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The Effects of Rational Emotive Education on the Rationality, Neuroticism and Defense Mechanisms of Adolescents

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THE EFFECTS OF RATIONAL EMOTIVE EDUCATION ON THE RATIONALITY, NEUROTICISM AND DEFENSE MECHANISMS OF ADOLESCENTS

by

Daniel John Kachman

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
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Department of Education and Counseling Psychology

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THE EFFECTS OF RATIONAL EMOTIVE EDUCATION ON THE RATIONALITY, NEUROTICISM AND DEFENSE MECHANISMS OF ADOLESCENTS

Daniel John Kachman, Ed.D.
Western Michigan University, 1987

The purpose of this study was to assess the efficacy of Rational Emotive Education (REE) as a mental health prevention program for adolescents. The subjects included 109 eleventh and twelfth grade students who were enrolled in four introductory psychology courses. A nonequivalent control group design was used with experimental subjects receiving 12 biweekly sessions of REE. Subjects were pre and posttested on three measures of psychosocial adaptation: the Rational Behavior Inventory (RBI), the Defense Mechanism Inventory (DMI), and the Eysenck Personality Inventory (EPI). The effects of REE upon behavior were also examined by comparing academic effort grades, number of detentions and grade point averages. Overall results showed significant positive changes in use of more adaptive defense mechanisms and in academic effort grades in the predicted direction. No significant changes occurred on the other measures. As a distinctive group, however, 17-year-olds demonstrated a significant reduction in neuroticism scores and a significant increase in academic effort grades. Follow-up results were also reported. Cognitive developmental issues were identified and discussed as playing an important role in the findings. Results suggest that REE may be an effective mental health prevention program especially for 17-year old adolescents. Implications and suggestions for further research were discussed.

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I wish to dedicate this research to my wife, Deborah, and to my sons, Matthew, Kevin, and Joshua, for their support, love, and patience over the past several years.

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Daniel John Kachman
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CHAPTER 1

INTRODUCTION

Adolescence has long been described as a period of emotional turmoil and conflict. Adolescents face many difficult challenges including becoming independent from their parents, establishing gratifying heterosexual relationships, coping with peer pressure, and making difficult career decisions all while adapting to the biological changes which are occurring within them (Beschner, 1985). Our rapidly changing society and culture serve to further complicate the resolution of these issues. As a result many adolescents fail to make a healthy adjustment and experience feelings of alienation, depression, guilt, anger, and anxiety (Vernon, 1983) and may manifest these feelings in maladaptive behaviors. For example, Varenhorst (1981) reported that the rate of suicide for young people nearly tripled between 1955 and 1975. Gelman, Abramson, Whitman, Weathers, Naitland, and Copeland (1980) stated that over one million teenagers become pregnant each year and that 30,000 of these pregnancies involve girls under the age of fifteen. Finally, the rising incidence of adolescent substance abuse is another indication of the failure of many adolescents to adapt.

Pothier (1976) pointed out that the high incidence of emotional and behavioral problems exhibited by adolescents gives evidence of the need for adolescent mental health services. In her 1976 publication she estimated that there are 10 million children suffering from some
degree of mental illness who need mental health treatment. Pothier added, however, that only seven percent of these children will receive treatment and that there is no organized effort in this country either to treat or prevent childhood mental illness.

Pothier (1976) promoted the establishment of mental health prevention programs as a means to reduce the occurrence of emotional disturbance in children and adolescents. She estimated that 80% of children needing mental health treatment have problems that stem from the challenge of normal developmental tasks or from reactions to adverse life experiences such as death of a loved one, divorce, or a dysfunctional family system. Other writers have advocated the development of mental health prevention programs in schools and believe that our educational system needs to teach psychological coping skills in addition to conventional subject matter (Bronfenbrenner, 1970; Varenhorst, 1981). Harper and Balch (1975) argued that such prevention programs have an advantage over treatment programs in that they are more accessible and cost effective. Particularly suited to this prevention orientation is Rational Emotive Education (REE).

Rational Emotive Education

Rational Emotive Education is a mental health prevention program that teaches problem solving strategies that have been adapted from the principles of Rational Emotive Therapy (Knaus, 1977). Rational Emotive Therapy (RET), a cognitive-emotive-behavioral system of therapy, is based on the assumption that emotional problems result from faulty thinking about an event rather than from the event itself (Ellis, 1962;
Ellis & Harper, 1961; Vernon, 1983). Knaus (1974), the developer of REE, reported that REE is concerned with examining and understanding the way attitudes, beliefs, and values influence feelings and perceptions. Implicit in the theory of REE is the assumption that REE increases rationality and leads to decreased maladaptive and increased adaptive emotions and behavior.

Research studies on REE show that REE has proven effective with children in treating a number of psychological and behavioral problems: lowering test anxiety (Albert, 1971; Brody, 1974); reducing irrational thinking and neuroticism in fourth and fifth graders (DiGiuseppe & Kassinove, 1976); reducing class failure rates and increasing school attendance with problem prone adolescents (Knaus & Block, 1976); and, increasing self esteem and self concept (Knaus & Bokor, 1975). With the exception of the Knaus and Block study (1976), all of the above studies used elementary and middle school aged children as subjects. Subjects in the Knaus and Block study were 17 and 18-year-old inner-city youths who exhibited a high rate of absenteeism and academic failure. A review of the literature revealed no study which examined the efficacy of REE as a mental health prevention program using a "normal" population of adolescents.

Present Study

The purpose of the present research was to examine the effects of REE on a sample of normal adolescents to determine its efficacy as a mental health prevention program. The study sought to determine whether REE can enhance an adolescent's psychosocial adaptation. The
study used rationality, utilization of defense mechanisms, and neuroticism as measures of psychosocial adaptation since these variables have been associated with adaptive functioning (see Chapter II). The study empirically examined the efficacy of REE (a) in increasing rationality, (b) in increasing the utilization of adaptive defenses, and (c) in reducing neuroticism among a sample of adolescents.

Rationality, Neuroticism, and Defense Mechanisms

The following section discusses rationality, utilization of defense mechanisms, and neuroticism as correlates of psychosocial functioning.

Ellis (1962) proposed that rationality is the foundation to adaptive functioning. He wrote that man's emotional or psychological disturbance resulted from irrational thinking. Ellis (Ellis & Grieger, 1977) hypothesized that "thinking creates emotion" (p. 37) and presented the ABC model to explain how beliefs cause emotional consequences (Ellis, 1962). This hypothesis is central to the whole field of RET and Cognitive Behavior Therapy. Chapter II reviews the literature of recent studies which have supported Ellis's theory that cognitions can modify behavior and are related to emotional disturbance. From a Rational Emotive perspective an effective mental health program should increase rationality and thereby reduce emotional disturbance and neuroticism.

The utilization of defense mechanisms as a index of psychosocial adaptation has changed over the past century. Freud initially viewed all defenses (except sublimation) as pathological and considered the
goal of psychoanalysis to be the gradual elimination of unconscious defense mechanisms by bringing them to conscious awareness (Borrelli, 1979). Subsequent to Freud's early writings, several writers including Anna Freud (1966), Helene Deutsch (1934), Hartmann (1939) and others, began to view defenses as essential to normal development and adaptation. As Ego Psychology developed and emerged, the defensive functions of the ego began to be thought of as general mechanisms which may take on either defensive or coping functions. Kroeber (1963) suggested that "we view the neurotic defense mechanisms as pathologically exaggerated or distorted regulation and adaptation mechanisms, which in themselves belong to normal development" (p. 182). Kroeber also wrote of the "coping functions" of the ego as "neurosis free" and distinguished them from the defensive functions of the ego (p. 184). Chapter II further reviews the literature regarding this issue.

According to these developments in the theory of defense mechanisms, an effective mental health program should increase the utilization of more adaptive defenses and reduce the utilization of maladaptive defenses.

The final concept addressed in this study is neuroticism. The concept of "neuroticism" has long been synonymous with the notion of poor adjustment. In fact Eysenck (Eysenck & Rochman, 1965) wrote that "neurotic behavior is maladaptive" (p. 3). Neurotic behavior is characterized by emotional lability, emotional overreactivity, vague somatic complaints, worries, anxieties, and self defeating behavior (Ellis, 1962; Eysenck & Eysenck, 1968). An individual exhibiting such characteristics would be considered as making a poor adjustment. In
this context an effective mental health program should reduce neurotic symptomology and improve psychosocial adaptation.

Statement of the Problem

Although Rational Emotive Education has been evaluated in previous research with elementary school children with good results (Albert, 1971; Brody, 1974; DiGiuseppe & Kassinove, 1976; Knaus & Block, 1976; Knaus & Bokor, 1975) there are no studies which measure its effectiveness as a mental health prevention program with "normal" adolescents. The purpose of this study was to examine empirically the efficacy of REE as a mental health prevention program. Specifically, the study assessed the efficacy of REE (a) in increasing rationality, (b) in promoting the utilization of adaptive defense mechanisms, and (c) in reducing neuroticism among a normal adolescent sample. The study also examined the effects of REE on three measures of adaptive school behavior: (a) grade point average, (b) academic effort grade, and (c) number of detentions. The study addressed the following research questions:

1. Will REE significantly increase a measure of rationality in a sample of adolescent subjects?
2. Will REE significantly reduce a measure of neuroticism in a sample of adolescent subjects?
3. Will REE significantly increase a measure of the utilization of more adaptive defense mechanisms in a sample of adolescent subjects?
4. Will REE significantly affect student behavior as evidenced by significant changes in grade point average, effort grade, and number of detentions?
The conceptual hypothesis was that Rational Emotive Education would increase rationality, reduce neuroticism, lead to the utilization of more adaptive defense mechanisms, and improve school behavior. Rationality, neuroticism, and the utilization of defense mechanisms were measured by three objective measures. The independent variable was Rational Emotive Education and the dependent variables were scores on the three objective measures. Subjects were high school juniors and seniors at a suburban middle class parochial high school.

Definition of Terms

The following terms are used in the study are defined as follows:

1. **Rational Emotive Education** is a form of emotional education that has been derived from the concepts of Rational Emotive Therapy. Appendix A outlines the objectives for each of 12 sessions.

2. **Rational Beliefs** are those beliefs that are empirically verifiable, logical, internally consistent, consistent with reality, relativistic, and congruent with satisfaction in living (Walen, DiGuisepppe, & Wessler, 1980).

3. **Irrational Beliefs** are those beliefs that are not empirically verifiable, are "absolutistic" rather than "probabilistic" (Walen et al., 1980, p. 73), are expressed as demands and are self defeating.

4. **Defense Mechanisms** are relatively stable psychological responses that serve to falsify reality whenever a person's problem solving skills or coping mechanisms are insufficient to resolve inner
conflicts or master external threats to well being (Ihilevich & Gleser, 1986).

5. **Neuroticism** is defined as a psychological state which is characterized by emotional lability, emotional reactivity, vague somatic complaints, worry, anxiety, and other self defeating behavior (Eysenck & Eysenck, 1968).

Summary

The present study attempted to examine the efficacy of Rational Emotive Education as a preventive mental health program for normal adolescents. Specifically, the study used a nonequivalent control group design with an adolescent sample to examine the effects of REE on rationality, neuroticism, and the utilization of adaptive defenses.

Chapter I briefly reviewed the need for preventive mental health programs and the role of rationality, neuroticism, and defense mechanisms in adaptive psychosocial functioning. The problem, research questions, and conceptual hypothesis were presented and the terms were defined.

In Chapter II the efficacy of Rational Emotive Education as a preventive mental health program is reviewed. Rationality, neuroticism, and utilization of defense mechanisms are reviewed in terms of adaptive psychosocial functioning. Developmental issues are also examined, in particular, in the development of rationality and utilization of defense mechanisms.
CHAPTER II

REVIEW OF THE SELECTED LITERATURE

Emotional Education

There exist several types of emotional education programs ranging from behavioral to humanistic approaches (Bessell & Palomares, 1970; Brown, 1971; Glasser, 1968; Heath, 1971; Lyon, 1971; Mosher & Sprinthal, 1970; Rogers, 1961; Stone, Hinds & Schmidt, 1975). These emotional education programs are considered preventive since they are designed to develop the psychological and behavioral skills that will help children and adolescents cope with life's problems. The basic goal of these programs is to provide learning experiences through which students can learn about themselves and others as well as develop problem-solving and coping skills. Emotional education works toward the development of the "whole child" i.e., social, emotional, and cognitive dimensions (Vernon, 1983). While acknowledging differences in techniques, Vernon proposed that emotional education programs have the following goals in common:

1. Awareness of self-values, beliefs, strengths, and weaknesses.

2. Awareness of feelings—what feelings are, where feelings come from, and how feelings are expressed.

3. Awareness of self in relation to others—what behaviors attract or detract in relationships and how effective interaction with others can be enhanced.

4. Problem-solving and decision-making skills—evaluating and assessing alternatives and consequences in a realistic manner. (p. 409)
Rational Emotive Education

During the past decade Rational Emotive Education (REE) has emerged as a viable form of emotional education. REE is a systematic approach for teaching problem solving strategies that follow the tenets of Rational Emotive Therapy (RET) (Knaus, 1977). REE emphasizes experiential learning and differs from RET in that REE is a planned series of emotional educational lessons and exercises that follow a thematic format. REE is based on the assumption that it is possible and desirable to teach children the psychological tools which they can utilize in coping with stress in everyday life. Vernon (1983) proposed that the basic concepts of REE include teaching (a) self acceptance; (b) the connection between thoughts, feelings, and behavior; (c) the difference between rational and irrational beliefs; and (d) how to challenge and dispute beliefs.

Several studies have assessed the efficacy of REE with various populations. Knaus (1977) reported on two pilot studies by Albert (1971) which tested the effects of REE in fifth graders. In both studies Albert assessed the effects of REE on test anxiety and classroom behavior using the Test Anxiety Scale (TAS) and the Behavioral Rating Scale (BRS) respectively. One study used a sample of children with overt emotional problems while the second study used a sample of normals. In both studies REE was taught for one hour per day, four days a week, for five consecutive weeks. The treatment groups showed significant change on the TAS and BRS when compared to an attention-only placebo group. Albert (1971) used a pretest-posttest design. No followup was reported.
In another study, Brody (1974) assessed the effects of REE on anxiety, self esteem, and on frustration tolerance on a sample of fifth graders using the Test Anxiety Scale, Self Inventory Scale, and Rosenweig Picture Frustration Study respectively as outcome measures. Experimental subjects participated in two half-hour sessions of REE during a 12-week period. Brody employed a no-contact control group as well as an attention placebo group in his experiment. A posttest only control group design yielded significant differences in anxiety and frustration tolerance. An eight week followup yielded no significant differences between groups.

In a study assessing the effects of REE on locus of control and self esteem, Katz (1974) found that the self esteem of fifth graders improved in the REE group but not in the control group.

Knaus and Bokor (1975) examined the effects of REE on self-concepts and test anxiety on 80 innercity sixth graders. Knaus and Bokor administered the Coopersmith Self Esteem Inventory and the Test Anxiety Scale to measure self concept and test anxiety. The experimenters found that REE conducted for 10 to 30 minutes per day for a total of 85 sessions (17 weeks) had a significant impact on self esteem and test anxiety.

DiGiuseppe and Kassinove (1976) measured the effects of REE on emotional adjustment on fourth and fifth graders using the Idea Inventory, Children's Survey of Rational Beliefs, Eysenck Neuroticism Scale, and Trait Anxiety. Subjects consisted of 240 children from a middle class suburban Catholic elementary school. The subjects received REE instruction for 50 minutes per day, one day per week, for
15 weeks. DiGiuseppe and Kassinove employed a posttest only design with a control group and a human relations education treatment group. Results indicated that REE was effective in reducing trait anxiety and neuroticism scores.

In a similar study, Miller and Kassinove (1978) examined the effects of REE on irrational ideation, neuroticism, and trait anxiety using 96 fourth grade children of high and low IQ's. The experimenters used a pretest/posttest unequal n design with three treatment groups, i.e., (a) REE, (b) REE plus behavioral rehearsal, (c) REE plus behavioral rehearsal and written homework, and (d) a no contact control group. The treatments were taught one hour per day, one day per week for twelve weeks. Significant changes resulted on all four dependent measures for the treatment condition. REE plus behavioral rehearsal and written homework were superior to the other treatment conditions.

Finally, Block (1978) studied the effects of REE on disruptive classroom behavior, grade point average, and school truancy with a sample of 40 Black and Hispanic high school students. A pretest and posttest design with a no contact control group and the human relations training alternative treatment group were used in the study. Results showed significant improvements in the REE treatment group on all three measures. Block concluded that evidence is now available to support the development of mental health programs based on a Rational Emotive model.

Although there are studies assessing the efficacy of REE with fourth, fifth, and sixth graders and "misconduct-prone innercity adolescents," the experimenter could find no studies assessing the efficacy of REE on normal adolescents.
Rationality and Adaptation

Albert Ellis (1962) proposed that emotional or psychological disturbance largely result from irrationality. This section reviews the recent research regarding rationality and emotional or psychological disturbance.

MacDonald and Games (1972) examined the relationship between irrationality, neuroticism, and anxiety using the Irrational Value Scale, the Eysenck Personality Inventory, and the Taylor Manifest Anxiety Scale. Significant correlations were found between Irrational Value Scale scores and the Eysenck Neuroticism Scale and Manifest Anxiety. MacDonald and Games also found that Irrational Value Scale scores were significantly related to external locus of control and several California Psychological Inventory subscales.

In another study, Goldfried and Sobocinski (1975) researched the relationship between irrationality and the likelihood of becoming emotionally aroused in various situations using college students as subjects. The experimenters used the Irrational Beliefs Test to measure rationality and the Social Avoidance and Distress Scale, the Fear of Negative Evaluation Scale, the Achievement Anxiety Test, and the Personal Report of Confidence as a Speaker Scale to measure the anxiety of subjects in various types of situations. Goldfried and Sobocinski found that all positive relationships existed between the tendency to think irrationally and the presence of different forms of social-evaluative anxiety. That is, the measures of social anxiety, test anxiety, and speech anxiety all correlated positively with tendencies to think irrationally.
In a replication study Himle, Thyer, and Papsdorf (1982) used the Rational Behavior Inventory in place of the Irrational Beliefs Test. The authors used a total of three anxiety measures including the Test Anxiety Inventory, the State--Trait Anxiety Inventory--Trait, and the State Trait Anxiety Inventory--State. The study found that the total rationality score and several of the rationality factors for the undergraduate subjects were significantly correlated with the anxiety scales supporting the theoretical premise that irrational cognitions are associated with various disorders.

Newmark, Frerking, Cook, and Newmark (1973) examined the irrationality of normals, neurotics, and personality disordered subjects. The neurotic subjects (n = 120) and personality disordered subjects (n = 98) were inpatient psychiatric patients while the normal subjects (n = 120) were sophomore level psychology students. MMPIs were also administered to all subjects to verify appropriate group placement. Results showed that neurotic subjects showed a significantly (p ≤ .001) higher endorsement percentage for seven of twelve irrational beliefs when compared with either of the other two experimental groups. This study lends further support for the relationship between irrationality and emotional disturbance.

Also using college students, Morelli and Andrews (1980) researched the relationship between irrational thinking as measured by the Rational Behavior Inventory, and neuroticism, using the Eysenck Personality Inventory. They found that neuroticism was significantly correlated with several rationality subscales and concluded that these correlations provided strong support for the hypothesis that irrationality is related to neuroticism.
In a treatment outcome study, Smith (1983), examined the correlations between pre and post treatment changes in beliefs. Smith reported statistically significant correlations between changes in beliefs and changes in emotional distress. This study lends further support to the relationship between rationality and emotional adjustment.

Other studies found significant positive relationships between irrationality and psychological adjustment using measures of irrational beliefs and the Mooney Problem Checklist, California Psychological Inventory, and various measures of anxiety (Higginbotham, 1973; Ritchie, 1974; Waugh, 1975).

To summarize, the above studies support the hypothesis that adaptive psychosocial functioning is related to rationality while neurotic maladaptive behavior is related to irrationality.

Defense Mechanisms and Adaptation

The construct of defense mechanisms has evolved over the past century. Sigmund Freud initially defined defense mechanisms as "a general designation for the techniques which the ego makes use of in conflicts which may lead to neurosis" (Miller & Swanson, 1960). Originally all defenses (except sublimation) were viewed by Freud as pathological (Borrelli, 1979). In fact, Freud viewed the aim of psychoanalytic treatment as the gradual renouncement of defensive reactions and their replacement with a gradual facing and accepting of reality (Ihilevich & Gleser, 1986). Freud's original view of defense as pathological, however, has changed over the years due to the influence of Ego Psychologists.
Kroeber (1963) noted that as Ego Psychology emerged the construct of defense mechanisms broadened and that interest began to center upon the defensive functions of the ego, upon its mediating role between id and superego and upon its protective measures against internal and external threats. In addition to the construct of defense broadening, Ego Psychologists also began to examine the role of defense in adaptation.

In early writings, Hartmann (1939) proposed that conflicts are an inevitable aspect of human development. He emphasized that defense mechanisms play a vital role in normal development and that the adaptive functions of defense need also to be recognized and understood.

Anna Freud (1966) also addressed the adaptive functions of defenses. She wrote:

Instead of differentiating between defense and adaptation and labeling the ego mechanisms employed as either pathological or normal, it is preferable to distinguish between their different results; these depend on a variety of factors such as the following: (a) age adequateness, (b) balance, (c) intensity, and (d) reversibility. (pp. 177-178)

The Ego Psychologists have made a significant contribution to the evolution of the construct of defense mechanisms. As a result of their contributions many therapeutic approaches today help clients organize defenses in an adaptive manner rather than renounce them and face reality (Short & Hess, 1983).

In sum, the construct of "defense" has evolved over the past century from a view of defense as pathological to a view of defense as a normal developmental adaptive function. The question remains, however, as to which defenses are related to adaptive functioning and
which defenses are related to maladaptive functioning. The following paragraphs report on theoretical and empirical attempts to classify adaptive and maladaptive defenses.

Fenichel (1945) divided defenses into two classifications: successful and unsuccessful. He defined them as follows:

Successful defenses bring about a cessation of that which is warded off and unsuccessful defenses necessitate a repetition or perpetuation of the warding off process to prevent the eruption of warded off impulses. . . . Pathogenic defenses, which are at the basis of neurosis belong to this second category. (p. 141)

Miller and Swanson (1960) also distinguished between "two families of defenses" (p. 199). Defenses in the first family are characterized as simple, resulting in maximal distortion, and resulting in the creation of social conflicts. The first family includes defenses as withdrawal, restriction of the ego, and repression. The second family defenses are described as complex, resulting in the distortion of the perceptual field and as being applicable only in specific kinds of conflicts. Such defenses include displacement, projection, isolation, and undoing.

Also using a two group system, Laughlin (1979) distinguished between "Lower Order" and "Higher Order" defenses. Lower Order defenses are seen as massive, deeply unconscious, less developed, primordial and used by less mature individuals. Laughlin listed incorporation, repression, conversion, denial, displacement, dissociation, symbolization, and undoing as belonging to this Lower Order defenses. Higher Order Ego-Defenses are considered more advanced and developed, and to operate at a more complex and involved fashion.
They are considered less deeply unconscious and to operate in the older, more mature individuals. Higher Order Defenses include compensation, intellectualization, restitution, rechannelization, and sublimation.

Unlike the prior authors, Valliante (1977) divided defenses into four categories: (a) mature defenses (e.g., altruism, humor, suppression, sublimation); (b) neurotic defenses (e.g., intellectualization, repression, isolation, reaction formation); (c) immature defenses (e.g., projection, acting out, schizoid fantasy); and (d) narcissistic defenses (e.g., delusion, denial, distortion).

A social psychologist, Lazarus (1966), distinguished between two general classes of coping. The first general class consists of action tendencies aimed at eliminating or mitigating the anticipated harmful consequence. The second class of coping consists of purely cognitive maneuvers through which appraisal is altered without any direct action toward the objective situation. These latter forms of coping are usually called defense mechanisms.

In 1969 Gleser and Ihilevich developed a five-way classification system of defenses and devised an objective measurement of defenses called the Defense Mechanism Inventory (DMI). The five categories of defenses are as follows:

1. **Turning Against Objects (TAO)** is conceived as a defense category which involves the expression of direct or indirect aggression which serves to master perceived threats or mask inner conflicts which are too painful to confront consciously. This defense is considered primitive in that it originates from the "fight-flight" response.
Defensive transformations are involved in that the utilization of this defense cluster transforms the person who is threatened into the one who makes the threats. Displacement and identification with the aggressor are subsumed under this category.

2. Projection (PRO) involves the attribution of negative intent to others without substantial evidence. This attribution is then used to justify the expression of hostile thoughts, behaviors, and feelings toward the other.

3. Principalization (PRN) includes defenses which falsify reality by reinterpreting it through the use of a variety of general principles. Freud suggested that this process detaches or "splits off" affect from threatening content and makes it possible to remain conscious of an idea while repressing its affect. Defenses in this category include: intellectualization, rationalization, and isolation.

4. Turning Against Self (TAS) is a defense cluster which includes intrapunitive maneuvers which are employed to falsify reality for the purpose of reducing perceived threats to one's self esteem. This category includes masochism (other inflicted pain) and autosadism (self inflicted pain).

5. Reversal (REV) is a defense cluster that minimizes the severity of the perceived threats or conflicts and fails to acknowledge the existence of otherwise obvious dangers. This defense cluster includes denial, negation, repression, and reaction formation. (Ihilevich & Gleser, 1986)

To summarize, there is no widely agreed upon set of adaptive or maladaptive defense mechanisms. Two general issues continue to
confound this matter. First of all, as Lazarus (1966) suggested, the 
efficacy of a defense must be distinguished from its adaptiveness. 
In other words, a defense may be successful yet maladaptive. For 
example, an alcoholic's denial may serve to reduce his anxiety regard­
ing his problem but is hardly considered adaptive. In addition, the 
quality of adaptation achieved through the use of coping and defense 
mechanisms is linked to the nature of the threatening situation and 
the typical response style of the individual (Ihilevich & Gleser, 
1986). That is, in some situations, for some individuals, certain 
defenses may be adaptive while in other situations the same defense 
may be maladaptive. For example, the defenses used by a prisoner of 
war may be adaptive to that adverse environment while the same defenses 
may be maladaptive in everyday life. In other words, the quality and 
adaptation of defenses may be situationally specific which renders 
classification by adaptation most difficult.

Despite the problems in assessing the adaptive value of defenses, 
there has been considerable research on the five defense clusters 
identified by Gleser and Ihilevich (1969). In an effort to examine 
defenses and adaptation, these researchers examined the relationship 
between their five defense clusters and MMPI scores using 67 male and 
93 female psychiatric patients. They found that Turning Against Ob­
jects (TAO) was positively correlated with the Frequency, Psychopathic 
Deviation, Schizophrenia, and Hypomania Scales. Principalization (PRN) 
and Reversal (REV) were negatively correlated with the Frequency, 
Psychopathic Deviation, Paranoia, Psychasthenia, and Schizophrenia 
Scales. Turning Against Self (TAS) was positively correlated with the
Depression Scale and negatively correlated with Barrons Ego-strength scale.

Several studies since Gleser and Ihilevich's (1969) original work have examined the realtionship between the five defense clusters and psychosocial adaptation. These studies support the Gleser and Ihilevich's original findings that PRN is related to adaptive functioning. Dodd (1972) asked 34 mental health professionals to rank order the five defense clusters in terms of degree of psychopathology. He reported that PRN was ranked the least pathological followed by TAO, REV, TAS, and PRO. Other studies have found PRN related to improved psychosocial adaptation as measured by level of assertiveness (Massong, Dickson, Ritzler, & Layne, 1982), self esteem (Berg, 1982), emotional stability (Gleser & Ihilevich, 1979), ego strength (Rohsenow, Erickson, & O'Leary, 1978) and coping ability (Yu, 1981).

As suggested in Gleser and Ihilevich's (1969) article, REV is also considered a moderately adaptive defense. Research on REV has shown it to be significantly positively correlated with emotional stability (Gleser & Ihilevich, 1979), general adjustment (Kaley & Hovey, 1983), and significantly negatively correlated with hostility (Shea, 1981), suspiciousness (Gleser & Ihilevich, 1979), and depression (Kaley & Hovey, 1983).

In Dodd's (1972) study, 21 psychiatrists and 13 clinical psychologists rank ordered TAO the least pathological of five DM1 defense clusters. This ranking of TAO as least pathological, however, is refuted by other studies which show TAO to be positively correlated with hostility (Shea, 1981), rebelliousness and cynicism, and
negatively with tolerance (Lorr & Youniss, 1973). Rohsenow et al. (1978) further reported that TAO was positively related to the Frequency, Psychopathic Deviation, and Hypomania Scales on the MMPI. Huesmann, Lefkowitz, and Eron (1978) found that TAO was related to jealousy and rebelliousness using the 16 PF. In addition, Gleser and Ihilevich (1969) also found a significant negative correlation between TAO and emotional stability for females. These findings are interpreted as evidence that TAO is related to poor psychosocial adaptation.

TAS was considered the second most pathological defense according to Dodd's study. Research supports this position. Ihilevich and Gleser (1986) reported that TAS has been found to be positively related to various measures of depression including Beck's Depression Scale and the MMPI.

PRO was ranked the most pathological defense in Dodd's study. Several research studies support this position. PRO was found to be positively correlated with suspiciousness (Gleser & Ihilevich, 1979) and hostility (Shea, 1981), negatively correlated with emotional stability (Gleser & Ihilevich, 1979), and general adjustment (Kaley & Hovey, 1983), and found to be a poor defense against anxiety (Ranseen, 1982).

To summarize, research evidence supports the position that PRN and REV are related to adaptive functioning while TAO, TAS, and PRO are related to maladaptive functioning. An effective preventive mental health program should increase the utilization of PRN and REV and decrease the utilization of the maladaptive defenses TAO, TAS, and PRO.
Rationality, Defense Mechanisms, and Cognitive Developmental Factors

The present study is concerned with the effects of REE, as a preventive mental health program, upon rationality, utilization of defense mechanisms, and neuroticism among adolescent subjects. Since cognition plays an important role in rationality and the utilization of defense mechanisms, cognitive developmental issues are also examined. In particular, Piaget's (1971, 1937) final stage of cognitive development—formal operations—will be reviewed as it relates to rationality and defense mechanisms.

Formal operations are characterized by the ability (a) to work with probability, proportions, and correlations; (b) to use hypothesis testing and deductive reasoning; and (c) to use second order relations (i.e., the ability to verbally manipulate relationships between ideas). Piaget (1972) reported that early adolescents (14 & 15-year-olds) no longer think merely in terms of concrete objects in their cognitive manipulations but begin to develop the capacity to reason in terms of verbally stated hypotheses. This transition from the manipulation of concrete objects to the manipulation of hypotheses mark the beginning of development of formal operations.

Inhelder and Piaget (1958) stressed the interpersonal and intrapersonal correlates of this transition. They proposed that adolescents are not only able to now think hypothetically but can also begin to analyze their own thinking and begin to consider future possibilities in an abstract manner. Adolescents can begin to evaluate their own thinking and to reflect upon and evaluate themselves and others as
persons. These cognitive changes can be frightening as well as exciting to the developing adolescent and can lead to two significant conflicts according to Bernard and Joyce (1984).

First, since adolescents are beginning to think abstractly about possibilities in regard to themselves, others, and the world, they begin to struggle with the formation of their personal identities. Erikson (1959) wrote extensively upon identity formation in adolescence and described adolescence as a stage of Identity vs. Identity Diffusion. During this period adolescents experiment with various roles, identities, personal styles, and career goals in an attempt to define themselves by exploring the various possibilities. Manaster (1977) wrote that the identity issue for adolescents is a question of establishing equilibrium between the adolescent's existing self and the new range of possibilities which emerge from propositional logic. This new range of possibilities brought on by abstract thinking and formal operations gives rise to the adolescent's struggle with his sense of identity.

The second conflict arising from the development of formal operations in adolescents is increased anxiety about themselves in the context of interpersonal relationships. Formal operations bring about an increase in social perspective taking, which allows adolescents to examine themselves in social relationships both as participant and observer (Bernard & Joyce, 1984). Cowan (1978) proposed that it is as if adolescents were able to have different views of self operating simultaneously. These views include a picture of him/herself as the focus of an imaginary audience as well as a unique attention seeking
individual. This phenomena is especially evident in early adolescence during which time adolescents are more egocentric.

In addition to the two conflicts described above, formal operations also result in adolescent egocentrism. Egocentrism in early adolescence manifests itself in a "naive idealism" (Bernard & Joyce, 1984, p. 109). As formal operations begin to emerge the adolescent fails to distinguish between his/her newly acquired capacities (propositional logic) and the external world to which these capacities are applied. Adolescents go through a period in which they attribute an unlimited power to their own thoughts and seem to believe that their thoughts can and will impact upon the empirical world. This failure to distinguish between their thoughts and fantasies and empirical reality is a form of egocentrism (Inhelder & Piaget, 1958).

Finally, formal operations is not a uniform process. That is, not all adolescents develop formal operations at the same age or at the same rate. In addition, there are differences in both the level of attainment and patterns of abilities across adolescents (Manaster, 1977). Furthermore, formal operations may continue to develop into adulthood.

Since rationality and defenses rely upon cognitive mechanisms, the preceding issues are critical in examining the effects of a cognitively oriented, emotional education program which was designed to modify them. For instance, disputation, the primary method utilized in REE to reduce irrational thinking, requires (a) an understanding of "probabilistic" philosophy (Walen et al., 1980), (b) detection of logical incongruities in hypothetical constructs, (c) evaluation of an
individual's own thinking, and (d) the ability to reflect upon and evaluate the self (Manaster, 1977). That is, disputation requires formal operations to achieve what RET theorists (Walen et al., 1980) call an "elegant solution" to emotional problems. The level of formal operations in which an adolescent is capable of engaging becomes a critical determinate in evaluating the efficacy of REE. Since formal operations are further developed in older adolescents, age emerges as an important factor in this study. Will older adolescents exhibit greater changes in response to REE due to further developed formal operations?

The adolescent's egocentricity also needs to be taken into account in measuring rationality. Can an adolescent with the previously described egocentric view of the world become more rational? The egocentricity resulting from emerging formal operations may interfere with the development of rationality which requires an objective, logical analysis of self and others.

Defense mechanisms also rely upon cognitive processes and level of cognitive development. Several writers (Chandler, Paget, & Koch, 1978; Dollinger & McGuire, 1981; Elkind, 1976; Ihilevich & Gleser, 1986) proposed that the development defense mechanisms follow a sequence of less complex defenses in early life to more complex defenses in later life. This sequence parallels developments in cognitive capabilities. Ihilevich & Gleser (1986) reported that denial and aggression are among the earliest modes of defenses to emerge in childhood and that these defenses employ concrete, preoperational thought processes. As a child grows into adolescence, however, intellectualizing
defenses become a mode of reaction to threats (Ihilevich & Gleser, 1986; Freud, 1966). Intellectualizing defenses requires an ability to think in abstract terms, to search for alternative interpretations, and to entertain various hypotheses about a situation. It is evident that the utilization of more complex defenses depends upon formal operational thought.

To summarize, cognitive developmental issues must be taken into account in examining the effects of REE on adolescent rationality and the utilization of defense mechanisms. In particular the age of the subject emerges as a potentially critical issue. That is, 17-year-olds may demonstrate greater changes on measures of defense and rationality given their more fully developed formal operational skills. Specifically, 17-year-olds may be better able to understand the process of disputation and subsequently demonstrate greater changes in rationality and neuroticism. The older adolescents may also show greater changes in the utilization of intellectualizing defenses (more complex defenses) given more fully developed formal operations.

In view of the adolescent's natural tendency to experiment with abstract possibilities, an intervention like REE, which teaches logical problem solving and encourages individuals to apply reasoning and logic to their affect, behavior, thinking as well as their "thinking about their thinking," seems developmentally appropriate. Since adolescents are establishing an identity, as well as their perceptions of the world and their relation to it, an emotional education program such as REE, could prove very beneficial to their development.

In summary, Chapter II reviewed the literature on the efficacy
of REE as a mental health prevention program and presented a rationale for using rationality, neuroticism, and utilization of defense mechanisms as measures of psychosocial adaptation. Numerous studies were cited supporting the position that rationality is related to psychosocial functioning while irrationality is related to various measures of emotional disturbance and maladaptive behavior. With regard to defense mechanisms, several studies were presented that support the position that PRN and REV are related to adaptive psychosocial functioning while TAO, TAS, and PRO are related to maladaptive functioning and psychopathology. The important role of cognitive developmental issues, in particular formal operations, was also presented as it relates to rationality and the utilization of defense mechanisms.
CHAPTER III

DESIGN AND METHODOLOGY

The purpose of this chapter is to describe the subjects, research design, procedures, instruments, and data collection and statistical methods utilized in this study. Limitations of the study are also presented.

Subjects

Subjects for the study were 109 students enrolled in four introductory psychology classes in a suburban Detroit parochial high school. The subjects ranged in age from 15 to 17 and were predominantly white, middle class, 11th and 12th graders.

Research Design

A nonequivalent control group design was used to test the experimental hypotheses. The groups were nonequivalent since random assignment of subjects to groups by the experimenter was not possible in the experimental setting. The experimental and control groups consisted of four existing introductory psychology classes, two classes per group.

The independent variable in the study was 12 sessions of REE taught on a semi-weekly basis to two classrooms which comprised the experimental group. The dependent variables were scores on three objective measures: the Rational Behavior Inventory (RBI) (Shorkey & Whiteman, 1977), the Defense Mechanism Inventory (DMI) (Gleser &
Ihilevich, 1969), and the Eysenck Personality Inventory (EPI) (Eysenck & Eysenck, 1968), as well as three behavioral measures (i.e., grade point average, academic effort grade, and number of detentions).

The following are primary experimental hypotheses:

1. The treatment, REE, will significantly increase rationality scores on the RBI in the experimental group.

2. The treatment, REE, will significantly increase the scores of adaptive defense mechanism clusters (i.e., PRN and REV on the DMI), and significantly decrease scores of maladaptive defense clusters (i.e., TAO, TAS, and PRO on the DMI in the experimental group).

3. The treatment, REE, will significantly decrease neuroticism scores in the experimental group on the EPI.

4. The treatment, REE, will significantly increase grade point average (GPA), increase effort grade, and decrease number of detentions in the experimental group as evidenced by report card data.

The following is a secondary hypothesis:

The treatment, REE, will result in more significant changes on dependent variables for 17-year-olds due to further developed formal operations.

The null hypotheses are that there are no significant differences between the experimental and control groups in scores on the above measures.

Procedures

Prior to the beginning of the experiment, the study was approved by the Human Subject Review Board of Western Michigan.
University. All subjects involved in the experiment received a verbal explanation about the research study from their psychology instructor. Each subject also received an explanation in writing (see Appendix B) which included a permission form requiring their parents' signed approval. Only one subject refused to become involved in the experiment and she, for reasons other than the experiment, transferred out of one of the control classrooms. Classrooms were randomly designated to serve as experimental or control groups. The experimental group (n = 59) participated in REE, twice per week for six weeks beginning the fourth week of classes in the fall of 1986. The experimenter, who has a Primary Certificate in Rational Emotive Therapy, and who has experience teaching at the community college level, taught the REE program. The experimenter taught the REE program presented by Bernard and Joyce (1984) for youth (ages 13 to 17). The methods presented by Bernard and Joyce were used in pursuit of their stated objectives. Generally the subjects in the experimental group, were taught REE through informal lecture, group discussions, work sheets, and role playing. An outline of the objectives utilized by the experimenter in each of the twelve sessions appears in Appendix A. The experimental group spent the remaining three days per week with their psychology instructor receiving instruction in introductory psychology.

The control group (n = 50) received introductory psychology instruction five days per week by the same instructor who taught the experimental group. The control group had no contact with the researcher.

The pretests and posttests were administered by the psychology instructor. Instructions for each test were read aloud to the class by
the instructor. The pretests were administered one week prior to the start of the treatment. The posttests were administered during the second and third days following the conclusions of treatment. In addition, behavioral measures (i.e., grade point average, effort grade, number of detentions) were examined as a posttest only to determine the effects of REE on school behavior. These behavioral measures were obtained from first quarter report cards. The first quarter ended one week following the end of the REE experimental treatment. The experimental group also received followup testing ten weeks subsequent to the administration of the posttests to measure whether the effects of the treatment persisted over time.

A posttest only design for school behavior was used for two reasons. First, only a cumulative GPA for students was available. There existed no previous quarter GPAs to compare the effects of treatment to the subject's performance the previous quarter. In addition, history and maturation would have been serious threats to the internal validity of the findings since three months (summer vacation) had passed since the prior quarter.

Instruments

The Rational Behavior Inventory (RBI) was used to measure rationality. The RBI is a paper and pencil test which consists of 37 items formed from an internal pool of 119 items. Shorkey and Whiteman (1977) report that the total test has an estimated split half reliability of 0.73 using a Spearman-Brown correction. With respect to the temporal stability of the RBI, Thyer, Papsdorf, and Neal (1983) report a
test-retest correlation of .69 over a ten week period.

As to validity, Shorkey and Whiteman found significant differences between pretest and posttest measures of the RBI on subjects after attending an all day RET workshop with Albert Ellis. Thyer and Papsdorf (1981) tested the concurrent validity of the RBI in a correlational study using the Zung Self-Rating Depression Scale, Locus of Control Scale, State-Trait-Anxiety Inventory, and the RBI. They report that as rationality scores increased, depression state and trait anxiety scores decreased. Higher levels of rationality were associated with decreased external locus of control, and increased internality supporting the position that irrationality is associated with various dysfunctional psychological characteristics.

The Defense Mechanism Inventory (DMI) was used to measure defense mechanisms. The DMI is a paper and pencil test, using a forced choice format, in which subjects respond to ten vignettes as to how they would react in a variety of threatening and frustrating situations. The test requires respondents to answer how they would (a) actually react, (b) impulsively react, (c) what thoughts they might have, and (d) how they might feel in these situations. The DMI operationalizes the five defense clusters (Gleser & Ihilevich, 1969) and were defined earlier in Chapter II.

Weissman, Ritter, and Gordon (1971) examined the reliability of the DMI, and obtained reliability ratings from test-retest Spearman rho coefficients ranging from .61 (PRO) to .84 (TAO). Gleser and Ihilevich (1969) reported reliability scores ranging from .85 (PRO) to .93 (TAO) and .69 (PRN) to .87 (TAO) with various populations.
The validity of the DMI has been researched by Cooper and Kline (1982). They reported that there was a significant level of agreement between the observed DMI scores and the 16 PF scores which were predicted to be related to the different defenses. They concluded that their research offers encouraging evidence for the construct validity of the test.

Neuroticism was measured by the Eysenck Personality Inventory (EPI) (Eysenck & Eysenck, 1968). The Eysenck Personality Inventory is a paper and pencil test in which subjects are asked to respond "yes" or "no" to 57 items. The instrument was designed to measure Neuroticism (N), Extroversion (E), and has a validity scale (L). This study used the N and L scale only. Eysenck reported test-retest reliabilities between .84 and .94 for the complete test and between .80 and .97 for the separate forms. With regard to construct validity, Eysenck (1968) reported high negative correlations between neuroticism and California Psychological Inventory scales of Well Being, Tolerance, and Intellectual Efficiency. Eysenck also reported correlations between the neuroticism scale on the EPI and MMPI scales. Neuroticism (N) was significantly correlated with Frequency, Social Introversion, Depression, Anxiety, and Dependency scales.

The Eysenck Personality Inventory includes an 18 item Lie Scale (L). This scale was designed to detect individuals "faking good" (Eysenck & Eysenck, 1968). Eysenck (1968) reported that for Form A a L score of four or five constitutes the cutting off point where inventory answers cease to be acceptable. A score of four or five indicates that the respondent deliberately attempted to "fake good,"
responded carelessly or randomly to test items, or responded in a
"response set" such as "yes-no."

Data Collection and Statistical Analysis

All tests were hand scored and the data were entered into a
computer data file. T-tests (one tailed, independent two group design)
were calculated to measure the significance of the differences between
groups in both pre and posttests.

The behavioral measures were analyzed with posttests only and the
differences between the means were tested (t tests) for significance.

Subjects who obtained a Lie score (L) on the EPI of four or more
were eliminated from these statistical analysis. These subjects' DMI
and RBI scores were also deleted since the credibility of their
responses to those inventory items would also be suspect. Nine sub-
jects were eliminated from the experimental group which reduced the
n for experimental subjects from 59 to 50. Ten subjects were deleted
from the control group reducing the n for controls from 50 to 40.

It should be noted that the statistical results obtained from
data which included the invalid test scores were very similar to the
results obtained from data which excluded the invalid test scores.
The data with the invalid tests excluded are the source of all inter-
pretations and inferences presented in this study. The results ob-
tained from data which included the invalid test scores is also pre-
SENTED in Chapter IV for purposes of comparison.

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Limitations of the Study

A pretest-posttest control group design with random assignment of subjects to groups (classrooms) would have been preferable. Random assignment to groups, however, was not possible since it would have disrupted prearranged class schedules at the school. A nonequivalent control group design is an acceptable design in these instances in which experimental designs are not possible (Campbell & Stanley, 1963).

A major threat to internal validity in this study was selection bias due to the limitations of a nonequivalent control group design. Since the subjects were not randomly assigned to groups, there exists the possibility that the subjects differed critically in one or more dimensions that were not reflected on pretests. Such dimensions, as IQ, achievement motivation, could have operated to contaminate the posttest data. This concern is especially applicable to the school behavior results where no pretests were given for reasons previously indicated. Consequently, the results regarding the school behavior must therefore be interpreted with caution.

The study also failed to control for the effects of the experimenter upon the subjects. A placebo control group would have guarded against this threat to internal validity. A design including a placebo control group, however, was deemed inappropriate in an educational setting.

The control group guarded against other threats to internal validity such as effects of history, pretesting, maturation, and instrumentation. Statistical regression should not be a concern since subjects
were not chosen for high or low scores on any measure. No experimental mortality occurred subsequent to the administration of pretests.

With regard to external validity, the interaction effects of selection bias and treatment limit the generalizability of this study. The sample in this study is not representative of all 15, 16, and 17-year-old students. The students in this sample, for the most part, represent the population of students who are probably average to superior in intelligence, are achievement oriented, Catholic, middle to upper socioeconomic level, and have parents who place high value on education. In a strict sense, therefore, the results are generalizable to other parochial, suburban, middle-class high school students.

The interaction effect of pretesting should be minimal in this study. The pretest should not have increased or decreased the experimental subjects' sensitiveness to issues or problems that they might not notice under nonexperimental conditions. It is unlikely that responding to pretest items would result in changes to subjects that would no longer make them representative of their unpretested population.

Since experimental subjects were not randomly assigned and subjects remained in their intact classrooms, the possibility of reactive effects of experimental procedures are unlikely. In addition, no equipment or observers were utilized which would alter their behavior. Subjects were aware that they were involved in an experiment which may have some effect on their behavior.
CHAPTER IV

FINDINGS

In this chapter the findings are presented, interpreted, and discussed.

Table 1 displays the values for the differences between the experimental and control groups on the Rational Behavior Inventory (RBI), Defense Mechanism Inventory (DMI), and the Eysenck Personality Inventory (EPI) on pretests only. This is a test for equivalency of groups.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>REE (n=50)</th>
<th>Control (n=40)</th>
<th>df</th>
<th>t values*</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>23.08</td>
<td>22.72</td>
<td>89</td>
<td>.73</td>
</tr>
<tr>
<td>SD</td>
<td>4.18</td>
<td>4.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DMI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAO</td>
<td>44.27</td>
<td>44.40</td>
<td>89</td>
<td>-.06</td>
</tr>
<tr>
<td></td>
<td>7.62</td>
<td>6.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRO</td>
<td>41.98</td>
<td>42.20</td>
<td>89</td>
<td>-.28</td>
</tr>
<tr>
<td></td>
<td>5.66</td>
<td>5.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRN</td>
<td>42.63</td>
<td>43.70</td>
<td>89</td>
<td>-.89</td>
</tr>
<tr>
<td></td>
<td>5.79</td>
<td>5.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAS</td>
<td>36.71</td>
<td>34.80</td>
<td>89</td>
<td>1.02</td>
</tr>
<tr>
<td></td>
<td>6.54</td>
<td>8.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REV</td>
<td>34.41</td>
<td>34.90</td>
<td>89</td>
<td>-.06</td>
</tr>
<tr>
<td></td>
<td>7.60</td>
<td>6.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPI(N)</td>
<td>12.08</td>
<td>12.85</td>
<td>89</td>
<td>-1.15</td>
</tr>
<tr>
<td></td>
<td>3.97</td>
<td>4.53</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the .05 level

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The data reveal no significant differences between groups on any of the dependent measures. These data support the assumption that the two groups were homogeneous on the dependent measures prior to receiving the experimental treatment. This relative equivalency supports the notion that significant changes on these measures are attributable to the effects of the experimental treatment barring other sources of threat to internal validity.

Table 2 displays the means, standard deviations, for the control and experimental groups on pretests and posttests for groups as well as the mean difference scores, and t values on the Rational Behavior Inventory (RBI), Defense Mechanism Inventory (DMI), and Eysenck Personality Inventory (EPI).

Data in Table 2 indicate that significant differences occurred in the predicted direction in the utilization of the defense mechanisms Turning Against Object (TAO), Turning Against Self (TAS), Principalization (PRN), and Reversal (REV) in the predicted direction. No significant differences occurred in measured rationality or neuroticism.

The mean difference scores, degrees of freedom, and t values on the three measures grouped by age are presented in Table 3.

The data in Table 3 indicates that 15-year-olds showed no significant changes on any of the dependent variables. Seventeen-year-olds showed the most significant changes with significant differences in PRN and N.

As noted previously, the invalid EPIs (n = 19) as well as corresponding DMIs and RBIs were eliminated from statistical analysis. Table 4 shows t tests results for all scores including the invalid EPIs and corresponding DMIs and RBIs.
Table 2

Means, Standard Deviations, Mean Difference Scores, and t Values for Groups on the RBI, DMI, EPI(N) on Pretests and Posttests

<table>
<thead>
<tr>
<th></th>
<th>Rational Emotive Education (N=50)</th>
<th>No-Treatment Control (N=40)</th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td>Mean</td>
<td>df</td>
<td>t value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RBI</td>
<td>23.08</td>
<td>4.18</td>
<td>24.14</td>
<td>3.85</td>
<td>22.72</td>
<td>4.33</td>
<td>22.87</td>
<td>4.63</td>
<td>1.01</td>
</tr>
<tr>
<td>DMI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAO</td>
<td>44.27</td>
<td>7.62</td>
<td>44.82</td>
<td>9.51</td>
<td>44.40</td>
<td>6.83</td>
<td>47.82</td>
<td>7.09</td>
<td>-3.11</td>
</tr>
<tr>
<td>PRO</td>
<td>41.98</td>
<td>5.66</td>
<td>41.57</td>
<td>7.25</td>
<td>42.20</td>
<td>5.70</td>
<td>42.85</td>
<td>4.74</td>
<td>-1.04</td>
</tr>
<tr>
<td>PRN</td>
<td>42.63</td>
<td>5.79</td>
<td>43.61</td>
<td>8.12</td>
<td>43.70</td>
<td>5.88</td>
<td>41.55</td>
<td>5.95</td>
<td>3.40</td>
</tr>
<tr>
<td>TAS</td>
<td>36.71</td>
<td>6.54</td>
<td>33.80</td>
<td>8.14</td>
<td>34.80</td>
<td>8.34</td>
<td>34.12</td>
<td>9.31</td>
<td>-2.27</td>
</tr>
<tr>
<td>REV</td>
<td>34.41</td>
<td>7.60</td>
<td>36.20</td>
<td>9.81</td>
<td>34.90</td>
<td>6.98</td>
<td>33.65</td>
<td>7.61</td>
<td>3.02</td>
</tr>
<tr>
<td>EPI(N)</td>
<td>12.08</td>
<td>3.97</td>
<td>11.08</td>
<td>4.35</td>
<td>12.85</td>
<td>4.53</td>
<td>12.42</td>
<td>4.83</td>
<td>- .55</td>
</tr>
</tbody>
</table>

* Significant at the .05 level.
Table 3
Mean Difference Scores, Degrees of Freedom and t Values on the RBI, DMI, and EPI(N) by Age

<table>
<thead>
<tr>
<th></th>
<th>Age 15, df = 5</th>
<th></th>
<th>Age 16, df = 43</th>
<th></th>
<th>Age 17, df = 35</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>d</td>
<td>t value</td>
<td>d</td>
<td>t value</td>
<td>d</td>
<td>t value</td>
</tr>
<tr>
<td>RBI</td>
<td>-2.42</td>
<td>.14</td>
<td>-1.27</td>
<td>1.18</td>
<td>.42</td>
<td>.23</td>
</tr>
<tr>
<td>DMI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAO</td>
<td>1.25</td>
<td>-1.99</td>
<td>-0.25</td>
<td>-.91</td>
<td>-3.96</td>
<td>-1.34</td>
</tr>
<tr>
<td>PRO</td>
<td>3.58</td>
<td>1.71</td>
<td>-2.42</td>
<td>-.93</td>
<td>-1.76</td>
<td>-.97</td>
</tr>
<tr>
<td>PRN</td>
<td>-1.37</td>
<td>.74</td>
<td>2.05</td>
<td>2.07</td>
<td>3.88</td>
<td>1.90*</td>
</tr>
<tr>
<td>TAS</td>
<td>-3.46</td>
<td>-1.40</td>
<td>-2.78</td>
<td>-.99</td>
<td>-1.91</td>
<td>-1.04</td>
</tr>
<tr>
<td>REV</td>
<td>1.42</td>
<td>1.20</td>
<td>5.58</td>
<td>1.03</td>
<td>3.75</td>
<td>1.60</td>
</tr>
<tr>
<td>EPI(N)</td>
<td>-1.04</td>
<td>.24</td>
<td>.08</td>
<td>-.57</td>
<td>-2.04</td>
<td>-1.68*</td>
</tr>
</tbody>
</table>

* Significant at the .05 level.

Table 4
t Tests for all Scores Including the Invalid EPIs by Age

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th>Age 15</th>
<th>Age 16</th>
<th>Age 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBI</td>
<td>1.05</td>
<td>-.10</td>
<td>.37</td>
<td>.19</td>
</tr>
<tr>
<td>DMI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAO</td>
<td>-1.96*</td>
<td>.46</td>
<td>-.36</td>
<td>-1.34</td>
</tr>
<tr>
<td>PRO</td>
<td>-.62</td>
<td>.08</td>
<td>-1.40</td>
<td>-.88</td>
</tr>
<tr>
<td>PRN</td>
<td>2.18*</td>
<td>.01</td>
<td>.87</td>
<td>1.44</td>
</tr>
<tr>
<td>TAS</td>
<td>-1.11</td>
<td>.17</td>
<td>-1.24</td>
<td>-.55</td>
</tr>
<tr>
<td>REV</td>
<td>1.95*</td>
<td>.03</td>
<td>2.56*</td>
<td>1.43</td>
</tr>
<tr>
<td>EPI(N)</td>
<td>.66</td>
<td>.00</td>
<td>.79</td>
<td>-2.04*</td>
</tr>
</tbody>
</table>

* Significant at the .05 level.
Results on Table 4, when compared with results on Table 2, show that three of four significant differences between groups are the same. TAO, PRN, and REV show significant differences in both analyses. Differences in TAS, however, was no longer significant when invalid scores were included.

With regard to age, there were no significant differences in either analysis for 15-year-olds.

In the age 16 group two changes occurred. First, PRN was no longer significant when the invalid tests were included. Second, REV was significant when the invalid tests were included but was not significant when the invalid tests were eliminated.

Seventeen-year-olds exhibited significant differences between groups with and without invalid EPIs in regard to neuroticism. PRN, however, was no longer significant when invalid EPIs were included but PRN showed a trend ($t = 1.44 \text{ critical value} = 1.68$) toward significance.

The results showing the effects of REE on three behavioral measures overall and by age are presented in Table 5

<table>
<thead>
<tr>
<th></th>
<th>Total Group</th>
<th>Age 15</th>
<th>Age 16</th>
<th>Age 17</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td>t</td>
<td>df</td>
<td>t</td>
</tr>
<tr>
<td>Academic Effort</td>
<td>109</td>
<td>-2.44*</td>
<td>7</td>
<td>-1.61</td>
</tr>
<tr>
<td>GPA</td>
<td>109</td>
<td>1.54</td>
<td>7</td>
<td>1.05</td>
</tr>
<tr>
<td>Detention</td>
<td>109</td>
<td>-.40</td>
<td>7</td>
<td>.70</td>
</tr>
</tbody>
</table>

*Significant at the .05 level.
Results indicate that there was a significant difference between groups in academic effort. No other significant changes occurred overall although GPA approaches significance (critical value for $p \leq .05$ is 1.66). When single age groups are considered, 17 year olds demonstrated significant difference between groups in academic effort. No other significant differences occurred between groups by age.

The results of a ten week followup are presented in Table 6. Table 6 lists the measures that were significant and indicate whether any significant change occurred in the experimental group between posttest and follow-up.

Table 6

<table>
<thead>
<tr>
<th>Measure</th>
<th>Overall</th>
<th>Age 16</th>
<th>Age 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAO</td>
<td>-.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRN</td>
<td>-.77*</td>
<td>-.99</td>
<td>1.38</td>
</tr>
<tr>
<td>TAS</td>
<td>.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REV</td>
<td>.42</td>
<td></td>
<td>-.31</td>
</tr>
<tr>
<td>EPI(N)</td>
<td></td>
<td></td>
<td>1.66</td>
</tr>
</tbody>
</table>

* Significant at the .05 level

Table 6 indicates that there was no significant differences between scores on the posttests and scores on the followup tests on TAO, TAS, REV for groups overall. PRN did, however, change significantly in a negative direction indicating that scores on PRN decreased.
Interpretation and Inference

**REE and Rationality**

Results indicate that REE did not significantly increase rationality, as measured by the RBI, in the experimental group. Thus the null hypothesis must be accepted. These results suggest that REE is not an effective treatment for increasing rationality among a sample of normal adolescents.

**REE and the Utilization of Defense Mechanisms**

With respect to the utilization of defense mechanisms, however, REE did significantly affect the utilization of four of five defense mechanism clusters as measured by the DMI. This supports the experimental hypotheses. TAO and TAS, two defense clusters associated with maladaptation, significantly decreased at a p<.05 significance level. The results indicate that REE is effective in reducing the utilization of defense mechanisms that involve dealing with conflict through aggression (i.e., attacking a real or presumed frustrating object).

PRN and REV, two defenses considered associated with psychosocial adaptation, increased significantly as hypothesized. The researcher infers that REE was effective in increasing the utilization of defense mechanisms which assist individuals to control their affective reaction to threat and frustration. Such defenses have been associated with adaptive psychosocial functioning.

Fifteen-year-olds showed no significant differences in utilization of defense mechanisms. TAO did decrease, however, and was significant
at the $p \leq .10$ level. Sixteen and seventeen-year-olds also exhibited a significant increase in the utilization of PRN as predicted. This lends support to the secondary hypothesis that REE would be more effective in producing cognitive changes in older adolescents. Furthermore, for 17-year-olds, TAO and REV were both significant at the $p \leq .10$ level suggesting a trend in the predicted direction.

**REE and Neuroticism**

A significant difference occurred on the EPI in the age 17 group only. It can be inferred that REE is an effective treatment for reducing neuroticism in 17-year-olds but not for 15 and 16-year-olds. This finding lends further support that age and level of cognitive development may play a critical role in the effectiveness of REE.

**REE and School Behavior Change**

Table 5 showed the differences among groups with regard to school behavior changes (i.e., grade point average, academic effort grade, number of detentions for the quarter). The REE group evidenced a significant increase in effort grade supporting the hypothesis that REE will result in behavioral changes. The REE group also, although not significantly, showed a strong trend in the direction of increased grade point average further supporting the experimental hypothesis. There were no differences between the groups in number of detentions. Thus, it appears that REE was effective in producing increased adaptive school behaviors.

Table 5 also displayed results of treatment in regard to school
behavior according to age. Seventeen-year-olds demonstrated a significant increase in academic effort while 15 and 16-year-olds showed no significant school behavior change. These findings lend further support to the hypothesis that REE is more effective with older adolescents.

Follow-up Results

Follow-up data presented in Table 6 showed that the utilization of PRN at follow-up was significantly different from the utilization of PRN at posttest. The negative value indicates that the utilization of PRN significantly decreased from posttest to follow-up. These findings suggest that the effects of REE, in regard to increasing intellectualizing defenses, diminished over time. TAO, TAS, and REV, however, revealed no significant differences between posttest and follow-up measures suggesting that treatment had most durable results with those defense clusters.

No significant differences occurred by age on the DMI or EPI, again suggesting lasting effects.

Discussion

It is of great interest that there were no significant changes in rationality as a result of REE. Of the five experimental hypotheses, the increase in rationality hypothesis, seemed the most likely to occur given that the treatment spends considerable time on identifying, challenging, and disputing irrational beliefs and ideas. There are several hypotheses to explain these results.
The first hypothesis involves the instrument used to measure rationality in this study. Previous studies which successfully measured changes in irrationality used the Idea Inventory rather than the RBI. DiGiuseppe and Kassinove (1976) attained significant changes in rationality using REE as an experimental condition with fourth and eighth graders using the Idea Inventory. Smith (1983), in assessing changes in rational beliefs and the outcome of Rational Emotive Therapy, also found significant changes in rationality again using the Idea Inventory. It is possible that the Idea Inventory is more sensitive to changes in irrational thinking than the RBI. Additional research seems warranted to assess the efficacy of the above-mentioned instruments in measuring changes in irrational beliefs.

The failure to attain changes in irrational thinking may also be a product of the subjects utilized in this study. The previously cited studies used children and adults as subjects. This researcher found no studies that measure changes in rationality among adolescents. As previously discussed (Chapter III), the adolescent's level of cognitive development includes a form of egocentrism which may significantly interfere with the development of rationality. Rationality requires objectivity and the ability to think reflectively and logically about oneself, others and the world. Adolescent egocentrism may hinder objective, logical analysis of self and others and impede the development of rationality.

A third explanation for the result concerns the adolescent preoccupation with interpersonal relationships. Adolescents, as a result of the development of formal operation, are overly concerned about what
others think of them and are thus especially vulnerable to peer pressure and approval. An adolescent's sense of identity and self esteem are enmeshed in his interpersonal relationships with peers. Given the significance and intensity of interpersonal relationships in adolescence, Rational Emotive Education may not be a sufficiently powerful method to persuade adolescents to be more rational in these interpersonal contexts. Thus, the adolescent's preoccupation with social approval, stemming from the newly acquired social perspective taking, may significantly interfere with the acquisition of rational concepts which seem in contradiction with their developmental status and life experiences. It may be especially difficult to affect changes in rationality among adolescents.

The failure to attain a significant change in rationality may also reflect the brevity and level of comprehensiveness of the REE instruction. Subjects in this study received REE instruction two times per week for six weeks without behavioral rehearsal or written homework. DiGiuseppe and Kassinove (1976) attained significant change in rationality in their study but their subjects received REE instruction for one hour per day, five times per week for 15 weeks. Miller and Kassinove (1978) also found a significant change in rationality with one hour daily sessions of REE for 12 weeks. Miller and Kassinove reported that the REE plus behavioral rehearsal and written homework group showed the greatest changes on the measures used in their study.

The failure to attain changes in rationality in this study may be the result of the brief length of instruction as well as the lack of
behavioral rehearsal and between session homework assignments. The brevity of instruction and the lack of comprehensiveness did not make it possible for subjects to incorporate rational concepts and behaviors into their psychological repertoires. Although cognitive restructuring seems to have occurred as indicated by changes in the utilization of defense mechanisms, the treatment did not result in increased rationality.

The lack of significant change in rationality may also be a product of the sample in the study. The subjects were intelligent and well adjusted adolescents who were attending a private, parochial school. These subjects probably demonstrated a high degree of rationality prior to treatment. A sample of less well adjusted, more pathological adolescents, who adhere to many irrational beliefs, may have demonstrated a significant change in rationality as a result of treatment.

Significant changes did occur, however, in the utilization of defense mechanisms. The major function of defense mechanisms is the resolution of conflicts between what is perceived by the individual and his internalized values. Since REE focuses upon perception and values toward self, others, and the world, some change could be expected.

There were significant increases in defense clusters associated with psychosocial adaptation (PRN and REV) and significant decreases in utilization of maladaptive defense clusters (TAO and TAS). On a theoretical level it is interesting to note that the adaptive defenses (PRN and REV) do not involve the turning of aggression at self or at
objects as the other three defense clusters do—PRO, TAS, and TAO.

It appears that defenses which involve reinterpreting threats (PRN) or defenses that deal with threat by responding in a positive or neutral fashion (REV) are more adaptive than those defenses that rely on aggression directed at self (TAS) or objects (TAO and PRO). It appears that aggression, whether directed at self, objects, or others, is the common factor in these maladaptive defenses (TAO, TAS, PRO). PRN and REV do not utilize aggression but use more complex mental functions that require at least the beginning of formal operations.

It appears then that REE is effective in reducing the utilization of aggressive maladaptive defenses (TAO and TAS) and effective in increasing the utilization of more adaptive, cognitively complex defenses (PRN and REV). This conclusion is in accord with RET theory and Ellis' goals of treatment which are to reduce hostility towards others and to reduce self blame and in accord with REE which teaches self acceptance and tolerance of others. REE does, in fact, teach the reinterpreting of threatening conflicts in a manner as to reduce negative affect. Ihilevich and Gleser (1969) proposed that PRN deals with conflict through involving a general principle that "splits off" affect from content and represses the former. RET theorists and practitioners would probably argue that they do not teach clients to "split off" affect from content but do teach subjects to learn to control maladaptive self defeating affect. Given the significant changes in defenses as a result of REE, it could be argued that REE successfully trains individuals to utilize adaptive defenses while

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reducing the reliance upon maladaptive defenses.

The results of this study also point to the significance of age as a factor in the efficacy of REE upon inducing significant differences in the utilization of defense mechanisms. In this study, 15-year-olds demonstrated no significant changes in the utilization of defense mechanisms while 16-year-olds and 17-year-olds exhibited significant increases in PRN. Seventeen-year-olds also showed a strong trend in REV. These results indicate that age is an important factor in REE's effect on utilization of defense mechanisms.

It may be that the level of cognitive development is a significant factor in the above results. To benefit from REE, subjects must be able to engage in "probablistic thinking" (Walens et al., 1980), detect logical incongruiities in hypothetical context, evaluate one's own thinking, and reflect upon and evaluate the self (Manaster, 1974), all of which requires formal operations. It is hypothesized that 16 and 17-year-olds have more fully developed formal operations and are therefore more capable of grasping and understanding and thus utilizing the principles of REE than are 15-year-olds. Ihilevich and Gleser (1986) reported that separate researchers have hypothesized that the development of defense mechanisms follow a sequence which involves greater complexity as the individual matures. This development parallels the cognitive developmental theories of Piaget (1971, 1937) and Werner (1948). PRN defenses appear to require a certain cognitive complexity which may be related to the development of formal operations. Ihilevich and Gleser also contended that PRN defense styles become a preferred mode of defense in our society.
during adolescence and young adulthood. The findings of this research suggests that REE is an effective method of developing this adaptive defense in adolescents.

The hypothesis that REE is more effective with older adolescents is further supported by the significant decrease in neuroticism observed in the 17-year-old group only. Seventeen-year-olds were also the only group which demonstrated significant change in academic effort which further lends support to the importance of the level of cognitive development in grasping, understanding, and utilizing REE principles. Seventeen-year-olds clearly responded best to REE as evidenced by a significant decrease in neuroticism, a significant increase in PRN, and trends in the predicted direction for REV and TA0. Seventeen-year-olds were also the only age group which demonstrated significant differences in academic effort.

The follow-up results indicate that there were no significant changes in the utilization of TA0, TAS, or REV ten weeks subsequent to treatment. These findings demonstrate that the decreased utilization of aggressive defenses (TA0 and TAS) continued ten weeks subsequent to the termination of treatment. The results also indicate that the utilization of more adaptive defenses (REV) continued ten weeks subsequent to treatment. These results are encouraging and lend further support to the efficacy of REE.

Principalization (PRN), however, reduced significantly at the ten week follow-up. This change indicates a significant decrease in the utilization of intellectual defenses (i.e., intellectualization, rationalization, isolation, isolation). This change probably reflects
the relationship between REE and PRN. REE teaches individuals to utilize their mental processes in coping with threat and conflict. These mental coping processes parallel PRN defenses. In fact, Ihilevich and Gleser (1986) have described PRN defenses as being anchored in stoicism and rationality which are also the historical and theoretical foundations of Rational Emotive Therapy. The results of this study indicate that REE was effective in increasing the utilization of PRN defenses but also indicate that 12 sessions of REE over a six week period was not sufficient to result in long lasting changes in the utilization of PRN defenses. Further research is needed to determine the length of treatment needed to result in more durable changes in PRN defenses.
CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Increasing rates of suicide, unwed pregnancies, and drug abuse during the teen years strongly suggest that adolescence continues to be a difficult developmental period for many individuals. Many adolescents needing mental health intervention never receive it since demand for treatment exceeds available resources. Consequently, prevention programs have been offered as a practical alternative.

The purpose of this study was to assess the efficacy of Rational Emotive Education (REE) as a mental health prevention program for normal adolescents. The study examined the effects of REE on three measures of psychosocial adaptation: rationality, the utilization of defense mechanisms, and neuroticism. The study also assessed the effects of REE on school behavior as quantified by grade point average, effort grade, and number of detentions on quarterly report cards. The Rational Behavior Inventory and the Defense Mechanism Inventory were used to measure rationality and utilization of defense mechanisms respectively. The Eysenck Personality Inventory was used to measure neuroticism. The rationale for using these measures of psychosocial adaptation was presented as well as the need to take into account the role of cognitive development in assessing and intervening with adolescents.

The subjects in the present research were 11th and 12th grade students from a suburban Detroit parochial high school. The subjects were
enrolled in four introductory psychology classes. Two of the classes served as control groups while two of the groups served as experimental groups. A nonequivalent control group design was used to measure the effects of treatment upon rationality, utilization of defense mechanisms, and neuroticism. A posttest only design was used to measure school behavioral change. Problems and limitations of the design were discussed. It was predicted that the treatment would result in increased rationality, decreased neuroticism, and increased utilization of more adaptive defenses and improved school behavior.

Results showed significant changes in the utilization of defense mechanisms in the predicted direction. There were no significant changes in rationality overall or by age. With respect to neuroticism, there was significant change in the 17-year-olds only. In addition there were significant differences between groups and for 17-year-olds in regard to school behavior (i.e., academic effort). The role of cognitive development was discussed as it related to these findings. A 10-week follow up showed that all changes persisted except for Principalization (PRN) which decreased significantly.

The results from the study suggest that REE may very well be an effective mental health prevention program for adolescents. This study indicates that REE is effective in reducing the utilization of defense mechanisms associated with poor psychosocial adjustment while increasing the utilization of defense mechanisms associated with adaptive psychosocial functioning. The results indicate that older adolescents (i.e., 17-year-olds) changed the most from REE as evidenced by significant increases in adaptive defenses, a significant decrease
in neuroticism, and improved academic effort. Thus, the study suggests that older adolescents, 16 to 17-year-olds, are more likely to benefit from an REE program. This may be attributed to their advanced level of cognitive development.

Results of the study also suggest that incorporating REE into the high school curriculum for 11th and 12th graders in a parochial private school setting may improve students' adjustment and academic performance and that REE may be incorporated into an introductory psychology course with beneficial results. For schools that wish to address the issue of their students' emotional psychosocial adjustment, this program—REE—should be considered.

Further research would prove beneficial in several areas. First of all, a replication of the study using a true experimental design (i.e., the pretest-posttest control group design) would help resolve questions about selection bias. Pretest measures on school behavior would clarify the effects of REE on school behavior. In addition, it would be interesting to measure the effects of REE when the program is implemented for a longer period of time—for a full semester or school year, for example. Would longer involvement in the treatment result in more stable effects?

Furthermore, the experiment should be implemented using a sample from a public school system so that the external validity of this study could be enhanced. A study using more representative samples would provide evidence for the efficacy of REE with lower socioeconomic groups and with subjects with a wider range of intellectual and achievement levels.
Replicating this study with a measure of cognitive development would also be valuable in assessing the role of cognitive development in acquiring REE skills. A measure of cognitive development would aid in identifying what types of preventive interventions are most appropriate for various levels of cognitive development.
APPENDIX A

Rational Emotive Education:
An Outline of Objectives
Session 1. Icebreaker
Objectives
1. To initiate self disclosure and "safe facts and preferences."
2. To develop a trusting attitude to others in the group as a basis for further self disclosure.

Session 2. Finding Feelings
Objective
1. To build a shared language about common feelings, which can then be used to identify feelings in talking about them.

Session 3. Events Occasion Feelings But Do Not Cause Them
Objectives
1. To learn that events of themselves do not cause feelings.
2. To observe that individuals react differently to the same event.
3. To observe that their own feelings about themselves can change.

Session 4. Thoughts Cause Feelings
Objectives
1. To learn that thoughts cause feelings.
2. To learn that unpleasant thoughts cause unpleasant feelings.
3. To learn that pleasant thoughts cause pleasant feelings.

Session 5. My Own Thoughts
Objectives
1. To explore which of his own thoughts lead to pleasant feelings.
2. To explore which of his own thoughts lead to unpleasant feelings.

Session 6. Thoughts Can Be Rational or Irrational
Objectives
1. To acquire the concepts of rational and irrational thoughts.
2. To identify some of his own rational and irrational thoughts.

Session 7. Thoughts Can Make You Feel Bad
Objectives
1. To practice changing irrational thoughts to rational thoughts.
2. To practice evaluating his own thoughts and restating them.
3. To practice disputing the concepts of "terrible" and "awful."

Session 8. Thoughts and Beliefs
Objectives
1. To learn that irrational thinking stems from irrational beliefs.
2. To learn that words can help us identify irrational beliefs (e.g., "should, must, ought" reflect irrational demanding.
3. To explore the idea that irrational demanding may lead to anger, depression, and anxiety.

Session 9. Challenging and Disputing
Objectives
1. To learn that challenging irrational beliefs can lead to changes in thinking and less upset feelings.
2. To practice challenging and disputing some common irrational beliefs.
3. To practice challenging and disputing some his/her own irrational beliefs.

Session 10. Sound and Unsound Assumptions
Objectives
1. To learn that having an opinion about something doesn't make it true.
2. To learn that some of the things we believe (our beliefs) are not true (are based on unsound assumption).
3. To learn that unsound assumptions lead to mistakes.

Session 11. Wants and Needs
Objectives.
1. To distinguish between wants and needs.
2. To practice challenging irrational needs and expressing them as rational wishes or preferences.

Session 12. Overgeneralizing as Irrational
Objectives
1. To learn that overgeneralizing is irrational.
2. To learn that focusing only on negative qualities of people (self and others) is irrational, because people also have positive qualities.
3. To learn that people are not "good" or "bad."
4. To learn to challenge and change negative irrational thoughts and beliefs to negative rational thoughts and beliefs.
5. To learn that thinking negative, irrational thoughts lead to more upset than thinking rational thoughts.
APPENDIX B

Parent and Student Consent Form
Dear Parent and Student:

This letter is to inform you that students enrolled in the Introductory Psychology course for Fall of 1986 will, with your permission, be part of a research study.

The purpose of the research is to examine the relationship between rational thinking, the use of defense mechanisms and psychological adjustment. Students in the second and third sections of the four psychology courses will receive a preventive mental health program called Rational Emotive Education (REE). Students in all four sections will receive three standardized tests before and after the program to measure the effects of the program.

The students will receive two sessions of REE per week for six weeks, beginning September 8, 1986, and ending October 16, 1986. Previous research on REE has found that REE has resulted in lowered trait anxiety, lower neuroticism scores, reduced class failure rate, increased school attendance and increased self-concept. There are no foreseeable risks to involvement in this program. Involvement in the program is completely voluntary. All data obtained is strictly confidential (i.e., no names are used on any of the record forms). Individual information will not be available to school personnel.

If a student does not wish to take the pre and posttests and/or does not wish to participate in the program, the student will meet with the regular psychology instructor during the class period. If a student wishes to withdraw from the program after it begins, he/she is free to do so without consequence and will begin meeting with the regular psychology instructor. Again, involvement in the program is completely voluntary.

If you have any questions, please feel free to call Mr. Joseph Perrone, the Psychology Instructor, at 549-2925.

Sincerely,

Daniel Kachman

I ______________________ consent/ _____________ do not consent to allow my son/daughter to be involved in the program.

Parent's Signature Date Student's Signature Date

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Ritchie, D. R. (1974). The relationship between irrational beliefs, as measured by the Irrational Beliefs Test and psychological adjustment as measured by the California Psychological Inventory. Unpublished doctoral dissertation, University of Iowa, Iowa City, IA.


