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An Empirical Study of the Effect of Systematic Relaxation Training of Chronically-Anxious Subjects on the Communication Variable of Closed-Mindedness

La Ray M. Barna
Portland State University

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AN ABSTRACT OF THE THESIS OF LaRay M. Barna for the
Master of Science in Speech presented May 12, 1970.

Title: An Empirical Study of the Effect of Systematic Relaxation
Training of Chronically-Anxious Subjects on the Communica-
tion Variable of Closed-mindedness.

APPROVED BY MEMBERS OF THE THESIS COMMITTEE:

[REDACTED]

Patrick O. Marsh, Chairman

[REDACTED]

Francis P. Gibson

[REDACTED]

Larry/A. Steward

[REDACTED]

Ronald E. Smith

This is a study of whether an attempt to reduce the trait of high
tension-anxiety by means of systematic neuro-musculature relaxa-
tion training will result in a decrease of the communication variable
of closed-mindedness.

A general review of the literature showed that the problem of
tension-anxiety is complex, pervasive, and detrimental to effective

communication. First, an attempt is made to bring relevant information to the field of general speech by citing a few findings from the research of other disciplines concerning the nature and effects of tension-anxiety. Currently-used methods of anxiety-reduction are mentioned, and one, neuro-musculature relaxation training, discussed as to its effectiveness and adaptability to the college environment. This method was chosen for investigation in the present study because it can be administered to groups by trained personnel, who need not be professional psychotherapists, at no risk to the students.

The major hypothesis is that there will be a significant difference between the dogmatism scores of the experimental group who receive relaxation training and the dogmatism scores of the control group who did not receive such training.

The minor hypothesis is that there will be a significantly greater difference between the pre- and post-anxiety scores of the experimental group than between the pre- and post-anxiety scores of the control group, and the post-scores will show a downward trend.

The design of the study consisted first of selecting a group of high-anxious subjects by administering the Taylor Manifest Anxiety Scale to all students who enrolled in the beginning fundamental speech course, which totaled 427, and sending invitations to the fifty-six students who scored twenty-four and above to participate in the research study. Those who accepted were arbitrarily placed in

either the control group or the experimental group depending on whether their time schedules permitted them to attend the previously-scheduled training meetings. The experimental group was given a series of six weekly training sessions of forty-five minutes each, using a modified version of the Jacobson method of progressive neuro-musculature relaxation. There was no more contact with the control group until after the six-week period when both groups were administered the Rokeach Dogmatism Scale and a repeat of the Manifest Anxiety Scale. Statistical procedures were employed at this time, and since no significant differences were found, both hypotheses were rejected.

The findings of this study show that the method of systematic neuro-musculature relaxation training employed did not cause significant differences in either the dogmatism or the chronic tension-anxiety level of the experimental subjects according to the measuring devices used. That the method could be used with the equipment and conditions of a normal college environment and with trained non-professionals as therapists was evident. Whether it would be useful for the reduction of chronic high tension-anxiety remains in doubt due to the uncertain motivation of the experimental subjects and the questionable sensitivity of the Manifest Anxiety Scale as a measurement of tension-anxiety change. Further study using a combination of measuring devices, including the electromyograph, is recommended.

AN EMPIRICAL STUDY OF THE EFFECT OF SYSTEMATIC
RELAXATION TRAINING OF CHRONICALLY-ANXIOUS
SUBJECTS ON THE COMMUNICATION VARIABLE
OF CLOSED-MINDEDNESS

by

LA RAY M. BARNA


A thesis submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE
in
SPEECH

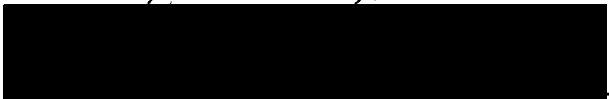
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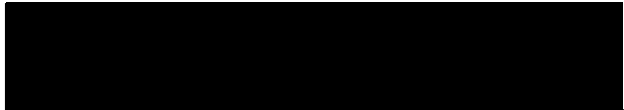
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Patrick O. Marsh, Chairman

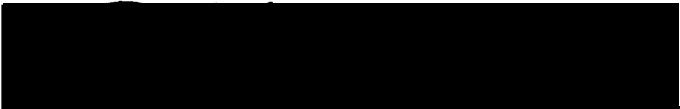

Francis P. Gibson



Larry A. Steward


Ronald E. Smith

APPROVED:


Patrick O. Marsh, Acting Co-chairman, Department of Speech


Robert L. Castel, Acting Co-chairman, Department of Speech


Frank L. Roberts, Acting Dean of Graduate Studies

May 14, 1970

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CHAPTER I

INTRODUCTION

Educators and researchers in the field of speech have worked diligently toward the improvement of communication skills, particularly in the last few decades in which the advancement of technology has increased human interaction by reducing the distance of time and space, providing a new "closeness" of people with different ethnic backgrounds and different points of view. Electronic technology has also created the "children of change" with an attending communication gap between generations (Kaiser Aluminum News 1969), as well as so many other rapid changes in the environment that man has had trouble keeping up (McLuhan 1964).

Rapid change is normally a stress-producing agent, which may partly explain the high degree of tension-anxiety which is also now in existence. As Levitt (1967) says, "The world seems literally to drip with it" (p. 1). A quotation from Rollo May's forthcoming book, Love and Will, illustrates the new role of tension-anxiety. He states:

In the late 1940s, I argued in my doctoral orals for the concept of normal anxiety, and my professors heard me with respectful silence but with considerable frowning.

.....
But in the 1950s a radical change became evident; everyone was talking about anxiety and there were conferences on

the problem on every hand. The concept of normal anxiety gradually became accepted in the psychiatric literature. Everybody, normal as well as neurotic, seemed to be aware that he was living in the age of anxiety (May 1969, p. 21).

Technology is given credit for providing the tools with which to solve, or at least investigate, some of these problems. Academic communication barriers have already been tumbling as the disciplines turn to each other for information (Ruesch and Bateson 1968, pp. v-viii). Cherry (1961) makes this comment:

Awareness of the universal nature of "communication" has existed for a very long time, in a somewhat vague and empirical way, but recently the mathematical developments which come under the heading of the "theory of communication" have brought matters to a head, and many there are who regard this work as a panacea (p. 2).

Perhaps the first to bring scientific terminology to communication problems were a psychiatrist, Jurgen Ruesch, and an anthropologist, Gregory Bateson, in their book, Communication: The Social Matrix of Psychiatry (1968), first published in 1951. Other innovators followed, and the field of speech has now added the "science of the communication process" to the more traditional "art of speaking" as new concerns under the heading of "communication theory" have emerged in the texts.¹ Data supplied by sociologists,

¹See, e.g., Elizabeth G. Andersch, Lorin C. Staats, and Robert N. Bostrom, Communication in Everyday Use (3rd ed.; New York: Holt, Rinehart and Winston, Inc., 1969); David Berlo, The Process of Communication: An Introduction to Theory and Practice (New York: Holt, Rinehart and Winston, Inc., 1960); Gerald R.

psychologists, and others are freely used therein.

The present study also incorporates research from many disciplines as it relates the two areas of speech communication and tension-anxiety. It is an investigation of whether the communication variable of dogmatism, or closed-mindedness, will be changed by an attempt to reduce tension-anxiety by means of training in progressive neuro-muscular relaxation.

I. JUSTIFICATION OF STUDY

It is suspected that the subject of tension-anxiety, with all its ramifications, has not yet been given the sophisticated treatment in the field of general speech that it has in the other disciplines whose unique abilities are more suited to this type of investigation.

Need to Be Aware of Interdisciplinary Findings

The speech field, which deals with the complexity of individual attitudes and behaviors as well as verbal form and content, could, therefore, profit from available and relevant findings of others who have investigated tension-anxiety. For example, activities in a normal speech classroom could be adjusted to correspond to the advice

Miller, Speech Communication: A Behavioral Approach, Bobbs-Merrill Co., Inc. (Indianapolis: Howard W. Sams & Co., Inc., 1966).

of motivational psychologists who have proved that learning, in general, is accomplished faster and with longer retention when reinforced with reward (praise or knowledge of accomplishment) rather than when threatened with punishment (poor grades or criticism). Also, the tension-producing agents which are indigenous to a public speaking class (mainly the speaking performance with its accompanying dangers of exposing personal inadequacies) could be manipulated to protect highly-anxious or vulnerable students in the manner suggested by the behavioral scientists. A third example is that recent findings that counter-conditioning is superior to simple extinction in eliminating a fear response (Gale, Sturmfels, and Gale 1966) should be of value to those speech instructors who have depended only on repeated exposures to the platform situation to reduce speech fright in their students.

In this study a broad review of the literature will be presented in Chapter II in order to bring some of this relevant information to the attention of interested readers.

Need to Test Proposed Aids for Chronic Tension-anxiety

The work of speech educators to detect and alleviate situational platform anxiety is impressive, but the chronically-anxious have been overlooked. A search through the speech literature finds that no differentiation is made between those students who are

tense-anxious only when in front of audiences, or facing a similar ego-threatening oral communication risk, and the chronically-anxious student who has an anxiety state as his behavioral norm. It is possible that regular speech-class procedures, which may relieve the perceived threat for those with "normal" cases of mild stage-fright, are ineffective with the chronically-anxious student and may even increase his tension level. Careful testing is needed to verify this hypothesis and to determine methods whereby the classroom instructor of speech can discover this type of student and aid him in reducing his tension level to the point where it is no longer a barrier to effective communication.

In this study one of the anxiety-reduction techniques used by psychotherapists and others, progressive neuro-muscular relaxation training, has been chosen for investigation. It is believed that this method can fit into a college environment and does not contain the hazards that might accompany other therapeutic methods if attempted by a non-professional.

Need to Research Effects of Chronic Tension-anxiety on General Speech

Research is also needed in the field of speech to investigate the effect that chronic tension-anxiety has on general oral communication to augment the findings that have been reported by those in other fields who have been working with the severely neurotic and

psychotic. Since high anxiety is not generally expected in other than highly-pressured speakers on a situational level, very little consideration has been given to the problems of communication with the chronically-anxious listener or to chronically-anxious participants in interpersonal communication except at a clinical level.

In the book, Listening Bibliography by Sam Duker (1964), only three listings were discovered which had any relationship to the anxiety state or trait of the listener. Two of these showed by electro-myographic readings that muscle tension is present during attentive listening (Smith, Malmo, and Shagars 1954, Watterstein 1954), and the other equated good listening with emotional adjustment, which made it possible for the person to "afford" to listen (Stromer 1955). None tested the relationship of high tension-anxiety to many of the variables we consider important in effective listening, such as open-mindedness, empathy, critical thinking, et cetera.

In the present study one of the above variables, closed-mindedness (dogmatism) will be isolated and studied. This variable is thought to be a fruitful one for research as a result of an exploratory study by Marsh and Barna (1967) which is reported in Chapter III.

II. PURPOSE OF STUDY

The main purpose of this study shall be to determine whether or not the communication variable of dogmatism will decrease in amount when chronically-anxious subjects are trained in progressive neuro-muscular relaxation.

As a secondary interest, the available data will be used to test whether or not neuro-muscular relaxation training can be successfully used by non-professional therapists in a college environment to reduce the manifest anxiety level in chronically-anxious individuals.

By means of a general review of the literature in Chapter II, it is also intended to bring relevant interdisciplinary concepts to the field of general speech. A second review of the literature in Chapter III will more specifically relate to the experimental aspects of the main purpose of this study.

CHAPTER II

GENERAL REVIEW OF THE LITERATURE

Reference is often made to the present period of time as the "age of anxiety." May (1950) becomes even more explicit when he says:

Whereas the period of two decades ago might have been termed the "age of covert anxiety" . . . the present phase of our century may well be called, as Auden and Camus call it, the "age of overt anxiety" (pp. 3-4).

The popular book, Identity and Anxiety (Stein, Vidich, and White 1960), further supports the existence of tension-anxiety with essays by authorities in many diverse areas on the theme of the survival of the person in mass society.

Frieda Fromm-Reichmann (1960) states, "The most unpleasant and at the same time the most universal experience, except loneliness, is anxiety" (p. 129). It is shocking to learn that chronic tension is so common as to be statistically "normal" among professional persons (Haugen, Dixon, and Dickel 1958). Cattell and Scheier (1961) place the neurosis prevalence in the general population at at least 25 per cent, and possibly as high as 57 per cent. Their figures are based on what they call "two of the most

methodologically advanced studies to date."¹

Ruesch and Bateson (1968) blame the widespread frequency of manifest signs of anxiety in America to the public tolerance of anxiety. They say it is one of our cultural traits to value achievement, particularly economic development, and only the alerted individual can cope quickly and effectively with the rapidly changing conditions of his surroundings. As they say, "A state of constant alarm is necessary for people who are geared for action" (p. 145).

I. EFFORTS TO ESCAPE ANXIETY

By definition, anxiety is unpleasant. If it is as prevalent as signs seem to indicate, there must also be evidence of attempts to remove this anxiety. The evidence is easy to find. People are turning to psychiatrists and psychotherapists in greater numbers in the effort to relieve symptoms caused by tension-anxiety. Millions are swallowing tranquilizers thoughtfully presented to the public by medical research. Alcohol and illicit drug uses have soared. Relief in the form of violence is more often occurring as tension mounts

¹ These studies are: Dorothea C. Leighton, "The Distribution of Psychiatric Symptoms in a Small Town," American Journal of Psychiatry, 112 (1956), 716-23; and Allister M. MacMillan, "The Health Opinion Survey: Techniques for Estimating Prevalence of Psychoneurotic and Related Types of Disorder in Communities," Psychological Reports, 3 (1957), 325-39.

within sub-cultural groups. Even the "hippie" withdrawal from society's responsibilities is a form of tension-release. Symonds (1946) says: "It would surprise most persons to realize how much of their behavior is motivated by a desire to escape anxiety by either reducing it or disguising it in one way or another" (p. 138)

II. EFFORTS TO UNDERSTAND ANXIETY

Great effort is being made to understand anxiety and tension by professionals in many fields.

Its Relationship to Physical States

Some researchers are concentrating on the relationship of anxiety to our physical state. A noted early attempt to explain the relationship between the subjective experience of emotion and its physiological accompaniments was advanced in 1884 by the psychologist William James, and independently a year later, by the Danish physiologist Carl Lange. The famous James-Lange theory proposed that emotional stimuli arouse peripheral effects before we really experience emotion (James 1950). In other words, we are afraid because we run rather than the opposite causal relationship of running because we are afraid. James and Lange believed that the person's awareness of the physical changes in himself, rather than perception of the stimulus itself, leads to the subjective experience of emotion

(Levitt 1967, p. 93).

This theory was challenged by Walter B. Cannon (1915). He offered evidence that physiological reactions and emotional experience arise simultaneously, mediated by two lower brain centers, the thalamus and the hypothalamus. More current neurosurgical investigation has shown that the limbic system of the brain is also involved in emotional expression (Deutsch and Deutsch 1966). A most dramatic finding came from Olds and Milner (1954) who discovered the "pleasure center" of the brain by implanting tiny electrodes in certain areas of the limbic system of rats. Self-stimulation by bar pressing was believed to be so rewarding to the animals that they preferred this to food and drink. Lindsley (1951) has emphasized the role of the reticular activating system in emotion. Malmö (1966) suggests that the experience of anxiety is a result of the weakening of the inhibitory aspect of the reticular and limbic systems, which would permit too many facilitative impulses to be discharged to the cortex, leading to an arousal level beyond the optimal. He also suggests that the total function of the reticular activating system may be altered if the arousal level is kept constantly high over a long period of time (Levitt 1967, p. 96).

It is, therefore, firmly established that there is a concrete relationship between the emotion of anxiety and physiological change. Psychoanalytic literature, however, did not contain the term

"psychosomatic" until it was first introduced therein by Felix Deutsch in 1927 (Silverman 1968, p. 9). Only six years later a massive compilation of studies--both analytic and nonanalytic--on the mind-body relationship appeared in the first edition of Dunbar's Emotions and Bodily Changes (1954). In 1939 the journal, Psychosomatic Medicine, was founded, further proof of the importance of this link.

By the late 1950's investigators had added another factor and were now studying the triad of life situations, emotions, and a particular physical disease (Silverman 1968). Included in the Third Annual Symposium of Kaiser Hospitals (Simon, Herbert, and Straus 1961) were statements such as this by Roy Grinker:

Mobilization of the pituitary hormone, now commonly called an "alarm reaction," is quantitatively similar whether the danger is traumatization of the body by a surgical procedure, injury, cold, or a disturbing emotion (p. 16).

In the same symposium Schachter reported that experimental subjects interpreted the altered feeling which was produced by injections of adrenalin either by feeling high and euphoric or low, depressed, and even paranoid depending on the social environment in which the experimental subjects found themselves (p. 174).

The fourth edition of Dunbar appeared in 1954 and contains a bibliography of over 5,000 sources. Included in the book is this comment: "An understanding of anxiety is fundamental in the

physician's approach to any sick person, no matter what the complaint" (Dunbar 1954, p. 685). Dedicated to the same principle but more current is the volume Aspects of Anxiety published by J. B. Lippincott Company, 1965, and distributed by Roche Laboratories to internists and general practitioners of medicine. It outlines the relation of anxiety states to somatic complaints.

Its Relationship to Learning and Motivation

Another group of researchers have been investigating the relation of tension-anxiety to learning and motivation. Clark L. Hull's "law of primary reinforcement" (Hull 1943) was the beginning of much experimentation by other theorists including Mowrer (1950), Miller and Dollard (1950), Tolman (1952), Spence (1951), and Taylor (1951). They placed anxiety as one of the strongest of the acquired drives and designated drive and reward as the essential conditions of learning, the reward being the reduction of anxiety. Eysenck (1957) summarizes these theories and offers his own postulate that individual differences are due to properties of the physical structures involved in making stimulus-response connections. The work of these scientists tended to reinforce the Yerkes-Dodson Law (Yerkes and Dodson 1908) which holds that the relationship between fear or anxiety (conceptualized as a drive) and learning is curvilinear. A low level of drive facilitates learning only slightly or not

at all, while a high drive level interferes with the learning process so that performance is similar to, or worse than, that obtained with low drive level.

Welch and Kubis (1947), Schiff, Dougan, and Welch (1949), and Spence and Taylor (1951) demonstrated that patients suffering from anxiety conditioned much more quickly than did normals as far as the protective reflexes are concerned. In situations where several incorrect response tendencies are relatively high in the habit-family hierarchy, however, high anxiety should make for poorer performance than low anxiety.² On complex tasks, individuals high in anxiety will learn less quickly than individuals low in anxiety (Farber and Spence 1953, Spence and Farber 1953, Lucas 1952). Mandler and Sarason (1952) and Sarason (1956) hypothesize that anxiety produces interfering responses which cause this decrement in learning and/or performance. A major tenet of activation theory is that there is an optimal condition or point of activation for best performance with impairment noted according to distance on either side of the optimal point. Direct and indirect evidence of this relation has been thoroughly reviewed by Duffy (1962).

In his research on learning, Sarason (1962) found that subjects low in anxiety react to personally threatening conditions with

²See Eysenck (1957, p. 101) for a list of seventeen studies in support of this hypothesis.

increased effort and attention to the task at hand, while high-anxiety subjects respond with self-oriented, personalized responses. He calls these "task-irrelevant" responses: learned responses to anxiety which tend to disrupt performance, such as feelings of inadequacy, fear of failure, desire to quit the situation, et cetera. In opposition to these are "task-relevant" responses: those facilitative of performance because they move the person to reduce anxiety by completing the task successfully. Task-irrelevant anxiety is usually aroused in all but low-anxiety subjects by reports of failure, criticism, or other ego-involved communications (Mandler and Sarason 1952, Combs and Taylor 1952).

Methods of Control

A third group working toward the understanding of anxiety is composed of psychotherapists and experimental psychologists. As Paul (1966) says:

The importance of anxiety in theories of psychopathology hardly needs documentation. Anxiety is seen as the major component in most, if not all, current theories, and the reduction of anxiety is an implicit or explicit goal of every psychotherapeutic approach (p. 8).

There is a variety of these psychotherapeutic approaches. The dominant therapy for the last sixty years has been psychoanalytic therapy and psychoanalysis. The objective of this method is to overcome a neurosis by making repressed impulses conscious, i. e. ,

using various tactics to overcome the resistances that oppose this. Proponents of this method include Freud, Adler, Horney, Fromm, and Sullivan.

The newer "conditioning" therapy methods were derived from learning theory (Eysenck 1960) and stem from the conception that neuroses are persistent unadaptive habits that have been conditioned (learned), and that whatever undesirable behavior has been learned can be unlearned (Wolpe, Salter, and Reyna 1964). True proponents of these methods, such as Bachrach, Bandura, Eysenck, and Wolpe, have emerged only recently (Paul 1966). The challenge of the behaviorists to the more traditional insight therapy is becoming quite direct (for example, Eysenck 1952, Salter 1952, Hobbs 1962).

One type of behavior therapy is desensitization psychotherapy (Wolpe 1958, 1961, Lazarus and Rachman 1960), wherein a direct attempt is made to substitute muscular relaxation responses for the tension response of anxiety through gradual symbolic exposure to the feared stimulus. Another type is conditioned reflex therapy (Salter 1961), in which "the faulty inhibitory patterns of earlier life" are reconditioned in the direction of excitation. Salter defines excitation as the expression of emotion (p. 34).

Progressive relaxation therapy (Jacobson 1938) works toward the complete physical relaxation of muscle groups and the concomitant relaxed and uncritical state of mind. The central hypothesis is

that you cannot be both relaxed and anxious simultaneously, these two responses being incompatible. Reality therapy (Glasser 1965) does not accept the concept of mental illness and rests upon morality and discipline through intense personal involvement, facing reality, rejecting irresponsible behavior, and learning better ways to behave. Brief directive therapy uses direct instructions and manipulations to achieve results, always accenting the positive and sometimes involving hypnosis (Haley 1963, Chapter III).

In client-centered therapy Rogers (1951) has combined a bit of many other recognized theories. Watts (1961) says that Rogers refuses to state explicitly one of his own, believing that all theories are fluid and changing. He describes Rogers' therapy as nondirective as follows:

. . . the therapist simply draws out the logical conclusions of his client's thinking and feeling by doing no more than rephrasing it in what seems to be the clearest form. . . . He trusts in the wisdom of the "positive growth potential" of every human being to work out the solution of the problem if only it can be clearly and consistently stated (p. 65).

Meares (1963) believes that his theory of atavistic regression lies behind many of the anxiety-reduction methods. He states:

It is the natural reparative mechanisms of the body which do the healing, not the physician. But the restorative process works more easily if we modify conditions so that the natural process of repair can function more effectively (p. 3).

He believes this "atavistic regression" aids the mind and body to establish homeostasis by reducing the level of logical critical

thinking to a more primitive autonomic functioning. Means of achieving this state include sleep, tranquilizers, insights and emotional experiences of transference in psychoanalysis, religious experience, suggestion, relaxation therapy, and hypnosis.

With the great variety of treatments just described it is no wonder that the anxious person is confused as to which direction to turn for help. Meares (1963) writes:

The patient who comes to a doctor with symptoms of an anxiety state in actual fact receives treatment according to the particular psychological orientation of his physician, rather than according to the psychodynamic causes of his anxiety (p. 24).

Some studies are available which indicate many recover with very little, or no therapy at all (Stevenson 1959).

Actually, all types of psychotherapies seem to have successes to their credit. Perhaps it is because of the two common denominators that are present in each method. These are identified by Fine-singer (1948): Communication, both verbal and nonverbal, and the physician-patient relation are the tools that must be adapted to the goals of psychotherapy" (p. 187), and also by Shoben (1949):

The goal of psychotherapy, regardless of the therapist's theoretical leanings, is to eliminate the anxiety and thereby to do away with the symptomatic persistent nonintegrative behavior. To accomplish this goal, all therapists use the devices of conversing with the patient about his anxiety and the situations calling it forth both currently and historically, and forming a unique therapeutic relationship (pp. 375-376).

Ruesch and Prestwood (1949) state: "The most successful method for handling anxiety consists in sharing through communication" (p. 549). Ruesch (1961) describes therapeutic communication in detail and emphasizes the nonverbal elements, as does Meares (1963). Dunbar (1954) summarizes the link between communication and anxiety by saying, "Perhaps one of the best recent attempts to define anxiety was H. S. Liddell's . . . 'Primitive vigilance minus social communication equal anxiety'" (p. 685).

Its Detection and Control by
Means of Speech

Research psychologists have not only established that verbal and nonverbal communication can relieve tension-anxiety [for experimental studies see Gallagher (1953), Levison, Zax, and Cowen (1961), and Paul (1966)], but they have experimented with the communication variables as a means of detecting tension-anxiety. These variables include verbal content, such as defensive statements (Murray 1954, Berblinger 1963), verbal rate (Kanfer 1958, Benton, Hartman, and Sarason 1955, Ruesch and Prestwood 1949), speech disruptions and disorganization (Mahl 1956, 1963, Boomer and Goodrich 1961, Gynther 1957, Dibner 1956), vocal characteristics (Diehl, White, and Burk 1959, Eldred and Price 1958), microlinguistics (McQuown 1957, Pittenger and Smith 1957), body movement (Raskin 1962, Paul 1966), and muscle tension (Altschule 1962, Haugen,

Dixon, and Dickel 1960). An overview of these elements and lists of additional research are supplied by Sanford (1942) and Mahl (1963). Books which give particular attention to this subject are Disturbed Communication: The Clinical Assessment of Normal and Pathological Communicative Behavior (Ruesch 1957), Psychopathology of Communication (Hoch and Zubin 1958), and The Management of the Anxious Patient (Meares 1963).

Speech and nonverbal communication have been linked to anxiety in a third way. It can not only be used to detect and cure anxiety, but also to produce it (Ruesch 1958). Dibner (1958) worked under the hypothesis that anxiety is related to the ambiguity of a situation and through experimentation with interviewed subjects, using varying amounts of structure in the interviews, came to the conclusion that: "structuring behavior can be planfully used by a clinician as a technique for the therapeutic control of anxiety when he thinks his patient has surpassed or failed to achieve some optimal anxiety level" (p. 173).

Grinker (1966) also used the communication variable to produce tension-anxiety in subjects for testing purposes. He states:

We found that the best way to produce anxiety was to impede communication, to block communication in a dyadic relationship. We pretended not to understand who the subject was, we made all kinds of stupid mistakes. Blocking of communication was the best means of evoking anxiety (p. 136).

Methods such as threatened harm, or shaming, were relatively ineffective.

Its Relationship to Speech Pathology

Speech pathologists have investigated the relation of tension-anxiety to clinical speech cases. More and more, speech disorders are being correlated with personality disorders (Phillips 1965, Gray, England, and Mohoney 1966). In regard to the many patients seeking help who have no organic impairment of either sensory or motor speech equipment, Travis (1957) states:

The recognition of emotional disturbances as etiological factors in these disorders have forced speech therapists to seek the promising help of psychotherapy as developed by psychiatrists and psychologists (p. 965).

A basic premise of stuttering therapy is that the patient is more tense-anxious than normal or desirable (Gray and Karmen 1967).

Examples of studies investigating this assumption are those by Goss (1956), Santostefano (1960), Sheehan, Cortese, and Hadley (1962), and Wischer (1950).

Its Study in the General Speech Field

In the field of general speech, research in tension-anxiety has been conducted under the label of "stage fright," "speech fear," "confidence in speaking," and, more recently, "reticence." These studies are concerned with the anxiety or fear felt and/or displayed

by those in the situation of platform speaking. A review of this literature has been written by Clevenger (1959) and Thompson (1967). Reference to the indices of the three major speech journals (Knower 1965) uncovers a total of a mere twenty articles on speech fear from 1915 through 1964, with an additional few under the heading of "confidence" in the speech education field. These are mainly studies of stage-fright measuring devices and their reliability [for example, Gilkinson 1942, Dickens, Gibson, and Prall 1950, Clevenger and King 1961] , or the relation of stress to performance (Low and Sheets 1951).

Lomas (1937) is one of the few to discuss the physiology of stage fright, showing that vigorous action only complicates the problem of stage fright, which is contrary to the advice of many speech teachers. He also points out the seeming contradiction that excessive stage fright results in ineffective speech yet " . . . does not differ in chemical or visceral components from the strong emotions characteristic of vigorous and effective speech" (p. 41).

A few studies and most speech textbooks "explain" speech fear as being a normal reaction to a threat of the unknown which will diminish with practice, adequate preparation, knowledge of acceptable speaking techniques, shift of attention to visual aids or speech content, et cetera. Some authors give brief instructions on deep breathing or other relaxing aids. Burnight (1957), one speech

authority who also happens to be a stage-fright sufferer, reacted to this by stating:

. . . judging from the logical nature of the "remedies," . . . there must be a large semantic gulf between the severe stage fright sufferer and those writing about it. To the teacher of speech, who is unlikely to have ever been a severe stage fright sufferer, stage fright is nothing more than a vague nervousness. To the severe stage fright sufferer, stage fright is almost (and sometimes literally) a paralyzing fear. The words stage fright, then, do not have the same meaning to both parties (p. 7).

He also states that the problem should be treated on an emotional level rather than a logical one. The same feeling was expressed by the psychologist O. Hobart Mowrer (1965) when speaking before the Speech Association of America in December, 1964. He advocated teaching public speaking in the context of "group therapy," as Alcoholics Anonymous does, starting with dyads between the instructor and student, working into small group discussions, and finally encouraging the student to "tell his story" before the class as a whole with the instructor still employing safeguards.

In the same speech Mowrer suggested that stage fright may have similar "dynamics" as have been posited for stuttering. This view is shared by Phillips (1965) who states:

There seems to be sufficient indication that stuttering and stage fright are, in some way related, and further, that they are related to a general category of personality disturbances characterized by inability to function well in situations where oral interaction is necessary (p. 33).

Phillips, and a few others, have rallied to the needs of the reticent speaker, and by so doing have pushed the speech field even further into interdisciplinary research. That this should happen is made clear by Backus (1957) when she says: "Available evidence appears to indicate the same laws . . . govern phenomena classed as 'stage fright' in the classroom and . . . 'anxiety' in the clinic" (p. 1036). Mowrer (1965) underscores this when he says: "Stage-fright is in many instances merely a concentrated, 'localized' version of the anxiety, the fear, the panic we see in more chronic form in so-called neurosis and the functional psychoses" (p. 197).

Summary

It is apparent that the characteristic of tension-anxiety is prevalent in our population at this time and has had much recent attention. Efforts have been made to understand it, find remedies for it, and discover its correlation with communication and other human activities.

CHAPTER III

SPECIFIC REVIEW OF THE LITERATURE

To provide a background of the extent to which the phenomenon of tension-anxiety pervades the general population, its relation to learning and motivation, and its effects on physical and mental health and social interaction through communication, some of the relevant literature has already been cited. This chapter will be concerned with findings directly related to this study: the definition, measurement, and behavioral characteristics of highly-anxious subjects; the definition, measurement, and behavioral characteristics of highly-dogmatic subjects; the relationship between high tension-anxiety and dogmatism, and systematic relaxation training as a method of reducing one and/or the other.

I. TENSION-ANXIETY: DEFINITION AND MEASUREMENT

In 1950, Hoch and Zubin (1950) introduced a symposium sponsored by the American Psychopathological Association with the following statement:

Although it is widely recognized that anxiety is the most pervasive psychological phenomenon of our time and that it is the chief symptom in the neuroses and in the functional psychoses, there has been little or no agreement on its

definition, and very little, if any, progress in its measurement (p. v).

Since that date there have been 3,500 articles or books published related to anxiety (Spielberger 1966, p. 6) and the definition of the term still varies greatly.

Levitt (1967) states: "The range of possible definitions is, in principle, unlimited, and in practice, very broad" (p. 7). His summarizing statement is that, roughly speaking, anxiety is "a complex state characterized by a subjective feeling of apprehension and heightened physiological reactivity" (p. 6).

Ruebush (1963) has similar feelings. He says:

Almost everyone agrees that anxiety is an unpleasant-feeling state, clearly distinguishable from other emotional states and having physiological concomitants. In addition to this common core of meaning, however, the term takes on other nuances and shadings of meaning, depending upon the particular theoretical orientation and operational criteria employed by individual researchers" (p. 461).

→ Early Contributions of Psychologists

These general definitions are similar to the first ones which came from the field of psychology. Freud, who first attempted to explicate the meaning of anxiety within the context of psychological theory, regarded anxiety as "something felt," an unpleasant affective state or condition, characterized by apprehension or anxious expectation and efferent discharge phenomena (Freud, 1936, p. 69).

Rollo May (1950) defined anxiety as "the apprehension cued off

by a threat to some value which the individual holds essential to his existence as a personality" (p. 191). Sullivan (1948) restricted the term to an experienced disapproval in interpersonal relations, believing the interpersonal origin to be the unique characteristic of anxiety.

Early measurements of anxiety mainly consisted of clinical observation of observable signs of abnormal behavior and introspective statements of patients. The rating of tension-anxiety by objective judges is still used, particularly by professionals in individual therapeutic relationships.

Contributions of Learning Theorists

The advent of behaviorism with John Watson in 1913 and with the learning theorists such as Edward C. Tolman and Clark C. Hull who followed, brought a new role, new meaning, and new measurements for the term "anxiety." The motivation theory of Miller and Dollard (1964), which was based on Hull's "law of primary reinforcement" (Hull 1943), listed "drive" as being a strong stimulus which impels action. Anxiety or fear was designated as being one of the strongest of the acquired drives. This was in agreement with Mowrer (1939) who had labeled the anticipatory fear reaction that is conditioned to a noxious stimulus as anxiety. He also felt that anxiety could provide the motivational state (drive).

Trait versus State. It was the learning theorists who divided the term, anxiety, into the trait of anxiety and the state of anxiety. Although "trait" and "state" are defined in various ways, authorities agree that a clear difference should be made (Cattell and Scheier 1961, Spielberger 1966, Lazarus 1966, Levitt 1967). Usually, state anxiety refers to the temporary or transient state which dissipates as soon as the perceived threat is removed. Trait anxiety refers to the relatively stable personality trait that predisposes an individual to perceive a wide range of objectively nondangerous circumstances as threatening. The "generally anxious" person will respond more frequently and more strongly to appropriate stimuli.

The division of anxiety into state and trait, or situational and chronic, as they are often called, was first made by Janet Taylor (1951) who believed that it was an oversimplification to consider that the conditioned-stimulus anxiety only (that pertinent to an experiment) provided the total drive. She felt that the anxiety level of the subject would be heightened by other influences of the moment as well as residual effects of previous noxious stimuli. To determine the effect of differing levels of total effective drive upon learning (in this case the rate of development of the conditioned eyelid response), she devised a test of manifest anxiety to select two groups of subjects, one anxious, and one non-anxious. This subjective test, called the Taylor Manifest Anxiety Scale (MAS) (Taylor 1953) was the

first individual-difference measure of drive level for use in testing hypotheses based on Hullian learning theory. It measures a chronic trait, or predisposition to anxiety, not an immediate state. Professional interest was widespread and immediate. A tongue-in-cheek article by Levy (1961) regarding the "behavior" of behavior scientists was totally serious when he described the great spurt of anxiety in research which occurred after the introduction of the Manifest Anxiety Scale. It is this test which is used to measure anxiety in the present study.

Cattell and Scheier (1958, p. 352) counted 120 personality type tests which claim to measure anxiety. Some of the more commonly-used tests for trait anxiety are: Test Anxiety Questionnaire (Mandler and Sarason 1952), IPAT Anxiety Scale (Cattell 1957), S-R Inventory of Anxiousness (Endler, Hunt and Rosenstein 1962), and the Freeman Manifest Anxiety Test (Freeman 1953). One instrument which measures either situational anxiety or anxiety-proneness is the Affect Adjective Check List (Zuckerman 1960). Another which Levitt (1967, p. 195) believes to be promising is the State-Trait Anxiety Inventory (Spielberger and Gorsuch 1966).

Other than the inventory scales, several other types of subject-report anxiety measures are in use. Examples of projective techniques are the well-known Rorschach ink-blot test and the need-Achievement Test based on the Thematic Apperception Test (McClelland,

et al. 1953). Dibner (1956) measured anxiety in interviews by means of a Cue Counting test, scoring speech characteristics. Tests, such as the Wechsler Adult Intelligence Scale-Digit Span, have been used as an anxiety indicator by measuring the disruption of performance, but Walker and Spence (1964) feel that the anxiety state of the moment could influence this as a measurement of trait anxiety. Their conclusion is that if an examiner wants to find out if an individual is anxious in a testing situation, he would obtain more accurate information simply by asking him (p. 223). Krause (1961b) recognizes the existence of unconscious anxiety, but he seems to agree with Walker and Spence when he says, "The certainty that one who feels afraid or anxious is so, does not seem anywhere contradicted in the psychological or psychiatric literature" (p. 179).

As Distinguished from Fear. Another delineation in terminology has been between fear and anxiety, the latter term being used when the source is vague or obscured by repression (Freud 1936, Dollard and Miller 1950, Kendler 1963, Shoben 1949). The experimentalists consider the terms interchangeable since the difference is clear only at the extremes (Basowitz et al. 1955, p. 3; Levitt 1967, pp. 10-11). Roche Laboratories (1965) state that, clinically, the body's response to intense anxiety and to fear is almost identical. This may include such things as palpitation, sweating, pallor, urinary frequency, tremors, weakness, et cetera. They believe there

is a difference in the time-span of the two, however, which is important:

Fear, an emotional response to a consciously recognized and usually external threat or danger, generally tends to be short-lived; when the danger passes, the emotion and its physiologic manifestations tend to fade away. Anxiety, on the other hand, the emotional response to a danger usually internal and not readily recognized, is not likely to be quickly dispelled. Anxiety can thus persist indefinitely. . . (p. 12).

Carrying out this idea still further, Wolff (1950b) points out that:

. . . man, feeling threatened, may use for long-term purposes devices designed for short-term needs . . . and when so utilized may damage structures and so destroy the organism they were designed to protect (p. 1078).

Cattell and Scheier (1961), through factor analysis, have isolated a single pervasive factor of anxiety which differs from the fear pattern in such things as increased salivation and gastric secretion.

Contributions of Neuropsychologists

Joining the psychologists and the learning and motivation theorists in investigation of problems of anxiety are a third group of scientists. These are the neuropsychologists and others, such as Seymour Epstein (1967) who defines anxiety as a state of undirected arousal following perception of danger, differing from fear in that it is not channeled into specific avoidance behavior. In other words, he says, anxiety is "arousal in search of becoming fear" (p. 38). With the new scientists have come these new definitions of anxiety, new

terms, and new concepts, particularly the "activation" or "general arousal" theory now accepted by most behavioral scientists (Duffy 1962, Malmö 1957, 1959, Epstein 1967, Grinker 1956). Ruesch (1957) explains the theory thus:

Intense, strange, or dangerous stimuli alarm the individual and set him into a state of physical and psychological alertness which prepares him to cope with the forthcoming situation. . . . Anxiety . . . results when the organism is continually bombarded by stimuli which cannot be avoided and which exceed the tolerance limit of the organism (p. 134).

This differs from the previously described conception of anxiety in that the stimulus need not necessarily be noxious--simply unavoidable and too intense for the individual concerned to be able to tolerate. Cognition, of course, acts as a steering function and determines whether the state of physiological arousal will be subjectively labeled "anger," "joy," "anxiety," or whatever (Schachter 1959, 1966, Appley and Trumbull 1967).

Anxiety versus Stress. To add to the semantic confusion, the term "stress" is used frequently with reference to anxiety (Aiken 1961, Lazarus 1966). The concept of stress was introduced into the life sciences by Hans Selye in 1936. He established that systemic stress is manifested by a General Adaptation Syndrome which includes three stages. First comes an alarm reaction which is usually characterized by autonomic excitability, adrenaline discharge, heart rate increase, muscle tone and blood content changes, and

gastrointestinal ulceration. This is followed by a stage of resistance during which maximum adaptation occurs. If the defensive reaction proves ineffective, a stage of exhaustion is finally reached in which adaptive mechanisms collapse. He emphasizes that a variety of circumstances gives rise to a highly stereotyped bodily reaction, as well as reactions peculiar or specific to the nature of the insulting agent. It is the general rather than the specific reaction of the organism which constitutes stress (Selye 1956).

The wide appeal of the concept of stress is evidenced by the fact that the literature reporting on just its physiological aspects alone reached close to six thousand publications per annum by the early 1950's (Appley and Trumbull 1967, p. 1).

Although stress, as a term, had its beginnings with the study of physiological or endocrine factors, common usage now refers to a "stress" situation as one which contains stimuli or circumstances calculated to arouse tension-anxiety in the individual. "Under stress" refers to an individual who is in the midst of a stress situation (Levitt 1967, p. 12). Anxiety is generally regarded as a product of stress and a mediator of its influence on behavior (Spielberger 1966, p. 8). Grinker (1966) says anxiety is "an indicator of response to stress and a precursor of further stress responses" (p. 131).

Some believe that "stress" can be a product of stress and that this state differs from "anxiety," which is also a product of stress.

Cattell and Scheier (1961), through their techniques of factor analysis, have made clear distinction between the terms "anxiety" and "stress," even isolating such factors as serum cholesterol and heart disease which are associated with stress but not with anxiety.

Cattell (1966) suggests that the psychosomatic meets his problems and goes into stress, while the ordinary neurotic evades them and suffers anxiety. He also feels that:

. . . misunderstandings of cultural associations have arisen because of the confusion of the anxiety factor and the stress factor. . . . "Modern" life, as in America, may stimulate the stress factor, but it does not normally produce "the age of anxiety," which some literary folk suppose (pp. 44-45).

Anxiety versus Tension. Cattell's conclusions above are a good example of the semantic tangle that has prevented the unanimity of opinion regarding the characteristics of anxiety. Cattell's use of the word "stress" may well be what Menninger (1963) calls "tension" when he refers to the internal state of increased activity and pressure aroused by stress stimulus. Menninger lays part of the confusion between the terms anxiety and tension to a mistranslation of the German word "Angst," which Freud used, which resulted in the calling of the uncomfortable tension-awareness as "anxiety" (p. 129).

A suitable conclusion regarding the varied use of the term, tension, was drawn by Levitt (1967) after he surveyed the literature. He states:

Tension may refer either to a condition of the musculature of the body which indicates the presence of anxiety, or to a vague feeling of restlessness which suggests the presence of anxiety at a level below conscious awareness (p. 16).

Tension-anxiety Definition Summary

The terms "tension" and "anxiety" are used freely and interchangeably and have specific meanings to each person considering them. The two are linked together in this study to help insure that both the tightened body musculature and/or other symptoms of general physiological arousal, and the subjectively perceived, unpleasant affective feeling of general apprehension is understood. The term "stress" is reserved for the situation which acts as the stimulus of a tension-anxiety state.

Tension-anxiety Measurement Summary

The difficulty of measuring the tension-anxiety state or trait is well-known, but a summary is needed here.

Introspective Reports. Krause (1961a) reviews the psychological and psychiatric literature and concludes that transitory anxiety is conventionally inferred from six different types of evidence: introspective reports, physiological signs, "molar" behavior (e. g., body posture, gesturing, speech characteristics), task performance, clinical intuition, and the response to stress. He reports that, according to conventional usage, introspective reports provide the

most widely accepted basis. The more popular of these self-rating scales were mentioned earlier in the chapter.

Aiken (1961) also lists the subject-report as a favored measuring device but adds two others as being heavily used. These are both physiological measurements: the first group records changes in the autonomic nervous system and other physico-chemical changes, and the second group records changes in the somatic nervous system, including tremors and muscle-tension.

Observer Rating-scales. It is notable that the currently recognized tension-anxiety yardsticks do not include the judges' reports or observer rating-scales which have been used extensively by therapeutic clinicians to label deviant behavior and by teachers of speech to discover stage-fright victims. The reason seems to be that, although useful in those cases where the judge is sensitive and where the overt signs of the observed correspond with his inward feelings, these conditions are not consistently in effect. Agreement between judges has been found to be poor (Thompson 1967) unless specific signs have been agreed upon and carefully trained observers are used (Dickens, Gibson, and Prall 1950).

Communication Differences. Communication differences have not yet been standardized as a reliable technique for measuring tension-anxiety, although notable progress has been made as previously mentioned. Hoch and Zubin (1958) conclude:

While psychopathologists have regarded defective communication between the patient and the environment as one of the important earmarks of deviant behavior, the investigation of this type of deviation has remained largely descriptive or phenomenological (p. vii).

Physiological Measures. Physiological measures are being used more and more frequently. Autonomic nervous system reactions can seldom be controlled voluntarily and are thus immune from denial, providing good operational definitions of a state of anxiety. An example of this type of measurement device is the "lie detector" which uses measurements of blood pressure, heart rate, respiration rate, and electrical skin resistance, or individual measures of each, particularly the Galvanic Skin Reflex (GSR). The electromyograph, which measures muscle tension, is the favored means of measuring changes in the somatic nervous system (Jacobson 1967).

There are objections to the use of the physiological measurers just as there are with the other types. It has been disappointing that reliability has not been found with any one of the measuring devices across a population nor do all devices register an equal increase when applied to one individual at one point in time. As Mirsky (1963) says:

In most instances, the physiological concomitants of anxiety vary markedly in intensity from subject to subject. In some instances the affective response may be profound while the physiological concomitants are minimal; in others the affect may be minimal while the physiological response is quite marked (p. 19).

Intercorrelation among the indexes are extremely low: individuals vary considerably from measure to measure with respect to other individuals (Lacey and Lacey 1958, Schnore 1959, Wolff 1950b). Reviewers of recent work on the physiological measurement of anxiety, Krause (1961b), Martin (1961), Sarason (1960), Levitt (1967), and Lazarus (1966), are in agreement concerning the lack of substantial correlation among anxiety indicators.

While some decide that there is no physical measure of the response to stress, others are looking for general trends. Duffy (1962) states:

. . . the striking fact emerges, from any survey of the literature, that a wide variety of measures of physiological processes show relatively consistent changes with changes in what appear to be the energy requirements of the situation. . . . Moreover, it appears that a change in any one of these measures is ordinarily correlated with changes in the other measures, though the degree of intercorrelation of measures in different individuals, as opposed to the intracorrelation of measures, is frequently not high, . . . (p. 22)

After contrasting all of the commonly-used devices, her conclusion is:

. . . measures of the EEG, of muscular tension, and of palmar skin conductance, have, on the whole, shown more dependable relationships to stimulus situations and to overt behavior and are therefore especially to be recommended in psychological studies of activation (p. 29).

Some researchers are finding reasons for the variations in the readings. Lazarus (1966) explains: "We should not really expect high agreement among indicators, since each type of indicator

reflects a specific kind of transaction between the individual and the situation" (p. 390). Malmö (1959) believes that levels of activation are relative and within-individual, within-task kind. He, along with many others, feels results are predictable once an individual's pattern is discovered, the important thing being the direction of change. In other words, a person's heart rate may be "high" and palmar conductance "low," but each is high for him (p. 377).

Another reason for the variation among somatic and autonomic measures is the difference in latency. While a muscle will tense immediately after a stimulus, it would take a Galvanic Skin Reflex increase longer to appear. In the case of the electromyographic readings it even makes a difference as to which part of the body the measuring device is attached. Malmö (1959) shows that where high activation is long continued, skeletal tension may become localized to a single muscle group and discomfort can become severe. If stress is applied to this person, other muscles might not show an increase, but his already-tense one would. He concludes that, unlike heart or respiration rate that invariably yields one measure no matter how it is recorded, there are as many measures of muscle tension as there are muscles (p. 383). Another factor is that a strong stimulus is required to trigger an initial anxiety reaction, but only a weak stimulus is needed to keep the measurement high. For this reason it is important to know the individual's pre-existing or

chronic tension level (Jacobson 1967).

Lazarus and Opton (1966) point out that individual characteristics of personality lead to particular intervening psychological processes which, in turn, lead to different forms of coping with stress. Whereas one person might become depressed as a means of coping and show low physiological readings, another might exhibit highly-excited tendencies. These different forms of coping have their own specific response effects.

By physiological measurement some increases in tension level can be discovered which are not even perceived by the individual being tested. We are not consciously aware of things our autonomic system can discriminate against (Lazarus and McCleary 1951, Cameron 1958, Pepinsky and Gales 1951).

Since the organism responds with the same physiological reactions to numerous stimuli (Wolff 1953, Schachter and Singer 1962), cognitive factors must also be recognized if the feeling of anxiety as a psychological concept is being measured (Lazarus 1966, Schachter 1966). Whether an event perceived is threatening or challenging is a function of the individual's feeling of competence to deal with it. A situation might at one time produce rigidity and at another time, highly effective behavior (Combs 1952, p. 670). Any stimulus can have anxiety-producing effects if it is interpreted as threatening or dangerous (Spielberger 1966, p. 14).

Two general conclusions can be reached. Not only is there variation between the physiological measurers interindividually and intraindividually, but the autonomic and somatic measurements lack correspondence with the other types of measurements such as self-concept, imaginative, and observer rating (Thompson, 1967, Clevenger 1959, Raphelson 1957). Dibner (1958) states it this way:

. . . each may indeed be a measure of anxiety but . . . individuals differ markedly in their expression of tension in speech, in autonomic changes, and in awareness of mental and somatic tension. Moreover, within the individual, there may be changes in the pattern of reaction mechanisms, depending on his threshold of tolerance for tension (p. 172).

It seems that stress response (tension-anxiety) is a multi-dimensional concept, the components being the physiological arousal in the various organ systems, subjective phenomenology, and objective behavioral reactions. Explanations for this concept include individual differences in perception and evaluation of the felt physiological changes that occur after a stress stimulus, differences in physiological makeup and factors of conditioning, the different methods of coping or repression that have been learned, and the pre-existing tension state.

Care must be taken, then, when inferring the degree of tension-anxiety present in any one individual by the use of any of the measuring devices. While some have proved more satisfactory than others, it is best to accumulate as much information as possible through a

variety of measurements and through consideration of the cultural and historical background of the individual plus the impinging factors of the momentary situation.

II. DOGMATISM: DEFINITION AND MEASUREMENT

Although the personality characteristic of dogmatism has been prominently identified in the literature for years, it was not extensively studied and treated as a research variable until Milton Rokeach brought it to prominence fairly recently with the publication of his book, The Open and Closed Mind (1960). Before this time Maslow (1943) had written on the authoritarian character structure, and Adorno, Frenkel-Brunswik, Levinson, and Sanford (1950) had published their work on the "authoritarian personality," arrived at by a study of the potentially fascistic individual: those particularly susceptible to anti-democratic propaganda. These latter authors early proved that those who expressed hostility toward Jews were also likely to express hostility toward other minority groups. Adherence to conventional values came to be thought of as a variable in the person which could be measured, as well as other variables such as authoritarianism, stereotypy, and other qualities. Rokeach used this as a point of departure for his research.

Adorno, et al. (1950) thought of authoritarianism as:

. . . a general disposition to glorify, to be subservient to and remain uncritical toward authoritative figures of the in-group and to take an attitude of punishing outgroup figures in the name of some moral authority (p. 228).

Rokeach (1960) first defines dogmatism thus:

. . . a closed way of thinking which could be associated with any ideology regardless of content, an authoritarian outlook on life, an intolerance toward those with opposing beliefs, and a sufferance of those with similar beliefs (pp. 4-5).

His dogmatic, or closed-minded, personality is three-pronged; he classifies the rejection of ideas as a "cognitive phenomenon" which includes thinking, remembering, and perceiving, the rejection of people as "prejudice" or "intolerance," and the acceptance and rejection of authority as "authoritarianism." He differentiates the term "rigid" from "dogmatic" thus:

Rigidity refers to the resistance to change of single tasks or beliefs; dogmatism, to the resistance to change of a total system of beliefs. For example, we may perform a given chore rigidly, but we adhere to a given religion, political creed, or scientific theory dogmatically (p. 22).

After theorizing an organization of belief-disbelief systems, Rokeach replaces his original definition of "dogmatism" by suggesting a basic characteristic that defines the extent to which a person's system is open or closed:

. . . the extent to which the person can receive, evaluate, and act on relevant information received from the outside on its own intrinsic merits, unencumbered by irrelevant factors in the situation arising from within the person or from the outside (p. 57).

Bruner (1951) pulls the early research and terminology into perspective with this observation:

One begins . . . with the concept of personality rigidity, inquiring whether and how it manifests itself in such areas of functioning as thinking, perceiving, remembering, and so on. . . . A preliminary study demonstrates first that personalities can be categorized in terms of certain basic patterns which can best be described in shorthand as the authoritarian, rigid personality and, at the opposite extreme, the flexible, tolerant personality. . . . A second series of researchers then shows that rigid, authoritarian personalities are more prone to exhibit ethnocentric attitudes as measured by a questionnaire dealing with inter-racial attitudes. Rokeach . . . then carries the research one step further and shows that those high in ethnocentrism are more rigid or less flexible in performing problem-solving tasks involving basically neutral material. Another study demonstrates less perceptual tolerance for ambiguity in the rigid personalities (p. 122).

The design of the California F Scale by Adorno, et al. (1950) opened the door to a great deal of testing of the personality variable of "authoritarianism." It was designed to be used as an indirect measure of prejudice without mentioning the names of any specific minority group. The "F" standing for fascism, it was designed, also, to measure underlying personality predispositions toward a fascistic outlook on life. This describes the potential antidemocratic personality. The wide use of this scale to measure general "authoritarian" traits has brought about criticism in two respects: (1) that there is a leftist political bias built into the scale, and (2) that since statements were all phrased in a single direction a response "set" could exist (Rokeach 1960, Haiman 1964).

The California F Scale has been generally replaced by Rokeach's Dogmatism Scale (Rokeach 1960) in scientific research. It has as its primary purpose the measurement of individual differences in openness or closedness of belief systems. The scale is also purported to measure general authoritarianism and general intolerance. This is possible, according to Rokeach (1960, p. 397), because the theory guiding its construction is structure- rather than content-oriented. Specific ideological content is avoided by designing items to tap various structural and formal aspects of openness and closedness.

Haiman (1963) devised a similar scale for the measurement of open-mindedness, called the Haiman Revised Scale. He did this in an effort to correct what he felt was a response set in the Rokeach Scale, which had all open-minded responses scored on the left (minus) side. Haiman's scale was analyzed by Simons (1968) who felt it was ideology-bound and did not measure open-mindedness. He also concluded: "Some sort of response set may be inevitable in dogmatism scales, due to the nature of the concept itself" (p. 153).

A short-form dogmatism scale for use in field studies was written by Troldahl and Powell (1965) who systematically selected items from the Rokeach Scale.

For a comprehensive survey of the literature regarding dogmatism measurements, it is suggested the reader turn to the study

done by Vacchiano, Strauss, and Hochman (1969). They conclude that: "Research supporting the dogmatism concept has reported acceptable levels of statistical significance, a point which Rokeach noted was sometimes lacking in his own findings" (p. 269).

III. CHARACTERISTICS OF THE CLOSED-MINDED COMMUNICATOR

Researchers have been able to show a relation between the closed-minded individual and other personality variables related to communication.

Rokeach (1960) summarizes the major findings from a number of investigations thus:

. . . persons who are high in ethnic prejudice and/or authoritarianism, as compared with persons who are low, are more rigid in their problem-solving behavior, more concrete in their thinking, and more narrow in their grasp of a particular subject; they also have a greater tendency to premature closure in their perceptual processes and to distortions in memory, and a greater tendency to be intolerant of ambiguity (p. 16).

Both Powell (1962) and Mertz, Miller, and Ballance (1966) found that closed-minded individuals distinguished less between the message source and the message content, and were more susceptible to influence from approved sources.

The hypothesis that dogmatism is inversely related to the degree of learning in a classroom situation was confirmed by Ehrlich (1961) and Ehrlich and Lee (1969). An interesting study by Zagona

and Zurcher (1965a) grouped students in classrooms according to their dogmatism scores. The resulting atmosphere of the classroom containing the high-dogmatic students was described as being intellectually lethargic. The students had an unwillingness to relate to the subject matter, the instructor, or the other students. Contributions were made hesitantly, almost fearfully. The exact opposite situation prevailed in the low-dogmatic classroom, which was described as a "teacher's dream." Another study by Zagona and Zurcher (1965b) reported that:

In the classroom the High-dogmatic group is leader-oriented and its members prefer lectures to discussion. If held, novel points of view are rarely expressed and spontaneity is minimal. The High-dogmatic group shows a preference for clearly structured topics and instructional situations. . . .

In small group experiments dealing with controversial material (1) there is a more active concern (preoccupation, perhaps) on the part of High Dogmatics with the problem of leader selection. . . . (2) The need for structure overshadows the need for expression of spontaneity. (3) When group consensus is reached, challenges by authority figures produce differential reactions . . . the High-dogmatic group becomes insecure, wavers in its conviction, and evidences signs of reduction in group cohesion. On the other hand, the Low-dogmatic group tends to defend its consensus and, if anything, becomes more unified by a challenge from the authority figure. (4) Group consensus by the Low-dogmatic group is reached with more difficulty . . . however, when the two groups are brought together to present and to defend their decisions and to arrive at a general consensus, the Low-dogmatic group decision prevails (pp. 1235-1236).

Personality differences between dogmatic and non-dogmatic groups were studied by Plant, Telford, and Thomas (1965). They concluded that: ". . . highly dogmatic subjects were psychologically

immature and could be characterized as being impulsive, defensive, and conventional and stereotyped in thinking" (p. 75).

IV. CHARACTERISTICS OF THE TENSE-ANXIOUS LISTENER

Following are some of the more pertinent findings which relate to message-acceptance of the highly tense-anxious individual. It is interesting to note how similar these personality characteristics are to those which were just reviewed of the closed-minded person.

Postman and Bruner (1948) note that perceptual behavior is disrupted under stress, becomes less well-controlled, and is less adaptive. Smock (1958) found the same reduction in behavioral adaptivity associated with high-anxiety in children. Janis and Feshback (1953) supported a hypothesis that communications which arouse a high degree of fear or anxiety in the recipient tend to stimulate defensive reactions which interfere with the acceptance of the communicator's message. In a later study (1954) these same authors found that high-anxious subjects were less influenced toward message acceptance by a strong appeal than low-anxious subjects. They offer this explanation:

It seems probable that many individuals with chronic anxiety symptoms suffer from internal sources of anxiety stimulation to such a degree that interfering responses occur in almost any communication situation, resulting in poor attention, inadequate comprehension, or a comparatively low degree of acceptance due to unresponsiveness to the incentives contained in the communication (p. 163).

Becker (1963) reviewed this study along with several others and

concurred that: ". . . the minimum fear appeal produced greater verbal conformity to the recommendations of the message, especially among the chronically most anxious" (p. 203).

An interesting variation of the Janis and Feshback study was done by Simonson and Lundy (1966) who tested subjects aroused by an irrelevant fear (that of an impending mid-term exam) in contrast to those under a relevant fear state. Results supported the hypothesis that irrelevant fear would facilitate the acceptance of persuasive messages. The explanation was given that the distraction of the subjects' attention on something irrelevant made them less likely to counter argue while they were listening which is in accord with the theory of Festinger and Maccoby (1964).

Berblinger (1963) states that ". . . patients who suffer from chronic tension states are poor verbal communicators, sluggish or even viscous in their emotional exchange or rapport with others" (p. 40). Diethelm and Flach (1957) summarize a number of clinical studies and investigations with the following statement:

Anxiety . . . decreases the span of attention and retention. . . . With marked intensity of anxiety, difficulties in thinking and disturbed reasoning may occur leading to pathologic vagueness or confusion. Tension . . . produces disorders of concentration and thinking . . . may adversely affect grasp, immediate memory, and recall (p. 80).

A relationship has also been proved between high tension-anxiety and misperception of stimuli (Bruner and Postman 1949), inability to reason inductively (Welch and Long 1946), impaired ability

to retain information, give attention, think, and learn (Diethelm and Jones 1947), and a jamming and disorganization of the communication network (Ruesch 1957). O'Brien (1957) was one of the many researchers who noted the reduced ability to solve complex reasoning tasks. Simon (1945) noted this relationship also, but reversed the order of cause and effect. He believed that it was the complexity of the situation which increased the energization of the organism until it "broke down" into anxiety-type speech reactions.

It has been shown that closed-minded individuals and those suffering from high anxiety have several characteristics in common in regard to message preparation and receipt. This could well be explained by Stromer (1955) when he says:

Probably the most significant attribute of the good listener is: He can afford to listen. He understands his own attitudes and beliefs well enough that he doesn't need to jump to their defense, even silently, whenever he hears ideas expressed which conflict with his own. His sense of security and belonging is strong enough that he can afford to be silent, does not need to interrupt the speaker, nor try to dominate the conversation in a group (p. 325)

V. STUDIES LINKING DOGMATISM TRAIT WITH HIGH-ANXIETY TRAIT

There are a few studies which test the relationship of the trait of dogmatism to the trait of high tension-anxiety. Reviews of these follow.

Rokeach (1960) saw threat as leading to dogmatism in individuals, particularly as a defense against feelings of aloneness and

isolation, self-hate and misanthropy. He states: "Thus, the more closed the belief-disbelief system, the more do we conceive it to represent, in its totality, a tightly woven network of cognitive defenses against anxiety" (p. 69). To test this hypothesis he administered the Welch Anxiety Scale, a scale similar to the Taylor Anxiety Scale also using selected items from the Minnesota Multiphasic Personality Inventory (MMPI), and the Dogmatism Scale to over 1,000 college students or workers. He found very significant correlations between the two variables: high tension and high dogmatism.

Lazarus (1966) discusses the Rokeach studies just mentioned but believes that the evidence is not conclusive since the dogmatism scale itself contains items which refer to man's aloneness, isolation, helplessness, and uncertainty about the future, items that have a face similarity to those found in anxiety scales.

Rokeach (1960) also reports the results of two factor-analysis studies wherein dogmatism and anxiety are clearly shown to emerge together as part of a single psychological factor (pp. 348-349). This, plus other research, leads him to the conclusion that:

There seems to be little doubt that subjects differing in openness or closedness, as measured by the Dogmatism Scale, also differ markedly in their orientation to present and future, and that such differences are associated with differences in anxiety (p. 373)

A study of the effect of threat on the dogmatization of Catholicism (Rokeach, Toch, and Rottman 1960) gave empirical support for

their hypothesis that: ". . . as situational threat increases, there is a corresponding increase in institutional dogmatism" (p. 386).

Further support for the correlation between anxiety and dogmatism is given by Frenkel-Brunswik (1949) who believes that those who tend to hold and express rigid and moralistic attitudes appear to do so in order to feel certain about those toward whom the attitudes are directed. They have, in effect, to relieve their anxieties by having rapid closure in cognitive and perceptual reactions as well as in emotional and social spheres. She found that those who perceive the situation as ambiguous if it objectively is, are able to tolerate the anxiety involved, while those rigid persons who perceptually engraft structure on an ambiguous situation do so to avoid anxiety.

Lazarus (1966) also has an explanation. He says:

With respect to Rokeach's scale of dogmatism, the person scoring high might justifiably be described as holding the general belief that his transactions with the environment offer the continual prospect of harm. He tends to appraise situations as threatening (p. 139).

Dr. Robert Rinehart, a Portland, Oregon, physician and specialist in rheumatology, in a personal interview with the author stated: "The chronically-tense person is the most 'bull-headed' individual there is. He will persevere in his planned actions even when completely fatigued or in great pain." Miss Eileen Brown, a Portland, Oregon, nurse and physical therapist who has worked extensively with arthritic victims remarked as follows in a personal

interview with the author on August 16, 1969:

A person with chronic muscle tension is "intellectually rigid" in that he will not consider new methods of solving his problem or be open to alternative courses of action. If blocked in some way he is unable to think his way out of a difficulty. Every little mole hill is a mountain. It is no use to argue or discuss. The only thing to do is relax them and then they will say, "Now that I am letting down I can see where I've been doing wrong." This is typical behavior. It was previously thought that personal characteristics caused arthritis. We know this is not true because the patients change so dramatically after they have learned to relax.

Rebhun (1966) and Fillenbaum and Jackman (1961) found a significant and positive relationship between dogmatism and test anxiety, using the Rokeach Dogmatism Scale as the measuring instrument.

No other studies directly researching the relationship of dogmatism to anxiety have been discovered in the literature, although some work has been done relating stress to rigidity. Cowen (1952a, 1952b) defines rigidity as a tendency to adhere to an induced method of problem-solving behavior when the solution ceases to represent the most direct and economical path to the goal. The stress groups followed the induced anxiety with highly-rigid problem-solving behavior. Beier (1951) demonstrates that rigidity, defined as a decrease in abstract ability, increases as a result of anxiety. Pally (1955) also found stress to be related to rigidity.

VI. REDUCTION OF DOGMATISM AND ANXIETY

Dogmatism Reduction

As yet very few studies have reported attempts to reduce dogmatism with measured results. One such, done by Haiman (1963), registered statistically significant changes in open-mindedness after students participated in courses in discussion and group leadership. Partial support for these findings are provided by Larson and Gratz (1970) who report significant results in reducing dogmatism in one group with T-Group training and in another group by problem-solving discussion training. Non-significant results are reported for two similar groups, one using each method.

Anxiety Reduction

Much has been written on the subject of anxiety-reduction, but only those studies using the method employed in this study, systematic relaxation training, will be mentioned here.

Of the studies in the literature reporting the attempt to reduce anxiety by means of training in the systematic method of muscle relaxation, a few have been in the field of speech. These include a well-publicized study done by Carhart (1943) who reports an increase rather than a decrease in tension as measured by Galvanic Skin Response after subjects were given one period of suggestion relaxation. This method consisted of asking the subjects to imagine sensations

of weight and numbness in different parts of the body. More recent experimentation suggests that training needs to be more extensive in order to achieve a state of relaxation.

Gibson (1954) remarks that one of the oldest approaches to stage fright is the suggestion that the patient learn to relax by methods of deep breathing, yawning, and conscious relaxation of arms, shoulders, and chest. Hayworth (1942) reported no alteration in self-rating in either a control group, which ignored stage fright, or an experimental group, which discussed stage fright and was given detailed instructions for relaxing.

Betram-Cox (1965) gave classes in interpretative reading regular lessons in how to relax for six consecutive semesters. By judges' ratings the conclusion was reached that the group receiving this training achieved a better platform poise and sense of communication than a control group which received no training. The experimental group reported that the training resulted in improvement in other areas also, such as test-taking.

Dr. Robert L. Casteel, Associate Professor Speech at Portland State University, Portland, Oregon, reported in a private interview with the author on September 20, 1969, that he has found relaxation therapy to be a very worthwhile adjunct therapy for aid in correction of stuttering problems.

One other study in the speech field was a pilot study done by

Marsh and Barna (1967) who found very significant differences between the behavior of highly-anxious subjects who received relaxation training and highly-anxious subjects who did not receive such training. Differences were apparent in two areas: (1) kinds and number of statements employed, with relaxed subjects making fewer total statements, asking fewer questions, and making more value and directive statements, and (2) number of verbal reinforcements, with relaxed subjects making fewer reinforcements. In an effort to explain the higher number of value and directive statements made by those subjects trained in relaxation, the authors mentioned that a study of the effects of relaxation training on dogmatism scores would be an interesting area for further research. The present study acts upon that suggestion.

A more recent and sophisticated use of relaxation therapy is to present the relaxed subject with a hierarchy of small and gradually increasing doses of anxiety-evoking stimuli. Eventually he is able to confront the anxiety-evoking object or situation directly without losing his relaxed state. Many authorities feel that this method of systematic desensitization is superior to simple relaxation (Wolpe 1958, Kondas 1967, Rachman 1959) when working with phobias or less severe situational tension-anxiety. Since stage fright, or speech anxiety, is of this type, research on systematic desensitization is of particular interest to the field of speech. Paul (1966) found

this treatment of speech anxiety consistently superior with 100 per cent success over two other techniques, insight-oriented psychotherapy and simple attention treatment. McCroskey, Ralph, and Barrick (1970) found equally good results when the therapy was administered by speech educators with limited psychological backgrounds as by professional trainers. Paul and Shannon (1966) used group desensitization for social-evaluative anxiety reduction, and Kondas (1967) used it for stage fright reduction. Both found it efficient and effective. Gray, England, and Mohoney (1966) achieved a complete cure of benign vocal nodules by means of relaxation and desensitization treatment.

Pertinent to the present study is the question of whether the role of relaxation is crucial to the success of systematic desensitization. If proved to be so, this would provide further evidence of the benefits of relaxation. A study by Lomont and Edwards (1967) gives an affirmative answer to this question. These authors, as well as Kondas (1967), favor a learning concept, such as reciprocal inhibition, as the explanation of desensitization. Franks (1966) says:

" . . . relaxation responses are supposed to be crucial to desensitization therapy in that they represent the major response system used to reciprocally inhibit anxiety" (p. 47). Rachman (1965) found good results when treating spider phobia with desensitization coupled with relaxation but found no change in the patients when relaxation was

omitted. The effectiveness of relaxation on general pervasive, chronic, (free floating) anxiety was shown by Cautela (1966).

Basic to the notion that relaxation training will indeed reduce someone's anxiety-tension level is the theory that tension and anxiety are so linked that reduction in one will result in reduction in the other. Following are statements from the literature in support of this theory.

The contributions of Edmund Jacobson as reported in his book, Biology of Emotions (1967), are probably most pertinent to this study. A prolific writer even before the publication of his most renowned work, Progressive Relaxation in 1929, he was the first scientist to show the relationship between the physical and emotional aspects of muscle tension and anxiety. He was also the first to document carefully the results obtained by progressive relaxation techniques. He continues to stress the role that the striated musculature plays in emotion, perception, and evaluation, as well as in motor response; and he encourages the learning of conscious relaxation because, as he says: ". . . striated muscle tissue is the only road to choice in the life of man and higher animals. Here is the anatomical locus of all possible freedom of effort--at the disposal of the organism" (1967, p. 147).

Two well-known authorities who underscore Jacobson's contributions are Fishbein (1958) who says: "Jacobson in 1938 was the

first to record the action potentials in the muscles and to show that they vary in a predictable way with mental activity and especially with feelings of tension" (p. 673), and Lazarus and Rachman (1960) with their comment: "It is . . . to be taken as axiomatic that relaxation inhibits anxiety--their concurrent expression is physiologically impossible" (pp. 181-182).

Another strong statement comes from Levitt (1967), who says:

Tension in the striated or voluntary muscles of the body is one of the most common concomitants of anxiety. It is a correlate which anxiety shares with activity in general, either motoric or intellectual (p. 132).

Wolpe and Lazarus (1966) write as follows: "The autonomic effects that accompany deep relaxation are diametrically opposed to those characteristic of anxiety" (p. 59). Steinhaus and Norris (1965) report that it is easy to demonstrate an intimate relationship between muscular activity, including residual tensions, and man's emotional activity and higher mental functions. Steinhaus (1964) states:

The nerve impulses that are generated by tensions and pressures in muscle and tendon pass over large sensory fibers into the cord and there make a great number of connections that result in activity at all levels of the cord, brain stem, cerebellum, and cerebral hemispheres (p. 4).

Whetmore (1962) illustrates the interaction of thoughts, emotions, motor activity, and primary sensations by means of a chart.

In addition to the direct statements of the above authorities, research studies have given evidence that the anxiety state or trait

is concurrent with muscle tension. These studies report that subjects exhibited the same behaviors whether they were in a condition of anxiety induced by shock, whether only muscle tension was induced by the squeezing of a dynamometer, or whether there was simply localized muscle tension already present which produces a general level of activation (Malmo 1959, Bills and Stauffacher 1937, Courts 1942, Kuethe and Eriksen 1957, Meyer and Nobel 1958).

It has also been shown that tense persons activate more different muscles during the performance of simple physical tasks and have greater increases in muscle action-potentials during the performance of mental tasks than more relaxed persons (Altschule 1962). Goldstein (1964, 1965) summarizes the literature regarding muscle tension, including its relation to anxiety.

Malmo (1957) suggests that anxiety may be produced in an individual by keeping level of arousal very high over long periods of time. He hypothesizes that such continuous over-arousal may result in impairment of central inhibitory mechanisms. Further evidence of this and that the chronic-anxiety patient over-reacts to stress because the brain mechanisms that normally control muscle tension are somehow impaired is also available (Malmo 1970). Malmo (1970) also found that the anxious patient will react sooner, more vigorously, and to less intense stimuli than the normal person.

VII. SUMMARY

This chapter of the specific review of the literature began by discovering the various definitions and measurements of tension, anxiety, and dogmatism that are in common usage.

Studies were then cited which showed that many behaviors of highly-anxious individuals were also found in persons scoring high in dogmatism. These behaviors included ineffective problem-solving behavior, intolerance of ambiguity, poor memory, impairment of learning ability, stereotyped thinking, misperception of stimuli, and defensive reactions which interfered with the communicator's message delivery and receipt. This suggested that there may be a correlation between the variables of dogmatism and high tension-anxiety, which is one of the premises upon which this study is based.

A third group of studies uncovered in the literature confirmed that subjects registering a high degree of tension-anxiety also registered a higher degree of dogmatism than average. These findings appeared in Rokeach (1960), Rebhun (1966), and Fillenbaum and Jackman (1961).

Although a search was made for studies attempting to reduce the variable of dogmatism, which was the major goal of the present study, only two were found, neither of which used the method of relaxation training. Instead the method in each case was active

participation in group discussion, and moderate success was reported.

Finally, reviews were made of studies which reported the use of systematic relaxation training to reduce tension-anxiety. Studies of particular note are those of Jacobson describing the techniques of neuromusculature relaxation training, Paul (1966) who reported a comprehensive experiment in speech performance anxiety-reduction in which desensitization proved consistently superior to all other forms used, including insight therapy, Paul and Shannon (1966) and Kondas (1967) who adapted the technique of relaxation training for use with groups, and McCroskey, Ralph, and Barrick (1970) who found good results when the therapy was administered by speech educators rather than professional psychotherapists.

The review was concluded by reporting research from the behavioral sciences which provided rationale for the use of relaxation of the musculature to effect a lowering of tension-anxiety levels. Those whose studies were particularly pertinent were Jacobson, Wolpe, Lazarus, Rachman, Malmo, and Steinhaus.

Four general sources of particular value in this review of the literature were Anxiety and Behavior, edited by Charles D. Spielberger (1966), The Psychology of Anxiety, Eugene E. Levitt (1967), The Open and Closed Mind, Milton Rokeach (1960), and Psychological Stress and the Coping Process, Richard S. Lazarus (1966).

CHAPTER IV

DESIGN OF THE STUDY

In Chapter III a report was made of a pilot study done by Marsh and Barna (1967) in which the communication behaviors of a control group of high-anxious subjects were compared with those of an experimental group of high-anxious subjects who had undergone relaxation training. As an aid in explaining some of the differences which were found, it was suggested that the variable of dogmatism would be a fruitful one for research. In the present study this dogmatism variable is isolated by the Rokeach Dogmatism Scale. The major purpose of the study is to determine whether or not dogmatism will decrease in amount when chronically high-anxious subjects are trained in progressive neuro-muscular relaxation.

As a secondary interest, a comparison is made of the pre- and post-anxiety scores of both groups to determine whether the anxiety level, as measured by the Taylor Manifest Anxiety Scale, changed by a significant degree. The hypotheses used in this research follow.

I. HYPOTHESES

Major Hypothesis

There will be a significant difference between the dogmatism scores of the experimental group who received relaxation training and the dogmatism scores of the control group who did not receive such training.

Minor Hypothesis

There will be a significantly greater difference between the pre- and post-anxiety scores of the experimental group than between the pre- and post-anxiety scores of the control group, and the post-scores will show a downward trend.

II. DEFINITION OF TERMS

The term "tension-anxiety" has referred to the combination of the tightened body musculature and/or other symptoms of general physiological arousal and the subjectively perceived, unpleasant affective feeling of general apprehension.

In the experimental design the term "high-anxious" is used to describe chronically tense-anxious individuals as defined by the Taylor Manifest Anxiety Scale (MAS), which will be discussed later in this chapter. This is the term used by the author of the scale.

The term "closed-minded" or "dogmatic" is used to describe

those individuals scoring in the upper limits of the Rokeach Dogmatism Scale, which will be discussed later in the chapter. Rokeach defines "dogmatism" as the extent to which a person's system is open or closed to relevant information received from the outside on its own intrinsic merits, unencumbered by irrelevant factors in the situation arising from within the person or from the outside.

III. POPULATION AND SAMPLES

A group of fifty-six high-anxious subjects was chosen by selecting all students who scored twenty-four or above on the Taylor Manifest Anxiety Scale which was administered to 427 students enrolled in the beginning speech fundamentals course at Portland State University. Of the possible number of fifty-six subjects, forty-six agreed to participate in this research study and were arbitrarily placed in either the control or the experimental group depending upon whether their time schedules permitted them to attend the scheduled training meetings.

The number of the control group actually completing the experiment was twenty-one. The number of the experimental group who completed the training and took the final tests was nineteen.

IV. INSTRUMENTS OF MEASUREMENT

Measurement of Tension-anxiety

As the criterion measure of tension-anxiety, the Taylor Manifest Anxiety Scale (MAS) was selected (Taylor 1953), not only because of its availability and convenience, but also because of its widespread prior use (Spielberger 1966, p. 368).

This test is a self-concept measuring scale which consists of a series of items from the Minnesota Multiphasic Inventory (MMPI) which were judged by clinical psychologists to describe both the physiological reactions reported by individuals suffering from anxiety reactions and the accompanying subjective reports of worry, self-doubt, anxiety, or other similar unpleasant feelings. The MAS was originally devised as a convenient and objective device for rating subjects according to the degree to which they admitted to characteristically exhibiting manifest symptoms of anxiety (Spence and Spence 1966). This test is further discussed in Chapter II and Chapter III of this study.

Considerable evidence for the validity of the MAS as a measure of anxiety has been summarized by Allen (1958) and Kendall (1954).

Measurement of Dogmatism

The Rokeach Dogmatism Scale (Rokeach 1960) was chosen as the instrument for measuring the amount of closed-mindedness or

dogmatism present in the subjects in this study. This scale, like the MAS, has had considerable use in studies such as this. A full discussion of this test and its validity was presented in the Specific Review of the Literature in Chapter III.

V. RELAXATION-TRAINING METHOD

The technique of progressive neuro-musculature relaxation used in this study is essentially that described by Jacobson (1938, 1957, 1958). The subject assumes a comfortable seated or lying position with as much of his weight supported by the furniture or by pillows as possible. The trainer will ask the subject to contract and then release individual muscles until the entire body has been relieved of residual tension. Practice is usually needed in order for the subject to be able to differentiate between the feeling of a tense muscle and a non-tense muscle.

Attention is first given to the extremities, because these are easiest to control, and then moves to the areas of the stomach, lower back, chest, neck, and head. The ability to "let go" of muscles which have been contracted for a long time varies with each individual and will depend on the amount of tension present and the subject's ability and willingness to concentrate on the process. No hypnosis, drugs, or other artificial aids are used.

The major difference in Jacobson's training method and that

used by the author of this study is in a shortening of the time spent relaxing each body area. Whereas Jacobson recommended that each practice session last one hour and concentration remain on only one set of muscles per session, in this study the entire hierarchy of muscle contractions and relaxations was completed in less than a half-hour period. This was repeated each session. This modification was suggested by two Portland, Oregon, physicians,¹ who have maintained close contact with Dr. Jacobson during their professional careers and who acted as consultants for this study and provided the author with private instructions in relaxation training from their staffs.

VI. LIMITATIONS OF THE STUDY

Due to accessibility and practicality, it was necessary to choose a self-concept measure as the selection device for discovering the high-anxious subjects. As with any such measure, its accuracy depends upon the subject's interpretation of the questions and his willingness to respond correctly. This test, therefore, is less

¹Dr. Herman A. Dickel, a practicing psychiatrist in Portland, Oregon, who employs progressive relaxation methods with psychiatric patients, and Dr. Robert E. Rinehart, a practicing rheumatologist in Portland, Oregon, who employs relaxation therapy in the treatment of arthritic patients. Dr. Dickel is co-author of G. B. Haugen, H. H. Dixon, and H. A. Dickel, A Therapy for Anxiety Tension Reactions (New York: MacMillan Co., 1960).

objective than, for example, electromyographic readings would be. The same limitation applies to the dogmatism measurement scale, although no improved means of testing this variable is known at the present time.

The facilities for the training of neuro-musculature relaxation were limited to a classroom setting which did not allow complete comfort or quiet. The room was small with no floor space for mats for reclining; the chairs had no arm rests and were not padded; and the outside hall was noisy with intruders sometimes opening the door and disturbing the session.

The time element made it necessary to have all sessions be group sessions, except for one individual training session per subject. It was not possible to check each individual's progress in the group sessions. In the individual session the subject could recline comfortably on a mattress, and the trainer could adjust his instructions according to the progress of the subject.

Perhaps the most serious limitation of this study was that the subjects were acquired by draft rather than volunteer. In order to secure a fair-sized experimental and control group, all those high-anxious students whose time schedules permitted were urged to participate. This meant that the extent to which they gave of their time and effort depended upon how successful the author was in persuading them to do so. After the details of the project were made

known to the experimental group, it was apparent to some of them that the training in relaxation which they were to undergo would be beneficial in one way or another. Not all were convinced that they needed or even wanted a reduction in their tension-anxiety level, but were still willing to "give it a try." If these same students had come into the group on a voluntary basis with a self-recognized need to reduce their anxiety level, the time they spent reading and practicing might have been different and possibly led to different results. To assess the extent to which this limitation might be in operation, the tension-anxiety measurement scale was repeated at the end of the project, and a report of how much time was spent practicing relaxation outside of the sessions was requested from each subject.

A professional clinic has equipment such as an electromyograph for precise muscle-tension measurement, table-high beds in quiet surroundings, highly-motivated patients, and other such conditions which aid in achieving anxiety reduction through relaxation training. The lack of these conditions in this study is a limitation which should be a consideration when evaluating the findings, but they typify the facilities and conditions which are present in the normal classroom setting. Since one of the purposes of this study is to test whether or not neuro-muscular relaxation training can be successfully used in a college environment, the absence of clinical equipment and conditions appears justified.

VII. PROCEDURE

To begin the research, all 427 students enrolled in the beginning course of the speech fundamentals sequence at Portland State University were administered the Taylor Manifest Anxiety Scale. No explanation was given other than that it was a routine procedure designed to give the instructor more information about the needs of his students. The fifty-six highest-scoring students were sent inquiries asking whether they would be willing to participate in an experimental study. The forty-six who accepted were arbitrarily placed in either the control or the experimental group according to whether their time schedules permitted them to attend the scheduled training meetings. Those students who were placed in the control group had no further contact with the experiment until the end of the term when they were administered the Rokeach Dogmatism Scale and a repeat of the Taylor Manifest Anxiety Scale. The members of both the control and the experimental groups continued in the speech classes in which they were enrolled.

The experimental group was divided in half, each section meeting forty-five minutes per week for a period of six weeks. The first session consisted of an explanation of the experiment and how they were selected, an explanation of the theoretical relationship between anxiety, excitation, and muscle tension, and a discussion of the

muscle-tension habits of the group members. A demonstration of the difference between a tense muscle and a relaxed muscle was given, and the basic physiology of relaxation was explained. One of two books² was made available to each group member and a time schedule of half-hour daily home practice was suggested.

Thereafter, each weekly session consisted of approximately twenty minutes of discussion and motivation and a twenty-five minute training period in progressive neuro-musculature relaxation technique. At this time the subjects were asked to assume a comfortable seated position, with their hands resting in their laps, and their heads dropped gently forward. The straight chairs made it necessary for the subjects to maintain enough tension in their postural muscles to remain upright in the chair. The lights were turned off and dim illumination provided by two night lights.

Instructions were given the subjects to contract and relax muscle groups alternately according to the method developed by Jacobson and modified by Dickel and Rinehart as previously described. Constant reminders to "let go" of unnecessary tenseness in all muscle groups were given. At the close of the period the subjects were admonished to keep their muscles differentially relaxed as they went

²Edmund Jacobson, You Must Relax. (4th ed., rev.; New York: McGraw Hill Book Company, Inc., 1957); and David H. Fink, Release from Nervous Tension (New York: Simon and Schuster, Inc., 1953).

about their tasks the rest of the day. Each subject was asked to keep a record of the amount of time spent practicing these techniques each day, and the degree of success he felt he had achieved.

Sometime during the six-week period, each female member of the experimental group met with the author for a twenty-five minute individual training session. The male members had a similar training session under the supervision of Dr. Patrick O. Marsh,³ who had also received instructions in relaxation training from the staffs of Dickel and Rinehart. The individual lessons were conducted in a small practice room equipped with a table on which rested a three-inch foam mattress. The subject reclined on the mattress with a crib-size pillow under his neck and each knee. Instructions were similar to those given in the group sessions for contracting and releasing muscles in various parts of the body, but they could be adjusted and paced to fit each subject's individual need.

After the six-week training period the Rokeach Dogmatism Scale was administered to both the experimental and the control groups. The Taylor Manifest Anxiety Scale was then administered as a post-test.

To test the major hypothesis, the dogmatism scores of each

³Patrick O. Marsh, Ph.D., is Associate Professor of Speech at Portland State University and chairman of the author's thesis committee.

group were averaged separately. The means were compared and normal statistical procedures employed using the Student-t distribution at a level of significance of .05.

To test the minor hypothesis, the pre- and post-test scores of the Taylor Manifest Anxiety Scale were compared for each individual student in both groups and the difference noted. The mean of the differences of each group was then found and a comparison was made. Normal statistical procedures were employed using the Student-t distribution at a level of significance of .05.

CHAPTER V

FINDINGS

To test the major hypothesis that there would be a significant difference between the dogmatism scores of the experimental group who had received relaxation training and the control group who had not, the mean scores were compared and normal statistical procedures employed, using the Student-t distribution at a 5 per cent level of significance. The resulting t-score of .115, as tabulated in Table I, was not significant and the hypothesis must be rejected.

TABLE I
COMPARISON OF MEAN DOGMATISM SCORES

Group	n	Dogmatism Score mean	s_x	$s_{\bar{x}_1} - s_{\bar{x}_2}$	t
Experimental	19	150.7	24.1	6.94	.115
Control	21	151.5	19.2		

To test the minor hypothesis that there would be a significantly greater difference between the pre- and post-anxiety scores of the experimental group than between the pre- and post-anxiety scores of the control group, the mean MAS pre- and post-scores for each

group were compared and the difference noted (see Table II).

TABLE II
COMPARISON OF PRE- AND POST-MAS SCORE MEANS

Group	MAS pre-test mean	MAS post-test mean	pre-post change
Experimental	28.84	24.52	-4.32
Control	26.57	25.29	-1.28

The group means of these differences were then compared and normal statistical procedures employed, using the Student- t distribution at a 5 per cent level of significance. The resulting t -score of 1.262, as tabulated in Table III, is not significant and the hypothesis must be rejected.

TABLE III
COMPARISON OF MEAN DIFFERENCES OF
PRE- AND POST-MAS SCORES

Group	n	Mean pre-post change of MAS scores	s_x	$s_{\bar{x}_1} - s_{\bar{x}_2}$	t
Experimental	19	-4.32	8	2.40	1.262
Control	21	-1.28	7.1		

Formal and informal subject-reports were also requested at the conclusion of the study from the members of the experimental group in order to add the information of whether or not the students felt they had been aided in reducing their tension-anxiety level. A summary of their reports follows.

Only two members of the group reported no change of behavior or awareness and both acknowledged that they had not attempted to apply the training. All others said they had become aware that they were usually keeping muscles overly-tense, and now realized that this was detrimental to their well-being. Most learned to distinguish between the feeling of a tense and a non-tense muscle and could achieve a state of at least partial relaxation. Typical comments were, "I can now relax when not under any emotional tension. For me this is a lot of progress." "I noticed that it wasn't long after practice that I was tense again." "I have learned to check myself for tension." "I can sleep a lot better and wake up refreshed." "I've learned to let down my guard and am beginning to make friends." The most positive comment came from an older woman who said, "I have a new change in my general all around feeling of well being and I definitely contribute it to the relaxing program." Of the total group of nineteen, three reported positive and lasting benefit. One young man was able to swim the length of the pool for the first time because he could relax his chest and take a normal

breath. In general the reports indicated that a heretofore unknown possibility for improvement of health and personal relations had been brought to awareness. A few responded with enthusiastic effort and reported worthwhile benefit.

CHAPTER VI

DISCUSSION

I. INTERPRETATION OF FINDINGS

The findings indicate that there is not a significant difference between the experimental and control groups in mean dogmatism scores. The major hypothesis must be rejected, and it appears that relaxation training under the conditions present in this study does not reduce the level of dogmatism as measured by the Rokeach Dogmatism Scale.

It seems important to interpret these findings first in relation to the exploratory study done by Marsh and Barna (1967) from which the present study was an outgrowth, as mentioned previously. The objective of the earlier study was to discover whether systematic relaxation training would modify the oral communication behaviors of tense-anxious subjects. One of the expectations was that relaxation training would result in fewer assertive statements in dyads. Assertive statements, particularly of value and direction, are thought of as characteristic of dogmatic individuals. Thus, the studies not only used similar methods, but, in this one area, had similar expectations. In neither study was the expectation realized, and in the

Marsh and Barna study there were significant differences in the opposite direction: more value and directive statements were made by those who had undergone the training in relaxation techniques.

To account for this surprising reverse, the explanation was offered that the relaxation training, by reducing anxiety, may have caused an increase in confidence or a reduction of defenses which allowed more freedom to express convictions. It seemed more reasonable to hypothesize the release of inhibition as the cause of the increased assertiveness than to accept the apparent signs of an increase in dogmatism, since the former corresponded more closely to accepted theory. In order to evaluate these possible explanations, the authors suggested that a follow-up study, such as the present one, be done to study the effects of relaxation training on dogmatism scores. This would help determine whether the kind of assertiveness which was significantly higher in their "relaxed" subjects was correlated with a trait of dogmatism. The present study adds credence to their explanation by showing no evidence that relaxation training had any systematic effect on the degree of closed-mindedness.

If the premise that, in general, those persons high in tension-anxiety are also high in dogmatism is accepted, as has been expressed in the literature, it must follow that the experimental group in the present study either did not experience a reduction of their tension-anxiety trait through the relaxation training, or that it was

not of sufficient amount to change the dogmatism variable. These alternatives can be checked by reviewing the findings in regard to the minor hypothesis.

There was not a significant difference in anxiety reduction between the control group and the experimental group. Although the mean score of the experimental group dropped 4.32 points between the pre- and post-tests of the MAS, there was a drop of 1.28 by the control group as well (see Table III). Statistically this difference is not significant.

In addition, analysis of the original MAS scores of the entire sample shows that the division of the high-anxious subjects into the groups by random draw resulted in a higher pre-test MAS mean score of 2.27 for the experimental group than the control group (see Table II). Even though this group dropped 4.32 after relaxation training, they were only .77 lower than the control group at the time the Rokeach Dogmatism Scale was administered. This similarity of anxiety scores of the two groups probably accounts for the lack of significant difference between their dogmatism scores.

Further analysis shows that the mean post-scores of both groups are still within the upper 13 per cent of the original anxiety scores of the normal population sample of 427 students. These scores, which indicated the anxiety-level at the time of the administration of the Dogmatism Scale, were also above the lower-range

limit of twenty-four, which was used to identify high-anxious subjects by Janet A. Taylor (1951), who originated and worked extensively with the MAS Scale. The conclusion must be, therefore, that the experimental group would still be labeled "high-anxious" by the MAS scale at the conclusion of the experiment. This is evidence for the acceptance of the second alternative mentioned earlier that the reduction of the anxiety level was not of sufficient amount to change the dogmatism variable.

One of the purposes of this study was to determine whether systematic neuro-muscular relaxation training, which could be administered by non-professionals with no risk to the students, would be efficient and practical in a college environment as a form of anxiety reduction. This method was chosen for investigation because, although professional physicians and psychotherapists have long incorporated these techniques in private practice, recent studies were reported in the literature where relaxation was accomplished in group settings and by non-professionals. The present study found no significant differences in the scores on the anxiety scale between the experimental and the control groups, and the minor hypothesis was rejected. Before discarding this method as a possibility for the field of speech education, however, a more careful analysis might be profitable.

First, the question should be asked as to whether the

conditions inherent in this experimental atmosphere were those which would be in effect in a normal college environment. To answer this question, the limitations of this study, which were discussed in Chapter IV, could be reviewed. The space available and equipment used were typical of any educational setting and should be accepted. The use of group training sessions with only one or two half-hours with each individual for concentrated attention and check of progress seems practical and reasonable since this condition has been successful in other research and is also applicable to a normal educational situation. The only limitation, therefore, which seems questionable in the experimental setting is the need to stimulate the subjects in the experimental group to cooperate fully. This need was undoubtedly greater than it would be in a normal classroom setting if students had requested help to overcome what they considered to be a problem.

If the subjects in the experimental group in the present study did cooperate to their fullest extent, the research conditions would not be much different than those in an educational setting. To help evaluate their motivation, the following data are offered. Of the nineteen members of the group, two attended all six sessions, eight were present five times, seven attended four sessions, one came three times, and one appeared twice. The reported average amount of time spent in home practice was ten minutes a day as compared

with the requested amount of practice time of at least one-half hour per day. Eight group members did not turn in a report of time spent in practice. Two of the group openly admitted to "not giving it a fair chance." The amount of motivation of the subjects in the experimental group remains in doubt.

Unless the uncertainty of the seriousness with which the experimental subjects attempted to apply the method of systematic neuro-musculature relaxation, which cannot be objectively measured, raises a doubt, the equipment and conditions of the environment must be accepted. Other explanations for the failure of this method to reduce the tension-anxiety level significantly should be sought.

Most of the studies mentioned in the review of the literature which reported success with relaxation therapy used situational speech anxiety as the dependent variable, and most included systematic desensitization as part of the independent variable. It was stated in the literature that this method is superior to progressive relaxation training alone, mainly because the autonomic effects of relaxation cannot counteract a stimulus that evokes a strong anxiety reaction (Wolpe and Lazarus 1966). The present study was aimed at the reduction of a chronic tension-anxiety trait, however, not a state, and a pervasive personality characteristic, dogmatism, was the dependent variable. This precluded the use of desensitization.

There was support in the literature for the use of relaxation

therapy. The premise that tension-anxiety is a learned trait and, therefore, can be unlearned was reported from the field of behavioral science in Chapter II. Consistent practice of the method of first recognizing the "anxiety response habit" (as referred to in Wolpe, Salter, and Renya 1964, p. 12) and then consciously and systematically replacing the unnecessary tenseness with relaxed muscles would reciprocally inhibit the habit of anxiety. As was quoted earlier from Jacobson (1938), you cannot be both relaxed and anxious simultaneously; these two responses are incompatible.

Since the above theoretical position was presented in the literature along with many experimental studies showing positive results, further search is needed to interpret the non-significant findings in this study. Since the subjects used were all very high in manifest anxiety trait, it may be that there are special problems in relaxing this type of subject. A query of Dr. Rinehart¹ resulting in the following information. Muscles in chronic spasm cannot be relaxed voluntarily, and those who have been in highly-tense conditions and do achieve some musculature relaxation sometimes experience ache, fatigue, and/or depression due to the change in glandular activity that accompanies a lessening of the alarm state. When this happens,

¹Dr. Robert E. Rinehart is a practicing physician in Portland, Oregon, who specializes in the treatment of arthritic patients and others with physical disabilities due to chronic tension conditions.

subjects are likely to tense once more unless they are willing to suffer through the temporary readjustment period. For these reasons successful reduction of the chronic high-tension trait is more difficult than if the degree is less or the state is transitory. It requires high motivation and serious, consistent practice on the part of the subject.

The only other known study which used high-anxious subjects of the same type and the same relaxation training method under similar conditions is the previously-discussed study of Marsh and Barna (1967). Since these authors did find significant differences in expressed speech variables, and relaxation training was the only independent variable, it must be assumed that this was responsible for the differences in communication. It cannot be assumed that the speech differences necessarily resulted from a lessening of the tension-anxiety variable, even with the strong theoretical evidence of the incompatibility of both a tense and relaxed state. It is risky to judge anxiety from observed behaviors, since, as reported earlier, the effect of anxiety varies according to whatever defensive mechanism the individual chooses to employ (Ruebush 1960).

Since these two studies were similar in all respects except for the choice of measuring instruments for the post-test, this is what may explain the difference in results. Whereas the former study looked for differences in expressed speech behavior, the present

study used a repeat of the Manifest Anxiety Scale. It is conceivable that the MAS, which has impressive credentials of validity and reliability and has been used in hundreds of studies, is more useful as an original screening device than as a sensitive measurement of change. Many of the statements request responses in retrospect, such as, "At times I lose sleep over worry," "I have often felt that I faced so many difficulties I could not overcome them," "I have a great deal of stomach trouble."

To better interpret the findings of the minor hypothesis, it seems reasonable to seek further information as proof of the overall change of anxiety level in the experimental group. Subjective reports of progress were requested from the members of the experimental group. These non-quantified data appeared in Chapter V. Of the twelve persons who turned in a formal report of progress, five stated that they had reached a point of being aware of their tension habits, two were able to achieve and maintain a relaxed state for short periods of time before reverting to their old habit of tenseness, three reported a positive and lasting benefit, and two did not attempt to apply the training. These reports are inconclusive and the question remains unanswered.

The signs that the MAS instrument successfully chose subjects that were high in tension-anxiety were very clear, however. Some subjects did not appear tense by casual observation, but every one

reported behavioral characteristics and physical symptoms, many very serious, which are typical of highly-tense individuals.

II. SUMMARY OF CONCLUSIONS

The findings of this study show that the method of systematic neuro-musculature relaxation training employed did not cause significant differences in either the dogmatism or the chronic tension-anxiety level of the experimental subjects according to the measuring devices used. That the method could be used with the equipment and conditions of a normal college environment and with trained non-professionals as therapists was evident. Whether it would be useful for the reduction of chronic high-tension remains in doubt due to the uncertain motivation of the experimental subjects and the questionable sensitivity of the Manifest Anxiety Scale as a measurement of tension-anxiety change. Further study using a combination of measuring devices, including the electromyograph, is recommended.

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