292	0.1241 (135) P=0.076	0.0377 (135) P=0.332	-0.0735 (135) P=0.198	0.1682 (135) P=0.026	0.1198 (135) P=0.083	-0.0302 (135) P=0.364	-0.1171 (130) P=0.092	-0.1439 (130) P=0.051	-0.0240 (130) P=0.482
IBT	-0.0211 (131) P=0.406	-0.0300 (135) P=0.365	-0.1110 (135) P=0.100	-0.0874 (135) P=0.157	-0.1243 (135) P=0.075	-0.1495 (135) P=0.042	-0.0485 (135) P=0.288	0.1469 (130) P=0.048	0.1105 (130) P=0.105	-0.0483 (130) P=0.293
DACLPRE	-0.0431 (130) P=0.313	-0.6476 (134) P=0.000	-0.3813 (134) P=0.000	0.1929 (134) P=0.013	-0.5773 (134) P=0.000	-0.3463 (134) P=0.000	0.1795 (134) P=0.019	-0.0876 (129) P=0.162	-0.1084 (129) P=0.111	-0.0354 (129) P=0.345
DACLPOST	-0.5026 (131) P=0.000	-0.2661 (135) P=0.001	-0.7635 (135) P=0.000	-0.5476 (135) P=0.000	-0.2878 (135) P=0.000	-0.7123 (135) P=0.000	-0.5371 (135) P=0.000	0.1478 (130) P=0.047	0.0370 (130) P=0.338	-0.1895 (130) P=0.015
DACLDIF	-0.4859 (130) P=0.000	0.2433 (134) P=0.002	-0.4779 (134) P=0.000	-0.7149 (134) P=0.000	0.1644 (134) P=0.029	-0.4538 (134) P=0.000	-0.6926 (134) P=0.000	0.2226 (129) P=0.006	0.1247 (129) P=0.079	-0.1634 (129) P=0.032
DESPREDI	0.0115 (130) P=0.448	-0.3537 (134) P=0.000	-0.1616 (134) P=0.031	0.1496 (134) P=0.042	-0.3632 (134) P=0.000	-0.1606 (134) P=0.032	0.1766 (134) P=0.021	-0.0421 (129) P=0.318	0.0421 (129) P=0.318	-0.0281 (129) P=0.376
DESPOSDI	-0.4031 (130) P=0.000	-0.0578 (130) P=0.257	-0.5427 (130) P=0.000	-0.5065 (130) P=0.000	-0.1626 (130) P=0.032	-0.5052 (130) P=0.000	-0.4430 (130) P=0.000	0.2741 (125) P=0.001	0.1977 (125) P=0.014	-0.2684 (125) P=0.001

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	DESENDIF	PCSPREHA	PCSPOSHA	PCSHADIF	EBSPREJO	EBSPOSJO	EBSJODIF	PQUES1	PQUES2	PQUES3
DESDIDIF	-0.3856 (130) P=0.000	0.2052 (130) P=0.010	-0.3776 (130) P=0.000	-0.5760 (130) P=0.000	0.1101 (130) P=0.106	-0.3460 (130) P=0.000	-0.5322 (130) P=0.000	0.2825 (125) P=0.001	0.1570 (125) P=0.040	-0.2302 (125) P=0.005
PCSPRESA	-0.0020 (131) P=0.491	-0.6248 (135) P=0.000	-0.3257 (135) P=0.000	0.2296 (135) P=0.004	-0.4210 (135) P=0.000	-0.2837 (135) P=0.000	0.0944 (135) P=0.138	0.0081 (130) P=0.464	-0.0190 (130) P=0.415	-0.0381 (130) P=0.333
PCSPOSSA	-0.4317 (131) P=0.000	-0.2079 (135) P=0.008	-0.6430 (135) P=0.000	-0.4758 (135) P=0.000	-0.1452 (135) P=0.046	-0.5555 (135) P=0.000	-0.4986 (135) P=0.000	0.2597 (130) P=0.001	0.0629 (130) P=0.239	-0.1447 (130) P=0.050
PCSSADIF	-0.4475 (131) P=0.000	0.3418 (135) P=0.000	-0.3788 (135) P=0.000	-0.7009 (135) P=0.000	0.2250 (135) P=0.004	-0.3252 (135) P=0.000	-0.6040 (135) P=0.000	0.2640 (130) P=0.001	0.0825 (130) P=0.175	-0.1174 (130) P=0.092
EBSPRESA	0.0710 (131) P=0.210	-0.3953 (135) P=0.000	-0.2709 (135) P=0.001	0.0784 (135) P=0.183	-0.3274 (135) P=0.000	-0.2156 (135) P=0.006	0.0793 (135) P=0.180	-0.0600 (130) P=0.249	0.0136 (130) P=0.439	-0.0739 (130) P=0.202
EBSPOSSA	-0.4034 (131) P=0.000	-0.0956 (135) P=0.135	-0.6121 (135) P=0.000	-0.5456 (135) P=0.000	-0.1287 (135) P=0.068	-0.5147 (135) P=0.000	-0.4679 (135) P=0.000	0.1813 (130) P=0.019	0.0757 (130) P=0.196	-0.1825 (130) P=0.019
EBSSADIF	-0.5235 (131) P=0.000	0.2598 (135) P=0.001	-0.4279 (135) P=0.000	-0.6773 (135) P=0.000	0.1602 (135) P=0.032	-0.3710 (135) P=0.000	-0.5919 (135) P=0.000	0.2540 (130) P=0.002	0.0709 (130) P=0.211	-0.1335 (130) P=0.065
DESPREEN	-0.3342 (131) P=0.000	0.5031 (135) P=0.000	0.3256 (135) P=0.000	-0.1195 (135) P=0.084	0.5035 (135) P=0.000	0.3576 (135) P=0.000	-0.0917 (135) P=0.145	0.0242 (130) P=0.392	-0.0352 (130) P=0.345	0.0164 (130) P=0.426
DESPOSEN	0.5712 (131) P=0.000	0.4153 (131) P=0.000	0.7863 (131) P=0.000	0.4292 (131) P=0.000	0.4711 (131) P=0.000	0.7529 (131) P=0.000	0.4214 (131) P=0.000	-0.0863 (126) P=0.168	0.1177 (126) P=0.095	-0.0487 (126) P=0.294
DESENDIF	1.0000 (131) P=*****	-0.0375 (131) P=0.335	0.5431 (131) P=0.000	0.5964 (131) P=0.000	0.0221 (131) P=0.401	0.4793 (131) P=0.000	0.5575 (131) P=0.000	-0.1195 (126) P=0.091	0.1558 (126) P=0.041	-0.0668 (126) P=0.229
PCSPREHA	-0.0375 (131) P=0.335	1.0000 (135) P=*****	0.4743 (135) P=0.000	-0.4161 (135) P=0.000	0.6589 (135) P=0.000	0.4237 (135) P=0.000	-0.1714 (135) P=0.023	0.1647 (130) P=0.031	0.1023 (130) P=0.123	0.0541 (130) P=0.270

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	DESENDIF	PCSPREHA	PCSPOSHA	PCSHADIF	EBSPREJO	EBSPOSJO	EBSJODIF	PQUES1	PQUES2	PQUES3
PCSPOSHA	0.5431 (131) P=0.000	0.4743 (135) P=0.000	1.0000 (135) P=*****	0.6032 (135) P=0.000	0.4119 (135) P=0.000	0.8380 (135) P=0.000	0.5581 (135) P=0.000	-0.1754 (130) P=0.023	0.0343 (130) P=0.349	0.1117 (130) P=0.103
PCSHADIF	0.5964 (131) P=0.000	-0.4161 (135) P=0.000	0.6032 (135) P=0.000	1.0000 (135) P=*****	-0.1715 (135) P=0.023	0.4817 (135) P=0.000	0.7317 (135) P=0.000	-0.3262 (130) P=0.000	-0.0568 (130) P=0.261	0.0652 (130) P=0.231
EBSPREJO	0.0221 (131) P=0.401	0.6589 (135) P=0.000	0.4119 (135) P=0.000	-0.1715 (135) P=0.023	1.0000 (135) P=*****	0.5822 (135) P=0.000	-0.3307 (135) P=0.000	0.0918 (130) P=0.149	0.0315 (130) P=0.361	-0.0994 (130) P=0.130
EBSPOSJO	0.4793 (131) P=0.000	0.4237 (135) P=0.000	0.8380 (135) P=0.000	0.4817 (135) P=0.000	0.5822 (135) P=0.000	1.0000 (135) P=*****	0.5747 (135) P=0.000	-0.1097 (130) P=0.107	0.0719 (130) P=0.208	0.0465 (130) P=0.300
EBSJODIF	0.5575 (131) P=0.000	-0.1714 (135) P=0.023	0.5581 (135) P=0.000	0.7317 (135) P=0.000	-0.3307 (135) P=0.000	0.5747 (135) P=0.000	1.0000 (135) P=*****	-0.2204 (130) P=0.006	0.0524 (130) P=0.277	0.1542 (130) P=0.040
PQUES1	-0.1195 (126) P=0.091	0.1647 (130) P=0.031	-0.1754 (130) P=0.023	-0.3262 (130) P=0.000	0.0918 (130) P=0.149	-0.1097 (130) P=0.107	-0.2204 (130) P=0.006	1.0000 (130) P=*****	0.4670 (130) P=0.000	-0.1648 (130) P=0.030
PQUES2	0.1558 (126) P=0.041	0.1023 (130) P=0.123	0.0343 (130) P=0.349	-0.0568 (130) P=0.261	0.0315 (130) P=0.361	0.0719 (130) P=0.208	0.0524 (130) P=0.277	0.4670 (130) P=0.000	1.0000 (130) P=*****	-0.2280 (130) P=0.005
PQUES3	-0.0668 (126) P=0.229	0.0541 (130) P=0.270	0.1117 (130) P=0.103	0.0652 (130) P=0.231	-0.0994 (130) P=0.130	0.0465 (130) P=0.300	0.1542 (130) P=0.040	-0.1648 (130) P=0.030	-0.2280 (130) P=0.005	1.0000 (130) P=*****
PQUES4	0.0573 (126) P=0.262	0.0412 (130) P=0.321	0.1202 (130) P=0.087	0.0854 (130) P=0.167	0.0153 (130) P=0.432	0.1244 (130) P=0.079	0.1302 (130) P=0.070	0.2109 (130) P=0.008	0.2748 (130) P=0.001	0.1421 (130) P=0.053

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	PQUES4
SEX	0.0169 (130) P=0.424
GRP	0.0309 (130) P=0.363
RSS	0.0466 (127) P=0.301
EPIN	0.0686 (130) P=0.219
EPII	-0.1013 (130) P=0.126
IBT	0.0568 (130) P=0.261
DACLPRE	-0.0153 (129) P=0.432
DACLPOST	-0.1181 (130) P=0.090
DACLDIF	-0.1074 (129) P=0.113
DESPREDI	0.1301 (129) P=0.071
DESPOSDI	-0.0618 (125) P=0.247

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	PQUES4
DESDIDIF	-0.1632 (125) P=0.034
PCSPRESA	-0.0061 (130) P=0.473
PCSPOSSA	0.0663 (130) P=0.227
PCSSADIF	0.0745 (130) P=0.200
EBSPRESA	0.1299 (130) P=0.070
EBSPOSSA	0.0385 (130) P=0.332
EBSSADIF	-0.0758 (130) P=0.196
DESPREEN	0.1329 (130) P=0.066
DESPOSFN	0.1517 (126) P=0.045
DESENDIF	0.0573 (126) P=0.262
PCSPREHA	0.0412 (130) P=0.321

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

REFERENCE NOTE

Reference Note

1. Pretzer, J. Cognition and emotion in normal functioning. Unpublished doctoral dissertation, Michigan State University, 1981.

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