

THE EFFECTS OF THREE
RELAXATION TRAINING PROGRAMMES ON
ANXIETY AND SELF-CONCEPT

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requirements for the degree of Master of Science.

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PREFACE

My interest in what makes people fail, originated in my work with emotionally disturbed children over-seas.

The description of Seligman (1968) dragging dogs about a shuttle-box to prove to them that they could influence their environment, reminded me of having to physically restrain children on occasions to force them to see that they had succeeded at a task. There was a constant cry which seemed to ring through the school of:

"How can you know you can't until you try." These children seemed determined to defeat their own efforts.

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INTRODUCTION

Anxiety could be considered as a normal phenomenon in the sense that it effects everyone on different occasions and in varying degrees. The question of when anxiety actually becomes a pathological entity is very difficult to answer. As with any stimulus, a massive "dose" can defeat its own purpose by either causing over-reaction or non-response. In excess, anxiety can cause dysfunction and pathological behaviour.

Lader (1975) states that pathological anxiety supervenes when a patient complains of anxiety which is more frequent, more severe or more persistent than he is used to and can tolerate.

If this definition of pathological anxiety is accepted then it is safe to conclude that the majority of people who seek psychiatric or psychological help suffer from this state and that pathological anxiety, as a symptom, is not limited to any diagnostic category, but is present in the psychosomatic-, depressive-, schizophrenic-, and behaviour disorder categories. This is borne out by the authors of several of the better known text books on psychopathology (Coleman and Broen, 1972; Wolman, 1965).

Because of the fact that pathological anxiety seems to be the common denominator in almost all psychopathology, it seems logical to assume that it is of the utmost importance to explore ways in which this phenomenon can be managed.

If one were to look at anxiety in the context of time, one finds that it is an emotion concerned with the future. An anxious person is not anxious about what has happened, nor even what is happening, but about what may happen. The neurotic who is anxious in crowds, or is frightened of heights, is not frightened of his present experience of being in a crowded train or of being on the top of a cliff, but of what he imagines might happen. And what, may we ask, might happen that would be so terrible as to warrant such a degree of personal discomfort and fear? The answer had already been given decades ago in the psychoanalytic literature, and the same answer is still accepted today in a slightly modified form. The person fears that he might lose control of the present situation, and then enters into an almost immediate chain of irrational thought wherein he catastrophizes the result of such a loss of control. Stated differently, in psychological jargon, "... whenever the psychological adaptational mechanisms threaten to decompensate, anxiety appears." (Freedman, et al 1972)

Fear of not being able to cope on the other hand is very closely related to the way in which an individual views himself and his abilities. If a person viewed himself and his abilities positively he would have no reason to fear that he would not be able to cope with some future occurrence. It would then be expected that level of anxiety should correlate negatively with measures of the self-concept, or with scales that propose to measure the amount of positive self regard which an individual has towards himself. This negative correlation was in fact found by Miller (1972). The results of this study, as well as the arguments already proposed, imply a very definite relationship between anxiety and the self-concept. This relationship was further confirmed by Chang-Liang and Denney (1976), who found positive changes in self-concept measurement as a function of the treatment of test anxiety by systematic desensitization.

For a considerable time previous to 1972 it was common knowledge that a number of behavioural techniques existed that could successfully be employed to reduce anxiety. That these same techniques also had an effect on certain cognitions was not that widely accepted. More recent research on cognitive factors in behaviour therapy procedures has however indicated that what a person says to himself, that is, how he evaluates and interprets events, is explicitly modified by many of the behaviour

therapy techniques that have been used to modify maladaptive overt behaviours.

The results of studies performed by Meichenbaum (1977) emphasize that behaviour therapy techniques, as originally conceptualized and implemented have over-emphasized the importance of environmental events (antecedents and consequences), and therefore, under-emphasized and often overlooked how a client's perceptions and interpretations of events and of himself have changed. The research on cognitive factors in behaviour therapy techniques has highlighted the fact that environmental events per se, although important, are not of primary importance; rather what the client says to himself, about himself, and those events, influences his later behaviour.

If a behaviour therapist then sets himself the goal of designing a technique for the control or change of certain target behaviours, it would seem logical to design the technique in such a way not only to cater for environmental manipulations, (antecedents and consequences) but also to keep in mind those aspects in his manipulation that will be either conducive to, or restrictive as regards cognitive restructuring.

It was with this in mind that the present study was undertaken. An attempt was made not only to focus on anxiety, as was

the case previously amongst behaviour therapists, where this would have been considered the target behaviour, but to design the experiment in order to facilitate cognitive change as well.

The theoretical model for looking at anxiety and also for planning a therapeutic technique, was supplied by Seligman (1975), who maintains that a wide variety of species (including man) possesses the ability to learn when its responses do not affect the outcome of events. This means that they are capable of learning that certain events are uncontrollable by any response that they choose to make. It is this uncontrollability and unpredictability of events that lead to anxiety and depression in man and anxiety-, and depressive-like symptoms in animals.

If it is true that it is the uncontrollability or the future possibility of uncontrollability that leads to anxiety in man, then one way of preventing and controlling such anxiety is to provide man with an instrumental response, so that those uncontrollable situations that habitually cause anxiety can become controllable.

In this study the relaxation response was chosen as the instrumental response with which to equip subjects, to help them overcome uncontrollability and anxiety. This response was however applied in three different ways in order to determine the most effective way of combating anxiety.

The theoretical model for looking at self-concept, and also formulating a technique that would foster positive changes in self-evaluation, was supplied by Wiggins, Renner, Clore and Rose (1971); They state that a person's self-concept is formed by the relative number of successes and failures he experiences when attempting to control his environment. The person with a high amount of positive self-regard would therefore be the one who is fairly often successful when he attempts to exert control over his environment.

The therapist who attempts to change a client's evaluation of himself in a positive direction would therefore allow the client to attempt to control his environment, but will at the same time try to give the person the maximum opportunity to succeed. In addition the therapist will also supply the client with feedback concerning his success.

This was done in the present study. Subjects were taught relaxation training, the one group was then instructed to use their relaxation skills in situations that habitually led to anxiety (Self Control Group): because of the efficiency of the relaxation response in inhibiting anxiety, it was thought that these subjects were likely to be successful. To fulfill the guidelines specified in the previous paragraph it was decided to not only let the third group (Application Training Group) learn the instrumental response and apply it in situations that caused anxiety,

but also to supply them with a laboratory situation where they could put their skills to the test, and obtain feedback about their efficiency in utilizing these anxiety-reducing skills. In addition two control groups were used. The 'Contact' group were read the same introductory patter (Appendix B) as the experimental groups. This was followed by eight sessions, spread over two weeks, during which the group discussed anxiety, the situations which caused them anxiety and their attitudes to stressful situations like examinations. The 'No-treatment' group were simply tested with the IPAT and the MSGO and then retested after a period of two weeks. The only explanation given for redoing the tests was that I was interested in their test-retest reliability.

As can be seen from what has just been said, the central focus of this study is anxiety, and the ways in which subjects tend to view themselves and their instrumentality.

In Chapter One an attempt will be made to define and clarify the concept of anxiety. Several theoretical approaches to this phenomenon will be considered, as well as the author's reason for favouring a cognitive behavioural approach such as that proposed by Seligman (1975).

Chapter Two will be devoted to an exploration of this theory of anxiety. Self-concept and its relationship to behavioural change is discussed in Chapter Three and certain relevant theories concerning the formation of

self-concept are also briefly touched upon.

Chapters Four to Six deal mainly with the instrumental response of relaxation and ways in which the original relaxation proposed by Jacobson (1938) has been modified and improved by, for instance, letting clients use the response as a self-control technique.

Chapter Seven deals with the practical implementation of what had been said up to that point, as well as the hypotheses to be tested.

In Chapter Eight the results are discussed and the practical implications of this study looked at.

CHAPTER ONE

ANXIETY

Historically

Man has experienced anxiety as long as he has existed as a species. The way in which these affects are felt and categorized, as well as the circumstances that gave rise to them, have varied considerably cross-culturally, and have phenomenologically altered according to man's changing notion of his place in, and relation to his environment.

The theme of anxiety - not a delineation of the concept, but an *awareness of the affect* - appears early in literary history in the Epic of Gilgamesh; which is believed to have reached its present form in Babylonia at the beginning of the second millenium, but parts of which go back much earlier to the third millenium. The story concerns Gilgamesh's anxiety about the fact that he is mortal and must die, and his attempt to gain some degree of immortality by achieving fame.

The development of the *concept* of anxiety appears well into the historical era, in the classical Greek period, and particularly in the Hellenistic era. In the Homeric epics evidence abounds that the concept of anxiety

had already reached the stage which is comparable with modern operational definitions of the term. (Sarason and Spielberger, 1975).

Authors who elaborated on the theme of anxiety include names such as Aeschylus, Euripedes, Aristotle, Epicures, Epitetus, Paul, Vives, Spinoza, Locke, Hutcheson, Kierkegaard and Watson.

As has been noted, the concept of anxiety in literature and even in a philosophical context can be traced back into history for several centuries.

The history of the medico-clinical usage of the concept is more recent, however. In 1826, the pioneer Belgian psychiatrist, Joseph Guislain, proposed that anxiety is influential in the development of psychopathology. In 1859 in Germany, Heinrich Neumann, in his influential textbook of psychiatry, developed an interpretation of anxiety (Angst) as a danger signal. Anxiety, according to Neumann, arises when the person becomes aware of threats to vital concerns (cited in Sarason and Spielberger, 1975).

By the middle of the 19th century, the term "anxiety" was appearing as a standard term in the medico-psychiatric

literature. For example, there was a report of a case of "Jaundice after anxiety" in the British Medical Journal in 1870. In 1895 Sigmund Freud proposed the delineation of a new diagnostic entity, the "anxiety-neurosis" (cited in Sarason and Spielberger, 1975, p.21). Freud identified two immediately preceding authors who, in 1893, had also given prominent attention to morbid anxiety, though not to the extent of conceiving of it as a separate disease entity. Freud's conception of the cause of anxiety, as distinct from anxiety-neurosis, in this early paper was this: "The psyche develops the affect of anxiety, when it feels incapable of dealing (by an adequate reaction) with a task (danger) approaching it externally" (cited in Sarason and Spielberger, 1975, p.21-22). This appraisal-and-threat notion, though in some respects at variance with Freud's later conceptions of anxiety, has a distinctly modern ring. Anxiety-neurosis, Freud suggested in this early paper, arises when the psyche feels unable to master endogenous sexual excitation.

With Freud we have reached the contemporary period. In 1920 Watson and Rayner reported their now well-known study on the conditioning of fear. Then in 1926 Freud published his "Hemmung, Sympton und Angst." In 1939, Mowrer, published his influential paper on a stimulus-response analysis of anxiety, and in 1950, May's important book, "The Meaning of anxiety," appeared. Since that time the amount published

in this area has been enormous.

Definition of Anxiety

Lader (1975) offers the following definition: "Anxiety is an ineffable, unpleasant, diffuse emotion with the subjective quality of fear and closely related feelings. The individual experiences impending danger, but either no threat is identifiable or any presumed threat is disproportionate to the intensity of the emotion."

(p.939). A further attempt to clarify it is as follows:

"Anxiety is an unpleasant emotional experience, varying in degree from mild unease to intense dread, associated with the anticipation of impending or future calamity or disaster. It is related to a feeling of threat which has often little or no valid external cause. It leads to characteristic somatic, physiological, autonomic, biochemical, endocrinological and behaviour changes" (De Wet, 1977, p.3).

The emphasis that is laid upon different aspects of the definition of anxiety varies according to one's theoretical orientation. However, if seen historically, it is an emotional state characterized by the ordinary aspects of an emotion, namely, a subjective affective component, physiological reactions, cognitive associations and processes, and a conative aspect.

end of
recap

A helpful distinction between anxiety and fear is made in the psychoanalytic literature: Fear is a noxious emotional state that has an object, such as fear of rabid dogs; anxiety is a less specific state, more chronic, and not bound to an object.

Seligman (1975) makes a further useful distinction between fear and anxiety. He states that anxiety is the chronic fear that occurs when a threatening event is in the offing, but is unpredictable.

Fear on the other hand is seen as that acute state that occurs between the presentation of a signal and the actual occurrence of a threatening event. The signal may be external - such as a bell in a laboratory situation - or internal - such as the realistic appraisal that if a car remains on a specific course it will collide with the person making the appraisal.

The stimulus antecedents of neurotic anxiety responses have various sources. They may be well-defined situational stimuli such as thunder storms, enclosed spaces, crowds, people in authority, being rejected or being the centre of attention. Anxiety responses are also evocable by more diffuse or pervasive aspects of the environment, being more or less omnipresent, and giving the impression of being "free-floating". This is referred to as *pervasive anxiety*.

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Operational definition

The present study is concerned primarily with the investigation of free-floating, manifest, overall anxiety, whether it be situationally-determined or relatively independent of the immediate situation.

The IPAT Anxiety Scale is designed to measure this specific type of anxiety and for the purpose of the present study anxiety is operationally defined as that which is measured by the IPAT Anxiety Scale.

Theories of Anxiety

There is general agreement that anxiety plays a crucial role in psychopathology, but explanations of the origin of anxiety, and closely related pathology vary. /

Is anxiety innate or learned? What basis is there for differentiating between anxiety and fear? Between anxiety and guilt? How many different kinds of anxiety can be identified and by what operational criteria may these be distinguished? What sorts of stimulus conditions elicit anxiety, and do these differ for different kinds of anxiety? Is it meaningful to speak of conscious and unconscious anxiety? Of bound and free-floating anxiety? The answers to such questions will differ depending upon one's theoretical conception of anxiety, and this, in turn, will determine the inferences

and the operations which give anxiety empirical meaning in the clinic and the laboratory. / The sheer volume of empirical research on anxiety precludes any attempt to summarize it here. The author intends to give a brief description of the psychodynamic approaches, and then to follow this with two behavioural approaches. The reader is referred to Maher (1967), Sarason and Spielberger (1975), Spielberger (1966) and others for a review of existing theories of anxiety.

Freud

Freud was mainly concerned with identifying the sources of stimulation which precipitated anxiety, rather than with analyzing the properties of such states; He hoped to discover, in prior experience, "the historical element ... which binds the afferent and efferent elements of anxiety firmly together" (Freud, 1929, p.70).

In his early theoretical formulations, Freud believed that anxiety resulted from the discharge of repressed, unrelieved somatic sexual tensions (libido). He held that when libidinal excitation produced mental images (lustful ideas) that were perceived as dangerous, these ideas were repressed. The libidinal energy, thus blocked from normal expression, accumulated and was automatically transformed into anxiety, or into symptoms that were anxiety

equivalents. Freud later modified this view in favour of a more general conceptualization of anxiety in which its functional utility to the ego was emphasized. He conceived of anxiety as a signal indicating the presence of danger situations, and differentiated between objective anxiety and neurotic anxiety largely on the basis of whether the source of the danger was from the external world or from internal impulses.

Neurotic anxiety, according to Freud, is experienced by everyone to some extent from time to time, but when manifested in pathological amounts, he defined it as constituting the clinical syndrome, "anxiety-neurosis". Anxiety was the "fundamental phenomenon and the central problem of neurosis." Understanding of anxiety was considered "the most difficult task that has been set us," "a task whose solution required "the introduction of the right abstract ideas, and of their application to the raw material of observation so as to bring order and lucidity into it." (Freud, 1929). Both the complexity of this task and Freud's personal commitment to it were reflected in the fact that these theoretical views on the subject of anxiety had evolved over a period of nearly 50 years, were continually modified, and were never regarded as complete.

Other Approaches

Other personality theorists have since joined the search for the "right abstract ideas" with which to illuminate and clarify anxiety phenomena, but order and lucidity have not resulted. Lack of agreement regarding the nature of anxiety, the particular stimulus conditions that arouse it, and the sorts of past experiences that make individuals more or less vulnerable to it, is the rule rather than the exception. Consider, for example, the differences among the concepts of anxiety advanced by Mowrer (1939), Sullivan (1953), May (1950), Rogers (1951), and Ellis (1962).

As an alternative to Freud's impulse theory of anxiety, Mowrer (1939) has proposed a "guilt theory", in which it is contended that "... anxiety comes, not from acts which the individual would commit but dares not, but from acts which he has committed but wishes that he had not." Thus, neurotic anxiety results from the repudiation of the demands of the conscience, not the instincts, from repression that has been turned toward the superego rather than the id. If one behaves irresponsibly, with too much self-indulgence and too little self-restraint, then anxiety is experienced.

For Sullivan, (1953), anxiety was an intensely unpleasant state of tension arising from experiencing disapproval in

interpersonal relations. Through an empathic linkage between an infant and its mother, "The tension of anxiety, when present in the mothering one, induces anxiety in the infant." (Cited in Spielberger, 1966, p.11). Once aroused, anxiety distorts the individual's perception of reality, limits the range of stimuli that are perceived, and causes those aspects of the personality that are disapproved of to be dissociated.

According to *May*, (1950), anxiety was "the apprehension cued off by a threat to some value which the individual holds essential to his existence as a personality." (p.191). While the capacity to experience anxiety was innate, the particular events or stimulus conditions which evoked it were largely determined by learning. An anxiety reaction was normal if it was proportionate to the objective danger, and did not involve repression or other defense mechanisms. Neurotic anxiety reactions were disproportionate to the objective danger (but not the subjective danger) and involved repression and neurotic defenses. Fear was a learned response to a localized danger which did not constitute a threat to the basic values of the individual.

According to *Meador and Rogers* (1973), anxiety is phenomenologically a state of uneasiness or tension whose cause is unknown. From an external frame of reference, anxiety is a state in which the incongruence between the

concept of self and the total experience of the individual is approaching symbolization in awareness. When experience is obviously discrepant with the self-concept, a defensive response to threat becomes increasingly difficult. Anxiety then is the response of the organism to the "subception" (p.134), that such discrepancy may enter awareness, thus forcing a change in the self-concept. He further defines threat as the state which exists when an experience is perceived or anticipated (subceived) as incongruent with the structure of the self. It may be regarded as an external view of the same phenomenon which, from the internal frame of reference, is anxiety.

Ellis (1962) focuses not on the external stimuli that elicit an anxiety response, but on the person's internal irrational appraisals of such stimuli that lead to an anxiety response. He claims that all stimuli that do not physically affect or harm the individual are in fact neutral, but through unrealistic appraisal they become noxious. He claims: "Anxiety includes not only the person's estimates of the real danger involved in the situation which he is in, but his objective appraisal of his probable ability to cope with this situation, and his guesses as to which solutions might be best to get him out of this presumably dangerous situation. Going further, anxiety includes the individual's moralistic, negativistic, highly pessimistic evaluations of himself, and his implied or stated conclusion that he will never

be able to handle this or any other similar dangerous situation. Anxiety, moreover, invariably includes an unprovable over-generalization: namely, that because the individual has not as yet figured out a good solution to the danger that he thinks is threatening him, and perhaps because he has not been able to cope satisfactorily with similar dangers in the past, he positively will not be able to solve the problem, now or ever."

Given the conceptual ambiguities in anxiety theory, it is perhaps not surprising that anxiety research is characterized by semantic confusion and contradictory findings. In the present study the point of departure was that of the behavioural approach.

This point of departure was accepted with the knowledge that even this theoretical orientation is far from complete, but compared to the other theories it does seem somewhat more coherent. It is therefore necessary to have a closer look at this approach, and to trace its development from the "Classical Learning Theory Approach" to the point where learning theory finds itself today, namely, where it is concerned with cognition and hence is known as Cognitive Behaviourism.

Classical Learning Theory Approach to Anxiety

Wolpe (1958) states that anxiety of the requisite intensity can be built up in animals as a response to previously neutral

stimuli in one of three ways. The animal can be:

- (1) subjected to difficult discriminations on the Pavlovian model, or
- (2) exposed to a relatively small number of severe noxious stimuli, or
- (3) exposed to a relatively large number of small noxious stimuli.

Humans, he claims, can be conditioned to have the same anxiety reactions.

Direct evocation of anxiety

According to Wolpe, there are a number of stimulus conditions capable of arousing a high level of fear in human subjects; fear to which other neutral stimuli could become conditioned through the process of temporal cuing. These are painful stimuli, very intense stimuli and falling.

As an example of an objective threat leading to a later conditioned anxiety response, he quotes the example of a soldier during wartime who experiences intense fear in a situation that is really dangerous; unconditioned stimulus (US). The apprehension of danger depends on previous learning, and the real reaction arousal; The unconditioned response (UR), is conditionable to any stimuli which happen to be present at the time, such stimuli are the sound of gun fire, smell of gunpowder, open

spaces or desert sand; (conditioned stimulus or CS). At a later stage this soldier could experience severe anxiety when confronted with any of the above CS's, because of the fact that the previous fear reaction had become conditioned to a previously neutral cue or stimulus.

Severe anxiety can equally well be evoked in a situation where there is no objective threat. Wolpe calls the example to mind of an eleven-year-old girl, brought up in a strictly Calvinist home who reacted with great anxiety when she first felt pleasurable genital sensations. This persisted even after her marriage ten years later.

A clinical example of how real noxious stimulus situations could cause a conditioned anxiety reaction is illustrated in the case of a school-boy who developed violent emotional reactions to classroom situations on the basis of many sarcastic remarks passed by a teacher who disliked him intensely (Wolpe, 1958, p.79).

Conflict

Another way in which anxiety can be elicited in both humans and animals is by putting the subject into a situation that is ambivalent, i.e. that does not provide a clear-cut solution. This type of anxiety can also be conditioned to a "neutral stimulus" that was present at

the time that the intense anxiety reaction was elicited, and so had become conditioned.

Pervasive (Free-Floating) Anxiety

Under certain circumstances, it is not only to well-defined configurations that anxiety responses are conditioned, but also to more or less omnipresent properties of the environment, of which extreme examples would be light and shade contrasts, amorphous noise, spatiality and the passage of time. Since each of these enters into most, if not all, possible experience, it is to be expected that if any of them become connected to anxiety responses, the patient will be persistently and apparently causelessly anxious.

There is however no sharp dividing line between specific anxiety-evoking stimuli and stimuli that trigger pervasive anxiety. The pervasiveness of the latter is a function of the pervasiveness of the stimuli elements conditioned; and there are degrees of pervasiveness ranging from the absolute omnipresent of time itself, through very common elements like room walls, to rarely encountered configurations like hunchbacks (Wolpe, 1958).

The reason for believing that pervasive anxiety has definable stimulus sources, according to Wolpe, lies in the fact that if patients with pervasive anxiety are questioned,

they usually reveal that definable aspects of the environment are specifically related to this anxiety.

The question arises: What factors determine whether or not pervasive anxiety will result from the experience of a noxious stimulus? Wolpe proposed two factors on the basis of clinical impressions. One is the intensity of anxiety evocation at the time of the original experience of the noxious stimulus. The other is a lack of clearly defined environmental stimuli at the time of the initial experience with which the experienced anxiety could be conditioned.

Treatment of Anxiety

Wolpe (1958) describes a technique: systematic desensitization, through which anxiety may be reduced in situations where anxiety is triggered by well defined stimulus configurations, by using relaxation as the counterconditioning agent. Graded anxiety-producing stimuli are repetitively paired with a state of relaxation until the response of anxiety is eliminated.

Later studies conducted to identify the effective theoretical mechanism of systematic desensitization have concluded that neither graded exposure to aversive stimuli nor the presence of anxiety-competing responses are necessary in order to effectively extinguish phobic behaviours (Bandura, 1969).

The decisive factor governing extinction of phobias is the systematic nonreinforced exposure to the anxiety arousing stimulus conditions, i.e. arranging for the phobic client to successfully confront (imaginally or in vivo) the sources of his anxieties without experiencing the catastrophic consequences neurotics typically anticipate.

Excellent results have been obtained through the use of this method in the treatment of phobias and anxieties that are triggered by well-defined stimuli (Paul, 1969).

Desensitization, however has limited applicability to pervasive anxiety with its many triggering stimuli, because of the lack of generalization across situations.

An Alternative Emphasis

The "learning theory" basis of behaviour therapy is being challenged, and is being replaced in part by a cognitive orientation. The conceptual basis of "learning theory" that provided the heuristic background for a variety of behaviour therapy procedures, is being questioned on both theoretical grounds (e.g. Bandura, 1974; McKeachie, 1974) and empirical grounds (e.g. Brewer 1974; Meichenbaum, 1974). Such time-honoured concepts as the automaticity of reinforcement and the continuity assumption between overt and covert events, are being

seriously questioned. As Bandura stated in his presidential address to the American Psychological Association:

"So-called conditioned reactions are largely self-activated on the basis of learned expectations rather than automatically evoked. The critical factor, therefore, is not that events occur together in time, but that people learn to predict them and to summon up appropriate reactions."

(Cited in Meichenbaum 1977, p.143).

The orientation of the author is in line with that presented by Bandura. The mounting evidence suggests that the cognitive sets and internal (negative) verbalization which one might have concerning one's own abilities and competence, and also towards external events, play a major role in the elicitation of anxiety reactions. This is in contrast to an exclusively deterministic view of man controlled by random conditioned cues to his environment.

This new approach in behaviour therapy views man as an active coping agent who temporarily loses control in his environment. But he can be taught control, and he need not be passively manipulated as in the classical

"learning theory based" therapies. Part of the control that he can be taught is to view himself and the world in a more favourable light. The emphasis is thus not exclusively on *actual control* as in the past, but places as heavy a burden on *perceived control*.

The approach of Seligman (1975) to anxiety places the onus for the formation of anxiety not on the external events per se, but rather upon the fact that the organism *learns* that events occur independently of whether or not it responds. This is in line with the Cognitive Behavioural Approach, which states emphatically that emotional reactions do not automatically follow a given stimulus, but rather that the quantity and quality of such an emotional reaction depends on the interpretation that the organism projects onto the stimulus.

Phenomena such as habituation, which has traditionally been viewed as automatic, involuntary modes of behaviour, are in fact learned ways of reacting to a changing environment. This is an active process involving definite cognitive restructuring in man.

It seems clear that an approach which wishes to separate cognitions and behaviour is extremely limited when studying human behaviour, and might only be applicable to certain species which are very low on the evolutionary chain, such as the earthworm, because as will be shown in the next chapter, it seems as if there is some kind of "cognitive restructuring" possible in most animals.

For a further exploration of this new approach in behaviourism the next chapter will be devoted to Seligman and his theory of "Learned Helplessness".

CHAPTER TWO

LEARNED HELPLESSNESS

In a review of the literature on uncontrollable aversive events, Seligman (1975) maintains that subjects, in addition to learning that a particular response controls reinforcement, are capable of learning that they cannot control reinforcement. A phenomenon Overmier and Seligman (1967) have labelled "learned helplessness".

The typical experiment used to produce learned helplessness involves a situation where a subject is first given training trials of inescapable/unavoidable electric shock, followed by test trials in which escape/avoidance is possible but where the subject fails to respond. There has been a variety of experiments using this procedure, e.g. where the nature of the inescapable shocks differ, differing situations in which shocks are given, variable time between the inescapable shock and escape avoidance responses, and the use of differing species. (Anderson et al, 1968; Braud et al, 1969; Overmier et al, 1967; Pickney; 1967; Caspey et al, 1981; Cogan et al, 1981; Samuels et al 1981; Feinberg et al, 1982.)

The phenomenon has been replicated with a variety of frequencies, densities, durations, and temporal

distributions of inescapable shock; and despite the multiplicity of experimental procedures, a consistent picture of "helplessness" emerges.

Although the emphasis in these experiments was focused mainly on an animal population, research with human subjects produced results in accordance with the animal studies (Thornton et al, 1971; Miller et al, 1974; Buys et al, 1982; Cox, 1982; Reid, 1982; Wengler et al, 1982; Feinberg et al, 1982.)

The concept of Self-Efficacy introduced by Bandura, (1977) offers a very similar frame-work for viewing people's perceived competence and expectations of success as that put forward by Seligman in 'Learned Helplessness'. Bandura points out that the strength of an individual's self-efficacy-expectation determines whether he will attempt a task, and if he does, how much effort will be invested and for how long the individual will persist in the face of obstacles. Self-efficacy provides a theoretical framework for understanding how failure is self-perpetuating. If a person fears to try, his self-efficacy is further reduced. On the other hand, if an attempt is made, some success will improve his perceived efficacy. One of the important aspects of this approach is that it allows for the fact that people process, evaluate and integrate diverse sources of information in order to come to an evaluation of their expected performance.

Voluntary Responding

Responses that can be modified by reward and punishment are called voluntary responses. Responses that are made and that are not sensitive to reward and punishment are called reflexes, blind reactions, instincts, or tropisms.

Voluntary responses are the sole concern of one approach to learning theory, namely, operant conditioning. The basic, covert premise of the operant tradition is a simple one: by studying the laws of those responses - called instrumental or "operant" responses because they "operate" on the environment - that can be modified by reward and punishment, operant conditioners believe they will discover the laws of voluntary behaviour in general. When an organism can make no operant response that controls an outcome or when no voluntary response by the organism can determine the outcome of an event, then that outcome is *uncontrollable*.

Response Independence and Response Contingency

Men and animals can learn about the relationships that exist between actions and outcomes. A limited number of such relationships exist:

- (1) They can learn that a certain reward or punishment always follows a certain response made by the organism, e.g. when a rat presses a lever and a food pellet always follows such a response, it learns that food is contingent upon its pressing of the lever. Such simple pairing is called *continuous reinforcement*. If upon a certain day a pellet does not follow its pressing of the lever it will continue pressing for a limited period only, until it has learnt that the relationship between its pressing behaviour and the reward (food) has been terminated. This kind of learning is called extinction.
- (2) People and animals also readily learn that their responses are followed only intermittently by the outcome. Such *partial or intermittent reinforcement* is more resistant to extinction - and incidentally truer to real-life learning situations.
- (3) In some cases however reinforcement can occur in the absence of a response by the organism e.g. a pellet of food can be dropped without the rat having pressed the lever. The rat will learn that the appearance of food is not contingent upon it having done anything.

Organisms that learn are complicated enough to learn that outcomes occur even when they do not make a specified response. In operant language such a contingency is called DRO - *differential reinforcement of other behaviour*.

- (4) The final logical possibility is, no lever pressing/ no food. This, of course is the converse of the situation described in (1) above. (That is, lever pressing and therefore, food).

When the probability of an outcome is the same, whether or not a given response occurs, the outcome is *independent* of that response: the outcome is *uncontrollable*.

A person or animal is *helpless* with respect to some outcome when the outcome occurs independently of all his voluntary responses, (i.e. when the outcome is uncontrollable).

The objective circumstances under which an event is *uncontrollable* have now been defined. Research has

further shown that uncontrollability disrupts behaviour, cognition and emotions: dogs, rats and man become passive in the face of trauma, they cannot solve easy discrimination problems and they form stomach ulcers; cats have trouble learning to coordinate their movements, and university students become less competitive.

(Seligman 1975; Braud, et al 1969; Overmier et al, 1967; Dweck et al, 1982; Doerr et al, 1982; Harris et al, 1981.)

Experimental Procedures

The type of experiments employed in the formulation of the construct of "learned helplessness" were mostly of the same design, and a short description of some of the experiments executed by Seligman (1968, 1973, 1975) will be briefly touched upon.

A dog is placed in a restraining device and given a series of electrical shocks, from which, since it is restrained, it is unable to escape. Following this treatment, the dog is placed on one side of a "shuttle box", which is a large box having a wire-grid floor on either side of a low barrier in the middle. An electric current is then passed through the grid floor on the side on which the dog has been placed. The dog is expected to avoid the shock by jumping across the barrier.

A naive dog, who has not been subjected to the initial bout of restrained shocks, easily learns to avoid the

shock in the shuttle box by jumping across the barrier. However, the dogs which received the initial inescapable shock treatment, do not learn to jump the barrier and to avoid subsequent shock in the same way. After first running frantically about the shuttle box, these dogs stop moving, lie down and quietly accept the shock.

A more sophisticated experimental design using three groups of subjects to control for the effect of shock *per se*, was also employed.

Firstly, an escape group was trained in the restraining device to turn off shock by pressing a panel with their noses. A yoked control group received the same number and order of shock as the control group, but were not able to turn off the shock by making responses. Finally, a naive control group received no initial shock treatment. Later all three groups were tested in the shuttle box.

The escape group and the naive control group jumped the barrier readily. However, the yoked control group failed to perform the avoidance task. It is thus suggested that helplessness in this situation is not caused by the shock itself, but because of the fact that the animals were unable to escape the initial shock series, and hence had "learned" that responding was independent of the outcome.

Effects of Helplessness upon the Organism(a) Motivational deficit

A major consequence of experience with uncontrollable events is *motivational*: uncontrollable events undermine the motivation to initiate voluntary responses that control other events. Thus it was seen in the experiments that dogs who had been subjected to uncontrollable shock did not initiate escape/avoidance behaviour when placed in a shuttle box where shock could be avoided by crossing a low barrier.

(b) Learning deficit

A second major consequence is *cognitive*: once a man or animal has had experience with uncontrollability, he has difficulty learning that his response has succeeded, even when it is actually successful. Uncontrollability distorts the perception of control. This phenomenon appears in helpless dogs, rats, and men. Occasionally a naive dog sits and takes shock on the first three or four trials in the shuttle box; then on the next trial jumps the barrier and escapes shock successfully for the first time. Once a naive dog makes one response that produces relief, it catches on; on all further trials it responds vigorously and learns to avoid shock altogether.

But dogs who first received inescapable shock are different in this respect also. About one-third of them go through a similar pattern, sitting through shocks on the first three or four trials, then escaping successfully on the next. These dogs, however, then revert to taking the shock, and they fail to escape on future trials. It looks as if one success is just not enough to make a helpless dog learn that it's responding now works. Samuels et al (1981) found similar results with rats. They were exposed to inescapable shock which interfered with the acquisition of shuttle-box, and bar-pressing responses later in the experiment.

Seligman goes on to describe further experiments involving human subjects that were confronted with uncontrollable laboratory situations, and he concludes: "Learned helplessness produces a cognitive set in which people believe that success and failure is independent of their own skilled actions, and they therefore have difficulty learning that responses work" (Seligman, 1975, p.38.)

Alfred S. Friedman (cited in Seligman, 1973) observed that negative cognitive sets crop up in both depression and learned helplessness. A subject's response to a problem or difficulty was likely to be an idea such as "I'll never be able to do this", "I can't do it", or "I'm blocked no matter what I do". This phenomenon of "self talk" or cognitive sets was observed even

though subjects were performing adequately on a given task. Seligman reports that these subjects were not only responding to the world in a pessimistic manner, but that pessimism was specific to their own actions. It is worth noting the implications this research on 'learned helplessness' has for sociological work on the effect environment and early experiences have on a child's competence at school.

(c) Emotional Disturbance

It has happened more than once that investigators have discovered striking maladaptive behaviours in their laboratories, and suggested that the behaviours represented some form of naturally occurring psychopathology. The experimental analyses of such phenomena were reasonably thorough, but the claim that they had analysed real psychopathology was usually unconvincing. Worse, they usually employed "plausibility" arguments that are very hard to confirm. How, for example, would one ever test whether Pavlov's dogs had anxiety neuroses, rather than compulsions or psychoses? To "prove" the existence of a specific type of pathology, a superficial validity argument of the form "this looks like a phobia" is insufficient.

Seligman (1975) proposes four relevant lines of evidence for asserting that two phenomena are similar:

- (1) behavioural and physiological symptoms,
- (2) etiology or cause,
- (3) cure,
- (4) prevention,

On a behavioural-and-physiological-symptom level of emotional disturbance Weiss, Glazer and Pohorecky (1974), Moot, Cebulla and Crabtree (1970) and various other researchers have shown that animals placed in uncontrollable situations have more stomach ulcers, defecate more, lose more weight, drink less, showed more signs of lassitude and weakness, and generally showed more signs of maladaptive behaviour than animals in control groups.

If Seligman's four ground rules are applied to relevant research with animals, then it can be argued that a state of helplessness leads to anxiety and depression in animals analogous to those states of anxiety and depression produced in man under similar circumstances (Seligman, 1975, Chapter 5).

Generalization

If learned helplessness is to be used as a basis for explaining such important human phenomena as depression and anxiety, it is necessary to find out if it occurs in a wide variety of species, including man. Otherwise it can be dismissed as a species-specific behaviour.

This criterion has been met; It has now been shown that debilitation of response initiation as a consequence of uncontrollable outcomes occurs in cats, rats, mice, birds, primates, fish, cockroaches and man (Seligman, 1975; Dweck et al, 1982; Teri, 1982).

In addition helplessness should not only be peculiar to shock, shuttle boxes or even just trauma, because if that were the case then uncontrollability would produce habits limited to circumstances like the ones under which helplessness is learnt, and would not adequately explain general widespread phenomena such as depression or anxiety that affects the entire repertoire of behaviour.

The question to be asked then is: "Does what is learned, that involves shock, transfer to traumatic experiences not involving shock?" Braud and his co-workers used a triadic design with mice. (Braud et al 1969). One group could escape shock by climbing up a pole, a second group was yoked, and a third group received no shock; all groups were then placed in an alley flooded with water and had to

swim in order to escape. The yoked group was poorest at escaping from water. The same results were found by Rosellini et al (1975); Amsel et al, (1966). Capsy et al (1981), also found that Learned Helplessness was generalizable between different stimuli, situation and response requirements. It therefore seems reasonable to assume that helplessness with respect to one aversive experience - shock - generalizes to other aversive experiences; for example, shock which is escapable by climbing a pole. This generalizes to other situations and response modalities; for example, swimming to escape, as in the Braud experiment.

Hiroto et al (1975), Buys et al (1982) and Boyd (1982) also found that helplessness in humans transfers to nontraumatic life aspects. They concluded that aversive helplessness retards the solution of nonaversive cognitive problems.

Very significant for the present study, however, were the findings by Hiroto and Seligman (1975) that helplessness was not necessarily caused only by the traumatic uncontrollable events, but that repeated non-traumatic uncontrollable events, (students were asked to solve insoluble calculations) could lead to the same outcome.

The psychological stage of helplessness produced by uncontrollability undermines response initiation generally. After receiving uncontrollable shock, dogs, rats, fish, cats and people make fewer responses to escape shock.

Furthermore, these motivational deficits are not limited to shock or even noxious events generally. Aggressive action, escape from frustration and even the ability to solve anagrams are undermined by inescapable aversive events.

Helplessness and Anxiety

To explain how an organism becomes anxious in a situation that is geared to produce helplessness it is necessary to explore concepts that are closely related, namely *predictability* and *control*.

Predictability

The distinction between fear and anxiety has already been made in the previous chapter, where anxiety was defined as "... the chronic fear that occurs when a threatening event is in the offing but is unpredictable" (p.4).

The question then arises as to how the unpredictability of an event causes anxiety? The mechanism of this relationship is most effectively illuminated by what is called the *safety-signal* hypothesis (Seligman, 1975).

Consider a situation where the inhabitants of a city are warned by a siren of an ensuing air raid ten minutes in advance of the actual attack. Here, the

absence of the siren reliably predicts safety, or the absence of an attack. As long as the siren is silent people can relax and go about their business; when the siren is on, they would most probably be terrified, but at least they have a usable safety signal. When traumatic events are predictable, the absence of the traumatic event is also predictable - by the absence of the predictor of the trauma. When traumatic events are unpredictable, however, safety is also unpredictable: no event reliably tells the organism that the trauma will not occur and that vigilance can be discarded.

This is the essential aspect of the safety-signal hypothesis: if a traumatic event is likely to occur, people and animals will be afraid all the time, except in the presence of a stimulus that reliably predicts safety. In the absence of a safety-signal, organisms remain in anxiety or chronic fear. The safety-signal hypothesis has been tested in a substantial number of studies. Since these studies are uniform in their approach, the author will limit herself to the description of only one of them here (Seligman, 1968).

Two groups of hungry rats first learned to press a bar for food at a high rate. One group, "predictable", then received fifteen daily fifty-minute sessions during which three one-minute signals ended in electric shocks.

The "unpredictable" group received the same signals and shocks, but they were distributed so that the probability of shock was the same whether or not the signal was on. Food continued to be available by means of bar pressing.

The results were striking. At first the predictable group stopped bar pressing, both in the presence and absence of the signal. As they learned to discriminate between the fact that they were shocked during the signal, but not shocked in its absence, they suppressed their response only during the signal and pressed the bar for food in the absence of the signal: they showed fear during the presentation of the signal, but also no fear in its absence. The unpredictable group had no safety signal during which shock would not occur. They stopped bar pressing completely, both during the signal and during its absence, and never pressed again for the remainder of the 15 sessions. Huddled in a corner throughout each session, they showed chronic fear or anxiety-like behaviour. Unlike the predictable group, the unpredictable group developed massive stomach ulcers.

Control

It has already been shown that uncontrollability has a marked effect upon both humans and animals.

To illustrate this point further and to cast some light upon the possible interaction effect between control and predictability upon an organism, a single study will again be described.

J. M. Weiss (1974) has performed the most extensive sets of studies on ulceration, predictability, and control. In a study performed in 1971 he varied both predictability, and controllability of shock. Triads of rats were exposed to escapable or inescapable shock, or no shock; a wheel was present in the small chamber for all groups, but served as the instrumental response for only the escape-avoidance group. Shocks were either signalled, signalled after various intervals, or unsignalled. For the sake of simplicity, the second group will not be considered; the mean number of ulcers for each of the individual six remaining groups is summarized below.

Mean Number of Ulcers for Experimental and Control Groups

Escape groups

Signalled shock	2,0
Unsignalled shock	3,5

Yoked groups

Signalled shock	3,5
Unsignalled shock	6,0

No shock

Signal	1,0
No signal	1,0

From the results it is clear that stress is maximal when the animals were faced with both unpredictability and uncontrollability.

It is not known whether the state that results from unpredictable shock - which according to the previously given definition is a state of anxiety, is different from or merely a chronic version of the state of fear that occurs during predictable shock. Be it anxiety or fear, according to the safety-signal hypothesis more of it occurs with unpredictable than predictable trauma. This is because during unpredictable shock, anxiety occurs all the time; on the other hand, during predictable shock, fear occurs only during the signal for shock.

It has been observed in both man and animals that predictable noxious events are preferred to unpredictable ones, and controllable noxious events are preferred to uncontrollable ones (Seligman, 1975).

Being able to predict an aversive stimulus reduces anxiety. Also controlling (whether it be *actual* or *perceived* control) an aversive event reduces anxiety; when people administer outcomes to themselves, they are less upset than yoked subjects (Stotland and Blumenthal, 1964).

But it is possible that self-administration does this by providing very finely tuned predictability. Ultimately the problem of disentangling the effects of controllability

from predictability is very difficult to solve.

Recent work by Seligman and his co-workers, (Abramson et al, 1980) and by Dweck et al (1980; 1982) has high-lighted the complexity of the helplessness response in humans. Human behaviour can only be understood fully if the whole spectrum of human emotional, psychological and social needs are taken into consideration.

Overcoming Learned Helplessness

When a person or animal is faced with a situation the outcome of which is independent of his responses, he learns that he is helpless. This in turn (1) reduces the motivation to control the outcome; (2) interferes with learning that responding controls the outcome in subsequent situations where he has control; and if the outcome is traumatic; (3) produces fear for as long as the subject is uncertain of the uncontrollability of the outcome, and then produces depression (Seligman, 1975).

If the central problem in lack of response initiation is the expectation that responding will not work, cure should occur when *expectation* is reversed. This was confirmed by Seligman (1975) when he forced dogs to respond over and over by physically dragging dogs back and forth across a shuttle box, and thus showing them that getting to the other side turned off the shock. After repeated draggings all dogs began to respond on their own, and recovery from helplessness was complete and lasting. According to Seligman's analysis, cognitive change accompanies the behavioural change,

Relevance to the present study

As a result of the experimental work examined in the preceding discussion it is reasonable to conclude that the process of learned helplessness does contribute considerably to the anxiety states observed in man.

If this is accepted, then it suggests that it might be fruitful to apply the remedy which Seligman employed (to change the process of learned helplessness in his dogs) to people who suffer from persistent debilitating anxiety.

Seligman supplied his dogs with an instrumental response to avoid shock and then provided repeated opportunities to prove that this response was successful. It is significant however that it was not enough only to supply an instrumental response.

Something in addition had to be done to ensure that learning takes place, in the language of the cognitive behaviourists, for cognitive restructuring to take place. The dog had to learn that it could affect the outcome of the events and also had to unlearn its cognitive structure of helplessness, and replace it with a cognitive structure of resourcefulness or competence.

The same line of reasoning was followed in this study. An attempt was made to teach anxious subjects a coping

response, relaxation training, and then also to provide a situation where the application of this skill could repeatedly be exercised in a laboratory situation, with the aim of facilitating cognitive structures to change from learned helplessness to learned resourcefulness as feedback was supplied to the subjects regarding their efficiency in applying their skills.

As will be shown in the next chapter, one's appraisal of oneself fluctuates with one's appraisal of the efficiency with which one is able to control the environment. Stated in a different way: People tend to think highly of themselves if they are successful in applying their skills to control the environment and vice versa. Lack of the ability to exercise control would then lead to poor self-esteem or a negative self-concept. More of this in the next chapter, however, where it will be indicated how a self-concept is formed and the forces that are active to influence it.

CHAPTER THREE

SELF-CONCEPT

The terms "self" and "self-concept" must be seen as theoretical constructs which serve to explain and understand human behaviour. When these constructs are used indiscriminately it may lead to what Guilford (1959) has termed "animism - the-little-man-within-the-outer-man idea which is quite foreign to science" (p.27). In other words these constructs cannot be interpreted in absolute terms as if they have a separate existence; they form part of a larger whole which can be termed "personality".

For an understanding of the terms "self" and "self-concept" the author finds the description provided by Meador and Rogers (1973) enlightening. They propose that "... these terms refer to the organized, consistent, conceptual Gestalt composed of perceptions of the characteristics of the "I" or "me", and the perceptions of the relationships of the "I" or "me" to others and to various aspects of life, together with the values attached to these perceptions. It is a Gestalt which is available to awareness though not necessarily in awareness. It is a fluid and changing Gestalt, a process, but at any given moment it is a specific entity which is at least partially definable in operational terms by means of a

Q-sort or other instrument or measure. The term self-concept is used when we are talking of the person's view of himself" (Meador and Rogers, 1973, p.134).

Importance of Self-Concept to the present study

Although changes in clients' self-concepts have been demonstrated time and again in research on traditional dynamic forms of psychotherapy (Meltzoff and Kornreich, 1970), these changes have received relatively less attention in research on behavioural techniques. There is, however, a growing body of evidence that suggests these self-concept changes follow from, or even precede, changes in the targeted behaviours themselves, and that these self-concept changes may also have important consequences for maintaining and extending the effects of behavioural treatment. (Feinbert et al, 1982; Winefield et al, 1981; Pasahow et al, 1982; Dweck et al, 1982; Damsteegt et al, 1982).

A number of investigators have reported changes in clients' self-concepts as a function of successful behavioural treatment. Using operant techniques with children, for example, Wahler and Pollio (1968) and Krop, Calhoon and Verrier (1971) found that specific changes were accompanied by positive changes in their subjects' self-concepts, and Murray and Jacobson (1971) have reported similar observations. Wengler et al (1982) observe that the higher a person's self-concept the more confidence he has in his ability to predict a future event. Gelder et al (1973) demonstrated that subjects who had been exposed to flooding treatments rated the concept of self higher on the potency and activity

dimensions of a semantic differential measure than did desensitized or untreated subjects. Katahan, Strenger and Cherry (1966) found that a combined desensitization and group counselling treatment was associated with improvement in general life problems such as psychosomatic complaints and negative feelings about self. Ryan and Gizynski (1971) reported that subjects exposed to a variety of socio-behavioural techniques often experienced important changes in their feelings about themselves and others.

There is also some evidence to suggest that these self-concept changes precede changes in the targeted or other troublesome problems. Using a self-reinforcement technique, Rehm and Marston (1968) found that positive changes in the self-concepts of college men with social anxieties were subsequently accompanied by anxiety reduction and increased approach behaviour. In addition, Lazarus (1971) has implicated self-concept changes in the successful maintenance and extension of gains achieved in therapy. In reviewing his previous clients, he concluded that those for whom gains were best maintained were the ones who had evidenced increased self-esteem in addition to the increased range of interpersonal and behavioural skills. Later, in the context of discussing one of his previous cases in greater detail, Lazarus concluded that if long-term therapeutic benefits are to be achieved

in behaviour modification it is necessary for the therapist to facilitate changes in negative self-concepts. It may be, then, that successful behavioural treatment instigates a cycle of change in which gradual modification of the targeted problem results in increased feelings of personal success and mastery and that these feelings in turn facilitate increased approach behaviour and skill-building, with renewed feelings of success and enthusiasm, and so on.

Self-concept changes following treatment with behavioural methods may have important theoretical, as well as practical implications. For example, the self-concept represents an important set of cognitions, and cognitive changes have been the subject of considerable attention in recent behaviour therapy research and theory (Bandura, 1977; Doerr et al, 1982; Woodward et al, 1980). Cognition changes may mediate changes in target behaviours or they may reflect generalization effects along cognitive, rather than peripheral, lines. The study of self-concept changes can therefore have implications for understanding both the role of cognitions in behaviour therapy and the ways in which generalization does or does not occur in such treatment.

Theories of Self-Concept

The psychological literature on the theories of self-concept is vast. It was deemed unnecessary by the present author to review previous theories singly because of the fact that the central themes had been incorporated into a comprehensive model proposed by Purkey (1970).

Purkey

Purkey arrives at a composite definition of self-concept, by taking those theories of Lecky (1945), Rogers (1951), Jersild (1952) and Combs and Snygg (1959) into account (Purkey, 1970).

He states that the self is "A complex and dynamic *system of beliefs* which an individual holds true to himself, each belief has a corresponding value" (Purkey, 1970, p.7). He further states that this self-concept is *organized* and that it is *dynamic*.

When speaking about the self-concept as being organized, he distinguishes between the following organized qualities:

- (a) Stability: the total self is made up of sub-sections each of which is fairly well organized. These sub-sections or parts represent beliefs that a person may hold about himself. These beliefs may concern

roles that a person fulfills such as South-African, white, husband, doctor, etc., or may concern *attributes* such as ugly, strong, tall, friendly, honest, stupid, etc.

Purkey states that a person has countless beliefs about himself, some more significant than others; significance being determined by the group to which an individual belongs and its values. The more significant a certain belief is for the individual the more resistant it is to change.

(b) Negative or Positive: the second organizational feature of the self is that each of the smaller concepts in the total system of the self has its own generally negative or positive value. Thus in South Africa, being a Black might be very close to the individual in terms of actuality, but could be valued negatively by the experiencing individual due to the group to which he belongs. This would affect his self-esteem negatively. Lobitz et al (1979) discuss how depressed people tend to reinforce their cognitive state with negative self-expectations, low self-evaluations and an inability or reluctance to reward themselves.

(c) Success and Failure: the third organizational quality of the self is how success and failure is generalized throughout the entire system of self. Diggory, (1966) noted that when one specific ability was important and highly rated by the individual, a failure in terms of that ability lowered

the person's self-evaluation of other, seemingly unrelated abilities, and thus also of his self-concept (i.e. the value that is placed upon the self is lowered). Conversely, success in terms of an important and highly rated ability raises the self-evaluation of other abilities.

(d) Uniqueness: The final organisational quality of the self is that it is unique. No two people ever hold the same sets of beliefs about themselves.

Of interest to the present study is the fact that Purkey and theorists such as Rosenberg (1965), believe that the self-concept can be influenced not only through failure and success, but also as a result of the presence or absence of certain attributes such as ethnicity, length of residence, and socio-economic status.

Although much of what Purkey states seems "sensible", it must however be borne in mind that many of the theories which he borrows from are speculative, rather than experimental in nature. As the approach of this study is behavioural-experimental, empirical verifiable evidence will be presented to support a somewhat different view of the self-concept. The forerunner of this approach was Stanley Coopersmith (1959, 1967).

Coopersmith

Coopersmith developed the theory that there are four major factors contributing to the development of self-esteem:

- (a) successes;
- (b) values;
- (c) aspirations;
- (d) defenses

"The process of self judgement derives from a subjective judgement of successes, with that appraisal weighted according to the value placed upon different aspects of capacity and performance, measured against a person's personal goals and standards, and filtered through his capacity to defend himself against presumed or actual occurrences of failures" (Coopersmith, 1967, p.242).

(a) Successes:

In his research Coopersmith discovered that generally accepted public notions of the potency of success are wide off the mark. Self-esteem is only weakly related to social status, and not at all related to physical height or attractiveness. Similarly, self-esteem has no strong connections with the indices of material wealth, education and achievement.

These findings are surprising as they are among the major foci and motives of contemporary Western life.

He states that it is from a person's actions and relative position within this frame of reference that he comes to believe he is a success or failure, and not in the far broader and more abstract context of general socio-cultural standards.

(b) Values:

Aronson (1972) proposed that people weigh most heavily those areas in which they tend to perform well, and attach little significance to their mediocre performance in other areas. Such a weighting would have the most enhancing consequences since, he points out, everybody could freely select and value those areas in which they excel, resulting in everybody having high self-esteem.

Such conditions of free value selection do not in fact prevail, since Coopersmith discovered that persons at all levels of self-esteem employ similar standards to judge their worth. Although individuals are theoretically free to select their values, the general social norms of one's group become internalized as self-values, so that self-judgements are made in regard to more private, independently-derived standards. Williams et al (1982) defines these social factors more precisely by investigating the interaction between perceived difficulty and the importance attributed to a task.

(c) Aspirations:

One would assume that persons with low esteem would lower their aspirations. In doing so it could be expected that their esteem would rise. Thus, individuals with low self-esteem are aware of a considerable gap between **aspirations and performance; it is this gap** which results in negative self-appraisals. Coopersmith's results, however point out that one must make a clear distinction between the goals that are socially espoused and goals that persons set for themselves. Individuals with varying self-esteem do not tend to differ in the public goals they espouse, even though they may differ in the personal ideals they set themselves. Coopersmith found that they will select much the same occupational levels and strive for the same targets. However, persons with high self-esteem generally concede they are closer to their aspirations than are the individuals with low self-esteem who have set lower goals. Persons with low self-esteem are as desirous of success as those with loftier esteem, but they are less likely to believe that such success will occur. Coopersmith suggests that their pessimism is an *expression of anticipated failure*, which in itself decreases motivation, and probably contributes to the occurrence of such failure.

(d) Defences:

Coopersmith points out that in the same way that "facts" are not necessarily seen and weighted in the same light by different individuals, so will their interpretations vary in accordance with the individual's characteristic ways of handling distressing ambiguous situations. He shows that people who have defences that are effective, varied and flexible, are able to reduce personal distress related to anxiety without isolating themselves from their inner experiences or the external environment. People with positive self-attitudes apparently start from the initial position of assurance that they can deal with adversity - such ideas in themselves being defences. Coopersmith's findings strongly suggest that children with low-esteem are more likely to display distress and anxiety, (and are less able to deal with threats when they do arise) than children who think more highly of themselves. Harris et al (1981) discuss how the self-views held by his sample of college students affected their life stresses and were predictive of serious illness.

If the reader refers back to the chapter on "Helplessness" (p.20) it will be clear that according to Seligman's analysis, anxiety results when there is some cognitive content as to whether or not an organism has the ability to effect change in certain events. This is in fact very much what Coopersmith seems to indicate, namely, confidence in one's ability to control certain events (high self-esteem) will have an effect on whether or not anxiety will occur.

The remarkable similarity between these viewpoints provides a potentially most useful comparison between two disparate fields of psychology, and motivated the author's choice of her two dependent variables in this study.

Competence : The experimental viewpoint of Self-Esteem

The "Competence Model" bears a marked resemblance to the "Learned Helplessness Model". It was proposed by Wiggins *et al* (1971), and like the Learned Helplessness Model it is based upon an experimental approach.

To summarize: Incentive learning about outcomes, and responses that will obtain them, is necessary to provide an organism with the motivation to be goal-directed and purposeful; incompetence in its most extreme form exists when one has learned that one is helpless. The degree of instrumentality versus helplessness of an organism is a dimension based on experience. Competence is the capacity to control one's world; incompetence is a state of helplessness in which the organism is dependent on the fortuitous events of the situation and the whims of others. The feelings, behaviours, and values of competence develop from the learned relationship about the probability that outcomes depend on one's efforts. The underlying notion is that of the instrumentality of the self.

Perceptual Processes

Power, ability, and success are important requirements for gaining instrumentality. When one has power, one is clearly in a position to control one's world, and is thus instrumentally responsible for things that happen. Similarly, the fruits of success give physical evidence of one's instrumentality. However, one must perceive one's behaviours.

Most self-perceptions of one's instrumentality involve comparisons between and among individuals. We must perceive how we stand relative to other people. The self-perceptions of one's competences may be more or less accurate, just as may the perception of some physical stimulus. With most social evaluations of such qualities as wittiness, degree of charm, beauty, cleverness, and so on, absolute judgements and standards are impossible. Thus there is room for disagreement and some unreliability when such judgements are made. One consequence of a poorly defined criterion is that different values will be placed on the same stimulus by different people, or by the same people on different occasions.

Higher Processes

It is in terms of higher processes that the concept of the instrumentality of the self makes the most sense. An individual's cognitive structures provide not only the dimensions of reasoning, planning and expectation, but also a set of concepts for viewing one's self. 'Self' consists of the conscious views a person has of his instrumentality. These views, or dimensions, indicate to him where he will succeed and where he will fail. These dimensions provide for the conscious choices and decisions he makes, and for his sense of self-direction and personal freedom. Our felt competences as defined by our cognitive structures constitute the *self* as we experience it subjectively.

The instrumentality of self is the basis of a self-evaluation of one's competence. The instrumentality must be cognitively organised if it is to serve as a guide for future behaviours. The question of interest is then :
How does such self-evaluation come about?

According to Wiggins and his co-workers, (1971), the two factors which influence the evaluation of one's self, are *power* and *ability*. The person with power over other individuals is capable of behaving in ways which produce desired outcomes. The powerless person has little control over the rewards or punishments he experiences.

The powerful individual is in a position to see himself as an effective instrument and accordingly has a high self-evaluation. Low self-evaluation and self-concept may result from powerlessness, a state in which the self is not instrumental in producing desired consequences, or controlling the events of the individual's life.

In a similar way, high ability permits the individual to operate on his environment in a way that produces consequences he desires. Low ability reduces the opportunity for the self to be seen as an effective instrument.

Ability is a hypothesis made about the self, inferred from empirical observations. To illustrate : we note that a person can perform a given task in a period of time or on a number of trials. When we then say he has a certain amount of ability, evidenced by the circumstances under which he accomplished the task, we are merely making a prediction of what he can do on a future task. A specified ability represents a prediction, or hypothesis, of what we may expect an individual to do in certain situations, or what he may expect of himself. One's self-evaluation is closely related to one's level of competence. The competent individual is one who has control over his environment and has a correspondingly high self-evaluation (Wiggins *et al.*, 1971).

One of the most important recent contributors to the field of self-concept is Bandura (1977), who has developed the concept of self-efficacy. According to Bandura this is the quality which influences how much effort a person will invest in a task and

for how long he will persist. The strength of an individual's efficacy determines whether he will attempt a task at all, and thus whether there is any opportunity for his efficacy to be improved by his experiencing success.

Experimental Evidence

How does an individual learn to make self-evaluation?

Diggory (1966) has found that improvement of performance over a series of trials did not guarantee that the individual would be successful with respect to the goal towards which he is striving. He further states that people sometimes act as though they expect to succeed - or to fail - before either outcome is certain. As Diggory notes: "Many a person quits in advance of the final proof of his failure, under circumstances that lead us to believe that the only basis for his quitting is the expectation that he will fail. His performance may have improved steadily, and may now be not far from the minimum standard demanded of him, but he quits. Another man, in apparently identical or similar circumstances, continues to work diligently toward the goal. Why does one quit and the other continue?... A plausible answer is that the two made different estimates of their probability of success. The one who quits estimates his probability of success too low to justify further attempts; the other estimates his probability of success high enough to encourage himself to go on working". (p.127).

Diggory designed an experiment where subjects could observe the rates of their success relative to an imposed deadline for each response. The performance of the subject was

however controlled by the experimenter who produced false information about the subjects' actual level of success. The question Diggory wanted answered was: What happens to a person's self-evaluation and actual performance level under various feedback about performance?

The results showed that in situations where reported performance rapidly approached the goal, subjects had a high self-evaluation (i.e. they estimated probability of success as high). Under such conditions subjects also exhibited a high level of actual performance; they were involved in working on the task. By contrast, low self-evaluations occurred when reported performances were low and the subjects were not reaching the goal rapidly enough within the time period prescribed by the deadline. Under such conditions, the opposite relationships held: actual performance was poor, and subjects tended not to exert so much effort as the subjects did under high self-evaluation conditions.

The conclusion is clear: under conditions of success a person will work harder and remain involved, but under conditions suggesting imminent failure his self-evaluation is low, he tends to give up, and his performance is poor.

It has already been shown how unpredictability and uncontrollability operate to produce anxiety. If this hypothesis is accepted, it then follows that when a person experiences anxiety, a strong possibility exists that he is experiencing a situation of uncontrollability and

hence inadequate instrumentality of the self. If a study could be done which showed that highly anxious people have low scores on self-esteem measurements, this would provide additional credibility to the "experimental viewpoint of self-esteem", which states that a person judges his worth by his actions - positive when successful and negative when failed.

Such a study has in fact been done by Miller (1972). Results of this study indicate that a correlation of $-.65$ exists between ratings of the self-concept and ratings of trait anxiety. Further data analyses indicated that 81 percent of those students having trait anxiety scores of above the 70 percentile level had self-concept scores below the 30 percentile level. This trend became more pronounced as the level of anxiety increased. When the level of anxiety increased to the 90 percentile level all self-concept scores were below the 30 percentile level. These findings suggest that anxiety scores above the 80 percentile level predict level of self-concept with a high degree of accuracy.

Relevance to the present study

It would be in accord with the proposed theories of self-concept and existing data if one were to predict that if an anxious subject's repertoire of instrumentality were to be improved, competence would be increased as well.

A measure of control would be provided which in turn would terminate a situation of helplessness, and would lead to a reduction of anxiety and an increased self-evaluation of instrumentality of self. This would in turn lead to a more favourable appraisal by the individual of himself and would therefore lead to a more positive self-concept.

The following three chapters will deal primarily with relaxation as an instrumental response and ways of improving the quality of this response. It might seem remarkable that the efficiency of an instrumental response can be increased simply by consciously knowing that one has such a response at one's disposal and could use it; however, there are certain strong indications that this is the case, as will be shown in the following chapter on self-control.

CHAPTER FOUR

SELF-CONTROL

Traditionally, control in the behaviour modification paradigm has been exercised through some external agent or agents. An example of this is the fact that attempts at behaviour change for children have typically been conducted by training parents in the appropriate reinforcement strategies.

Recently, however, there have been efforts to expand the behaviouristic model so as to deal with the "private events" which have traditionally been emphasized by non-behaviouristic theories. Current discussions of behaviour modification include a number of topics which several years ago would have been taboo among many behaviourists. These topics include terms such as the following: thought stopping, covert desensitization, self-control, self-regulation, self-reinforcement, etc.

The main reason for this change in trend seems to be that the traditional behaviourists have been severely criticized of operating on the assumption that man is a linear, input-output system, a simple mechanistic device that is not affected by its own output. While it was originally assumed that a normal subject's

behaviour is exclusively under the control of external agencies, it became evident that a great deal of normal behaviour is under internalized control and independent of external rewards and punishments. Thus Goldiamond's (1965) formulation that behaviour is a function of the environment, viz. $b = f(x)$, takes on an added dimension in that a second term emerges, viz. $x = f(b)$ - the environment is a function of behaviour. Since the environment can be viewed as a function of the individual's behaviour, it can be seen that the individual exercises considerable control over his own personal destiny. This provided the clue to progress from external control of behaviour to the point at which the subject controls his own behaviour in an adaptive fashion. Behaviour therapists had been stimulated to search for techniques by which the individual can assume major responsibility for effecting response changes; for only if the patient himself can master control over his own behaviour, and over his environment can therapy be expected to transcend the specificity of the traditional behavioural therapeutic approaches, and provide a consistent coping strategy across situations.

Working definition of Self-Control

Self-control can be viewed as a process through which an individual becomes the principal agent in guiding, directing, and regulating those features of his own behaviour which might eventually lead to desired positive consequences.

Typically, the emphasis in self-control is placed on those variables "beneath the skin" which determine the motivation for change. It is equally important to realise that environmental influences have played a vital role in developing the unique behavioural properties of the self-control sequence. Thus, it is assumed that self-control is a skill learned through various social contacts, and that the repertoire of effective self-control responses is gradually built up through increased experimentation with a complex environment. Once the basic self-control information and techniques have been acquired, however, the environment does not automatically release the form or content of the self-control behaviour. Rather, a certain degree of judgemental direction is required, whereby the individual himself must formulate a plan of action, test the efficiency of the personal control operation used, and appraise whether the performance and its outcome have met internalised standards of competence.

Goldfried and Merbaum (1973) point out that attempts at self-control usually appear when the smooth execution of normal response chains are inadequate to cope with current internal or external demands.

Goldfried gives a concise description of self-control when he states:

"... our definition of self-control includes the following points:

1. A prerequisite of self-control is that it is the individual himself who determines his own special goal or outcome to be achieved. This is not to say that he may not be influenced to adopt a particular goal. In the final analysis, however, the choice remains an individual matter.
2. We assume that strategies for self-control must be deliberately and consciously arranged to reduce the frequency of the unacceptable target behaviour. These strategies may include various degrees of personal self regulation, or may involve the enlisting of environmental support to enhance the attempts at self-control. Regardless of which strategy is employed, a necessary condition is that the person must be able to verbalize his goal, and to specify each of the several steps he will take to alter his problematic behaviour.

3. We view self-control as a functionally defined concept. That is, whether or not one has demonstrated self-control is determined not so much by procedures employed as it is by the consequences of the action taken.
4. It is our contention that self-control cannot be regarded as a global personality construct. Instead, self-control may more appropriately be viewed as referring to a specific response, or perhaps class of responses, relevant to the alteration of certain maladaptive behaviours.
5. Finally, it is assumed that self-control does not emerge from any innate potential of the individual, but is acquired through experience, whether it be trial-and-error or more systematic learning."
(Goldfried, and Merbaum 1973, p.13).

The Self-Control Model in Practice

The influence of self-control procedures is clearly noticeable in recent behaviour therapeutic practices. With this approach behaviour therapy has entered the frame of reference of the traditional therapies, in as far as safe-guarding the client from future "relapses" is concerned.

Until very recently, this was not the case. For many years the behaviour therapist concentrated exclusively on removing the maladapted behaviour present in the individual. He did not, to any extent, attempt to make the individual less susceptible to the development of other maladaptive behaviour which might occur in the future; Nor was the client provided with any means of eliminating such behaviour without the aid of the therapist in the future.

Psychoanalysis and client-centred therapy, however, have always had this client independence as their aim. The major goal has always been the elimination of undesirable behaviour in the client to obtain a measure of control over his own behaviour, without the continuing aid of a therapist. In order to obtain this goal it was, and still is, essential for the therapist to be physically in the presence of the client. One of the advantages of a self-control technique is that if such a technique is successfully learnt, the client then functions as an independent agent, in the absence of a therapist, and without his aid.

Thoresen and Mahoney (1974) discuss the importance of making a distinction between the action to be controlled and the self-controlling action. The latter will only persist if it is reinforced in some way, and it brings about positive changes. Thoresen and Mahoney present three general defining characteristics of self-control; (a) Two or more alternatives must be present, which presumes an element of free choices. (b) There is usually a conflict between the consequences of the alternatives. (c) Self-controlling actions are usually maintained or prompted by long-term external consequences.

Self-Controlling Responses

In order to achieve self-control, the individual can make use of several types of responses, namely, self-reinforcement, self-punishment, cognitive modification, operant conditioning and reciprocal inhibition. The last method is the one employed in this study, but in order to give a better understanding of the scope of self-control all the other techniques will be discussed briefly.

Self-Reinforcement

The study of self-reinforcement has its empirical roots in numerous observations that indicated that human behaviour can be self-maintained in the absence of external reinforcements.

Self-reinforcement of behaviour can be overtly administered by the individual to himself (e.g. a subject rewards himself by allowing himself to watch a television programme upon completion of a certain task), or it can be administered covertly in the form of positive internal verbalizations concerning the self, (e.g. when an individual praises himself covertly for the successful completion of some task).

Several studies (Bandura, Grusec and Menlove, 1967) have demonstrated that the administration of self-rewards are subject to control by the same training variables that govern other overt responses, and that covert self-reinforcements are considered to have the same influence on behaviour as have overt self-reinforcements (Meichenbaum, 1977).

In this study no attention was explicitly directed towards self-reinforcement, because it was accepted that the successful reduction of anxiety would have an intrinsic reward for the subject, and as such it would guarantee the self-maintenance of the coping response.

Self-Punishment

The self-infliction of aversive consequences has been fairly well investigated in the applied therapeutic setting. Similarly it can be self-administered either overtly or covertly.

Cognition Modifying Responses

Several studies are quoted by Meichenbaum (1977) to illustrate the fact that both children and adults with maladaptive behaviour patterns seem to use a variety of maladaptive anxiety-engendering self-statements,

anger arousing self-statements, or task irrelevant self-statements. Therapy consists of making the client aware of the presence of these self-statements which mediate maladaptive behaviours, and then training them to produce incompatible self-statements and behaviour.

Apart from the fact that this approach forms an inherent part of the semantic therapies, such as that of Ellis 1962, it has also been incorporated into a "treatment package" by Meichenbaum, (1977). This so-called "treatment package" consists of several stages of treatment for clients, involving cognitive reorganization, relaxation training and role playing, and is referred to as the procedure of "Stress Inoculation Training". The results obtained in the area of anxiety reduction are encouraging, but at the present stage it is not clear which phase constitutes the active ingredient in the treatment.

Auxiliary Self-Control Responses

Studies concerning auxiliary self-control responses are based on two different paradigms: (a) Operant Conditioning and (b) Reciprocal Inhibition.

Operant Conditioning: Essentially, these strategies involve the association of undesired responses with stimuli that are gradually reduced in frequency. Simultaneously, desired responses are linked to stimuli whose frequency is systematically increased. This rationale was derived from laboratory research demonstrating that the probability of a response is dramatically influenced by the presence or absence of stimulus cues previously associated with that response.

Self-regulation based on stimulus control techniques were first introduced by Ferster, Nurnberger and Levitt (1962), who outlined their feasibility for self-managed weight control. They describe several methods, and illustrate them by examples of their application to obesity.

- (a) Ferster suggests the *interruption* of the chain of responses leading to the undesirable behaviour. He recommends an extension of the chain to such a length that the disposition to begin the chain is weakened, and interference is thereby facilitated. In trying to control eating behaviour, for example, an individual can arrange to buy food on a daily basis; he can buy food which requires a great deal of preparation; or he can arrange for certain behaviours to occur in other ways prior to eating.

- (b) The chain can also be broken by designing simple conditions to precede the final behaviour. The client is advised for instance, to swallow food in his mouth completely before putting the next mouthful on his fork, or to wait a few seconds between mouthfuls.
- (c) Ferster teaches the client how to gain control over the stimuli which are present at the time the undesirable behaviour occurs. By ensuring that the undesirable behaviour does not occur in the presence of a wide variety of stimuli, the individual can manipulate stimulus control. For example: the habit of eating while watching television may mean that the act of watching television triggers the desire to eat. In this case, the therapist should advise that eating should only take place in a situation geared exclusively to eating, such as mealtime. The self-control in this case is the performance of the undesirable behaviour in a reduced stimulus situation.
- (d) Another method of environmental engineering, proposed by Ferster, is that of establishing responses which are compatible with the responses which the client wants to control. Activities such as going for a run will then be incompatible with the client's urge to eat.

Reciprocal Inhibition Methods: Wolpe (1958), formulated the reciprocal inhibition principle as follows: "If a response antagonistic to anxiety can be made to occur in the presence of anxiety-evoking stimuli so that it is accompanied by complete or partial suppression of the anxiety responses, the bond between these stimuli and the anxiety responses will be weakened" (p.71).

Although the cognitive behaviourist accepts the fact that anxiety is suppressed by the occurrence of physiologically incompatible states, he will not accept the automaticity implied by Wolpe's statement that "... the bond between these stimuli and the anxiety responses will be weakened," if such a "weakening" between stimulus and response were to occur it would more plausibly be the result of the client's re-evaluation of this so-called "bond".

In contrast to the earlier formulations of reciprocal inhibition, the cognitive behaviourist accepts *two* dynamic forces at work when this technique is applied. Firstly, a reduction of the anxiety response due to the presence of the relaxation response, and simultaneously with this, a cognitive restructuring wherein the client might make a reappraisal about the implied danger which the presence of the stimulus implies.

As stated previously, there is little clarity at present as to the primacy of either physiological incompatibility on the one hand, or cognitive change on the other. It seems certain, however that the traditional simplistic notion of automaticity has been ruled out.

Although reciprocal inhibition techniques were originally not designed as self-control techniques, literature does provide modifications in the clinical application of this principle in order that it may be used as a self-control technique.

The application of the reciprocal inhibition principle as a self-control technique implies that the client is taught how to introduce a response antagonistic to anxiety, in what for him are anxiety-provoking situations, in order to inhibit the anxiety reaction. Responses typically taught to clients are relaxation; a do-it-yourself version of desensitization, thought-stopping, covert sensitization and assertive training.

Therapeutic Effectiveness of Self-Control

A large number of studies have been reported which demonstrated the clinical effectiveness of self-control. Using a variation of thought-stopping (covert behaviour modification), Campbell (1974) halted obsessional thoughts in

a 12 year-old boy, about the violent death of his sister, while Weil (1973) treated an 11-year-old child's insomnia by teaching her self-relaxation, using a tape recorder. Self-control has also been demonstrated to be effective in the educational situation. Drabman, Spitalnik and O'Leary (1973) used self-control techniques to reduce exceptionally disruptive behaviour in a remedial class, while Bolstad and Johnson (1972) used self-control techniques to reduce the disruptive behaviour of a group of normal children. Schneider (1974) and Robin, Schneider and Dolnick (1976) have evolved a "Turtle Technique" for the control of disruptive classroom behaviour, which involves self-relaxation, as well as peer, teacher and self-reinforcement. In dealing with the problem of obesity, Harris and Hallbrauer (1973) showed that individuals who had maintained a weight loss after the actual programme, had continued to use self-control techniques. Beiman et al (1979a) argues in favour of the self-control techniques of progressive relaxation rather than pharmacological methods of controlling hypertension. Teri (1982) draws attention to the relationship between depression in adolescence and the level of control these adolescents perceived themselves as having over their environment and themselves.

The large body of research indicates that 'self-control' has been successfully applied to a variety of clinical and behavioural problems. The inclusion of this technique into the present study was prompted by the Goldfried and Trier

(1974) results, which indicated that relaxation training was successful, but it was even more so when developed as a self-control technique. Hutchings et al (1980) and Sweeney et al (1982) also support the premise that subjects must be actively involved, and must perceive themselves as being in control for the most change to take place.

The next chapter will deal more specifically with the Relaxation Response, techniques with which to elicit it, and also touch on the physiological processes involved.

CHAPTER FIVE

RELAXATION TRAINING

Benson, Beary and Carol (1974) describe techniques that have existed for centuries, usually within a religious context, which allowed an individual to experience "the relaxation response". They also quote frequent reference by writers and poets in the literature, concerning the acknowledgement of the existence of such a state. The application of these techniques to induce relaxation have, however, been practiced almost exclusively in the East until a few decades ago, within the Yoga and Zen traditions.

In the Western world today, there is a growing interest in non-pharmacological, self-induced relaxation states. Subjective and objective data exists which support the hypothesis that an integrated central nervous-system reaction, the "relaxation response", underlies the feelings of relaxation and calm that people experience when these various techniques of relaxation induction are applied.

The Physiology of the Relaxation Response

The relaxation response appears to be an integrated hypothalamic response which results in generalized decreased Sympathetic Nervous-system activity, and perhaps also increased Para-sympathetic activity. This response, termed the "trophotropic

response", was first described by Hess (1957), in the cat.

The trophotrophic zone is located in the area of the anterior Hypothalamus. It extends into the supra- and pre-optic areas, Septum, and inferior lateral Thalamus. The response is mediated by the parasympathetic nervous system, and electrical stimulation of this zone results in hypo-onadynamia of skeletal musculature, decreased blood pressure, decreased respiratory rate, and pupil constriction (Benson *et al.*, 1974).

Hess (1957), stated, "Let us repeat at this point that we are actually dealing with a protective mechanism against overstress, belonging to the trophotropic-endophylactic system and promoting restorative processes. We emphasize that these dynamic effects are opposed to ergotropic reactions which are oriented toward increased oxidative metabolism and utilization of energy" (p.49).

The ergotropic reactions of Hess correspond to the "emergency reaction" first described by Cannon, (1941) and popularly referred to as the "fight or flight response", and alternatively called the "defence reaction" by others (Hess and Brugger 1943).

To better understand the relaxation response, (the trophotropic response) a discussion of its counterpart, the fight or

flight response (ergotropic response) is appropriate.

The ergotropic zone extends from the anterior midbrain toward the hypothalamus. The response is mediated by the sympathetic nervous system. When the zone is electrically stimulated, it consistently produces dilation of the pupils, increased blood pressure, increased respiratory rate, and heightened motor excitability. Although at times one of these responses may be emphasized, Hess (1957) stresses that there are no foci that correspond to individual isolated responses, such as in the cortical motor zone. Rather, "In the diencephalon, we are dealing with a collective representation of a group of responses, which includes responses of the autonomic system, as they make their appearance in the form of synergically associated mechanisms" (p.36). Cannon reasoned that this integrated response prepared the animal for "fight or flight" when faced with a threatening environmental situation. Man also responds to threatening environmental conditions or to environmental situations which require behavioural adjustment, by a coordinated physiologic response which mimics that of the increased sympathetic nervous system activity of the fight or flight response (Gutmann and Benson, 1971).

The relaxation response in man consists of changes opposite to those of the fight or flight response. (See Benson *et al.*,

1974). During the practice of one well-investigated technique called Transcendental Meditation, the major elements of the relaxation response occur; decreases in oxygen consumption, carbon dioxide elimination, heart rate and respiratory rate. Systolic, diastolic and mean blood pressures remain unchanged compared to control levels. Rectal temperature also remains unchanged, while skin resistance markedly increases and skeletal muscle blood flow slightly increases. The electroencephalogram demonstrates an increase in the intensity of slow alpha waves and occasional theta wave activity. Lehrer et al (1980) found that subjects who had practised clinically standardized meditation reported more sensation of muscular relaxation, but they also exhibited hyperventilation. These results are consistent with those published by Davidson et al (1976) which suggest that meditation is a cognitive technique.

These changes are consistent with generalized decreased sympathetic nervous system activity and are distinctly different from the physiologic changes noted during quiet sitting or sleep. The changes occur simultaneously and are consistent with those noted by Hess (1957).

Techniques of eliciting the Relaxation Response

Autogenic Training

This is a technique which is widely used to induce the relaxation response, and thus has been used by Luthe and Schultz (1969)

and others to treat neurological, psychotic, neurotic and personality disorders.

Autogenic therapy is defined as "... a self induced modification of corticodiencephalic interrelationships",

(Benson *et al.*, 1974, p.41) which enables the lower brain centres to activate trophotropic activity. The method is based on six psychophysiological exercises devised by a German neurologist, H.H. Schultz, which are practised several times a day until the subject is able to voluntarily shift to a wakeful low-arousal (trophotropic) state.

The standard exercises are practised in a quiet environment, in a horizontal position, with closed eyes. Exercise 1 focuses on the feeling of heaviness in the limbs, and Exercise 2 on the cultivation of the sensation of warmth in the limbs. Exercise 3 deals with cardiac regulation, while Exercise 4 consists of passive concentration on breathing. In Exercise 5, the subject cultivates the sensation of warmth in his upper abdomen, and Exercise 6 is the cultivation of feelings of coolness in the forehead. Exercise 1 through 4 most effectively elicit the trophotropic response, while Exercise 5 and 6 are reported to have different effects. The subject's attitude toward the exercise must not be intense and compulsive, but rather of a quiet, "let it happen" nature. This is referred to as passive concentration and is deemed absolutely essential (Luthe and Schultz, 1969).

Hypnosis

Hypnosis is an artificially induced state characterised by increased suggestibility. A subject is judged to be in the hypnotic state if he manifests a high level of response to test suggestions, such as muscle rigidity, amnesia, hallucination, anesthesia, and post-hypnotic suggestion, which are used in standard scales such as that of Weitzenhoffer and Hilgard (1959). The hypnotic induction procedure usually includes suggestion (autosuggestion for self-hypnosis) of relaxation and drowsiness, closed eyes, and a recumbent or semisupine position (Barber, 1971). Following the induction procedure, an appropriate suggestion for the desired mental or physical behaviour is given. So far it has not been possible to find a unique physiological index which defines the hypnotic state (Barber, 1971). Physiological states vary the same way during hypnosis as they do during waking behaviour. Suggested states of arousal or relaxation are accompanied by either increased or decreased metabolic rates heart rates blood pressure, skin conductance, and respiratory rate, corresponding to the changes seen when these states are induced by nonhypnotic means (Barber, 1971) (i.e. the state before induction of the hypnotic trance). For example, a study by Whitehorn, 1932, reported that the control oxygen consumption value of 217ml/min was not significantly changed by hypnosis. However, subjects in

this experiment were trained to relax before control readings were taken. Therefore, hypnotic suggestion to relax produced no further change.

Progressive Relaxation

This procedure for inducing relaxation, was introduced as a potentially effective therapeutic procedure for various forms of tension and anxiety, with the publication of Jacobson's "Progressive Relaxation" in 1938.

The procedure consisted of a long programme in which the subject is asked to tense certain muscle groups in succession, and then to relax them immediately afterwards. The technique seeks to achieve increased discriminative control over skeletal muscles, until a subject is able to induce very low levels of tonus in the major muscle groups. Jacobson states that anxiety and muscular relaxation produce opposite physiological states, and therefore cannot exist together.

Progressive relaxation is practised in a supine position in a quiet room: a passive attitude is essential because mental images induce slight, measurable tension in muscles, especially those of the eyes and face. The subject is taught to recognise even slight contractions of his muscles so that he can avoid them and achieve the deepest degree of relaxation possible.

Perhaps because of the 50-200 training sessions recommended by Jacobson and maybe also as a result of the existing psychotherapeutic climate of the time, Jacobson's book made little impact. It was not until Wolpe (1958) modified the relaxation technique and incorporated it into systematic desensitization that the procedure actually achieved professional recognition.

Since 1958, this technique has undergone considerable evolution. It has been much reduced in actual content, and elements of Autogenic Training, Imagery and Hypnotic suggestion have been added to increase its ease of use. (Lazarus, 1971). However, recent work by Lehrer (1982) suggests that it may be a mistake to have reduced Jacobson's original programme, because much of its value lay in the exact format used by Jacobson.

Although no standard text of application exists for Progressive Relaxation, it generally consists of a combination of one or more of the following elements:

- (a) muscle contraction and relaxation;
- (b) auto-suggestion by the subject to induce further relaxation;
- (c) breathing exercises;
- (d) imagery;
- (e) focusing on either lightness or heaviness in the limbs;
- (f) focusing on increasing warmth of the limbs as relaxation increases.

Other methods of eliciting the Relaxation Response

A variety of other methods have been used to induce relaxation. The methods already mentioned have special significance in as far as the technique employed in this study borrows heavily from all three of these approaches.

Other methods of relaxation induction are Sentic Cycles, Yoga, Transcendental Meditation and Zen. The reader is referred to Benson *et al.*, (1974), for a description of these methods.

Application of Relaxation Training

Since anxiety is an arousal state characterized by sympathetic activity, and the relaxation response is a state characterized by parasympathetic dominance, it follows logically that if the latter state is induced in a subject it will tend to diminish the effect of the former.

Relaxation training has frequently been studied as a way of reducing anxiety. A majority of such studies employing relaxation-control groups have shown relaxation alone to be ineffective in reducing fear and fear-related symptoms. (Aponte et al 1971; Rimm et al 1970; Hutchings et al 1980; Glaister 1982). On the other hand, a few of these studies have found

significant fear reductions following training in relaxation (Denney, 1974; Freeling et al, 1970; Laxter et al 1970) and desensitization. (Ultree et al 1982). The difference between these two groups of studies lie in the emphasis placed upon the application of relaxation beyond the therapy setting. Jacobson (1938), who originally devised the progressive relaxation procedure currently used in most desensitization therapy, strongly advocated the application of relaxation to actual fear-provoking situations, and allotted time during therapy for clients to discuss these attempted applications. The combination of progressive relaxation with instructions regarding its application to various fear-provoking situations may constitute an effective procedure, whereas relaxation training alone may not be effective. It may therefore be necessary not only to teach people how to relax, but also how to implement it, and when to use it. Several studies - some of which had employed a relaxation/control group - have shown the superiority of relaxation training if it is used as an *active coping skill*, not only in terms of the effect on the specific situational-bound anxiety, but also in regard to the generalization to other arousing situations. (e.g. Aponte et al. 1971, Chang-Liang et al. 1976, Ryan et al 1976). Glaister (1982) surveyed the relevant literature over a twenty year period and concluded that relaxation training in isolation is less effective than real-life exposure. Hutchings et al (1980) and Sweeney et al (1982) also emphasizes the importance of relaxation training being in vivo.

Credidio (1982) considers that meditation is more effective than biofeed-back, because of the importance of cognition in self-control. However, in certain circumstances Blanchard et al (1982) contends that biofeed-back may be necessary with some patients. Sigman et al (1982) raised an interesting point when they suggest that progressive relaxation is not successful for controlling gastric acid because of the contradictory physiological systems involved.

The possibility that relaxation paired with instructions concerning its application may be an effective treatment was supported by Zeisset (1968) in a comparison of an applied relaxation procedure with systematic desensitization, attention-control, and no-treatment control procedures. The targeted fear in this study was interview anxiety. Applied relaxation and desensitization were found to be equally effective, and both brought about significantly greater reductions on a behavioural measure of interview anxiety than did the control procedures. Unfortunately, no relaxation-only group was employed in this study, making it difficult to determine which aspect of the applied relaxation procedure might have contributed to its effectiveness.

In another relevant study, Jacks (1972) compared traditional systematic desensitization with the self-control procedural modifications suggested by Goldfried (1971), in which acrophobic subjects in the self-control condition were asked to maintain an image and "relax away" any experienced anxiety. While subjects in both conditions did not differ in their actual performance on the avoidance post-test, only individuals in the self-control condition reported significant decreases in subjective

anxiety while in the criterion situation. Presumably, subjects in the self-control condition were making active use of their relaxation skills.

Goldfried and Trier (1974) compared the effectiveness of a standard relaxation-only procedure, an applied relaxation procedure, and a group-discussion procedure in reducing speech anxiety. Analyses of within-group changes indicated that the applied relaxation procedure generally produced greater changes from the pre- to the post- test than the other procedures. This was true of the speech anxiety measures, as well as indicators of anxiety in other situations. The finding that subjects in the self-control relaxation condition continued to improve even after termination of the training procedure, was interpreted as being consistent with the view that, like other learned skills, self-control improves with practice.

Chang-Liang and Denney (1976) subjected test-anxious subjects, who were high or low in general anxiety to one of four procedures; applied relaxation, relaxation only, systematic desensitization and no treatment. The effectiveness of each procedure, both in reducing test anxiety and in generalizing to other fears, was assessed with three measures of test anxiety and three measures of general anxiety. The results indicated that applied relaxation was more effective in reducing anxiety than both 'relaxation only' and 'no treatment' on two measures of general anxiety, and two measures of test anxiety, although significant differences between applied relaxation and systematic desensitization were limited to only one measure.

This seems to indicate that applied relaxation is equally effective to systematic desensitization in the treatment of specific situation-bound anxieties, but superior to any other known behavioural technique for the reduction of general or pervasive anxiety. This can be explained in terms of the fact that applied relaxation procedures are aimed at imparting a general coping skill with which the client may reduce anxiety whenever it is encountered. Accordingly, it follows that greater generalization of treatment effects might occur for applied relaxation than for the most focused treatments, such as desensitization. Furthermore, one might expect applied relaxation to be particularly valuable for dealing with individuals who initially show high levels of general anxiety.

Focus of this Study

The focus of this study, however, is to explore a method whereby applied relaxation training, and its application to pervasive anxiety, can be improved by providing repeated in vivo stressful situations where the subject could practise his newly acquired skills. Like Lehrer et al (1980), a "waiting list" control group is used. However, this is refined by having a second control group who have contact with the experimenter, but no relaxation training.

The present author predicts that training in an active coping skill would do the same, and would be even more effective in the development of a positive self-concept if it can be demonstrated to the subjects that they are not helpless, by providing a situation where their new instrumentality could be confirmed.

It has already been shown that the efficiency of the relaxation response, as an instrumental response for coping with anxiety, can be improved if it is used as a self-control technique. The following chapter will show how the addition of yet another technique - imagery - may further enhance the therapeutic efficiency of relaxation training.

CHAPTER SIX

IMAGERY

One of the oldest cognitive techniques employed for dealing with pain is distraction or attention diversion. A quote from the philosopher Kant, best illustrates this technique: "For a year I have been troubled by morbid inclination and very painful stimuli which from others' description of such symptoms I believe to be gout, so that I had to call a doctor. One night, however impatient at being kept awake by pain, I availed myself of the stoical means of concentration upon some different object of thought such for instance as the name of 'Cicero' with its multivarious associations, in this way I found it possible to divert my attention, so that pain was soon dulled Whenever the attacks recur, and disturb my sleep, I find this remedy most useful" (cited in Meichenbaum, 1977, p.171).

Many additional examples could be offered, illustrating the long history of cognitive techniques.

In 1936, Chappel and Stevenson reported a study with a group of peptic ulcer patients. These patients had been ill for some time and were admitted to a hospital for medication and dietary treatment. During this period, 32 patients were given in addition to their medication and special diet, a special type of group psychological treatment that consisted of training them to become aware of

their bodily processes and to use positive imagery by thinking about pleasant life experiences whenever they became aware of being anxious. The remaining patients (on medication and special diet only), were controls. By the end of a month, both groups were symptom free. After a month of medication, control patients were encouraged to broaden their diet - with the result that within two weeks, 18 of the 20 reported a full recurrence of symptoms. The remaining two patients had significant symptom return within two months. By contrast, the experimental subjects, who were receiving approximately six weeks of daily training in the use of Positive Imagery, were given freedom to eat anything. In a follow-up three years later, 28 of the experimental patients were located. Only two of the group had recurrences of symptoms comparable to their original lengthy history of severe peptic ulcers. Clearly, this method yielded a remarkable result in human benefit through the use of positive imagery.

A quarter of a century later, Lazarus and Abramovitz (1962), explored the possibility of the use of positive imagery with a group of young children for whom relaxation exercises had proven difficult to employ. They developed the usual hierarchy of frightening scenes, but also encouraged the children to develop scenes in which there were positive images that could be juxtaposed with the more frightening scenes in the hierarchy. The results obtained suggested that the technique had considerable potential.

Meichenbaum (1977) states that only recently have cognitive coping-strategy techniques been systematically explored in laboratories. Most of these studies have concentrated on coping responses to relieve pain. Two major types of strategies have been examined within the laboratory, namely, *imagery* and *nonimagery*. The imagery strategies include (1) imaginative inattention - ignoring the pain by engaging in "goal-directed fantasy" , which if real, would be incompatible with the experience of pain (Chaves and Barber, 1974); (2) imaginative transformation of pain - acknowledgement of the noxious sensations, but transforming or interpreting these sensations as something other than pain, of minimizing the sensations as trivial or unreal (Spanos, Horton and Chaves, 1975); and (3) imaginative transformations of context - the acknowledgement of the noxious sensations but transforming the context in which these sensations are received (Knox, 1972).

The nonimagery strategies includes (1) somatization - the focusing on the existence of bodily processes or sensations to the exclusion of other sensations (Bobey and Davidson, 1970); (2) attention-diversion via external distraction - the focusing on objects in the physical environment to the exclusion of noxious sensations (Kanfer and Seider, 1973); and (3) relaxation and controlled breathing (Bobey and Davidson, 1970). The use of imagery throws up difficulties because the strength and vividness of people's imagery varies considerably. However, it was considered worth using since it incorporates many of the advantages of meditation; that is, it stills the mind and focuses it on something. Gillespie et al (1980) question the value of using any such cognitive method, but Sirota et al (1982) found

imagery a useful technique for both subjective mood change and changes in facial muscle patterns.

Imagery and Pain

Discussing the phenomenon of natural childbirth and ways of dealing with the pain, Meichenbaum (1973) states that one's expectations concerning pain increases anxiety, which in turn fosters muscle tension leading to more pain and consequently more anxiety. He goes on to say that this cycle can be interrupted by the use of relaxation and imagery procedures.

According to Melzack (1973) the motivational-affective component includes the feelings the subject has while experiencing pain. Such feelings as *helplessness* and the *absence of control* exacerbate the painful experience. To counteract such feelings, he taught the subjects coping strategies which included the use of imagery. According to Melzack, the imagery relieved more pain the more detailed, involved and elaborate it was.

Relaxation Component

After reviewing the literature on desensitization, Rachman (1967) concluded that the major contribution of 'relaxation' to the desensitization process is a matter of mental, rather than physical relaxation. If Rachman's conclusion is correct, then the therapist could enhance the mental relaxation processes in desensitization, through instructions

to his client such as the following: "You can deepen the relaxation, and relax away feelings of tension by thinking silently to yourself of the words 'relax', and 'calm', as you relax. Think or *picture* these words to yourself as you slowly exhale. This is especially helpful between sessions when you practise relaxing, or whenever you feel tension and anxiety" (Meichenbaum, 1977, p.120).

Yates described a similar process under the title "association set technique" (1964). Essentially, this involved helping the client to relax by thinking of a soothing word, such as "calm", or a pleasant image. Clients were encouraged to rehearse concentrating on the key word or image, such as a peaceful landscape, while relaxed, and to summon up the word or image in disturbing situations to counteract stress. After Cautela (1966) taught clients to say to themselves, "I am calm and relaxed", especially in anticipation of a stressful situation, the clients reported that "in a while the mere words calmed them down". Kahn, Baker and Weiss (1968) used a similar procedure in the treatment of insomniacs.

Tomkins (1962, 1963), taught his patients systematic relaxation, and then developed for the patient very strong positive images that could be used to further enhance relaxation. The positive images which the patients produced,

were linked to natural scenes with numerous references to lying on quiet beaches and watching the waves of the ocean or lakes, being in peaceful woods, or watching the snow fall on a pleasant hillside. These positive images generally were not self-involving, a significant finding in view of recent research by Greene and Reyner (in Meichenbaum, 1973), who reported that images of a positive nature, and not body oriented, can have a significant effect in reducing pain produced by intense electrical stimulation.

From previous research it can be deduced that positive imagery enhances the effect of relaxation training, and that even by itself it might serve to reduce anxiety.

The primary reason for the inclusion of imagery in the experimental procedure was to enhance the effect of the relaxation exercises. On this level the effect of imagery would then be directed primarily at the emotional arousal component of anxiety. Wiggins (1971) and Seligman (1975) repeatedly imply that apart from the emotional arousal component, an anxiety reaction also consists of some form of cognitive activity.

Regarding the possible influence of imagery upon cognitive activity, the author proposes a brief description of the theory of anxiety discussed by Sarason (1975).

Sarason (1975)

Sarason (1975) presents a cognitive, social, learning interpretation of anxiety and negative self-evaluation. He accepts that an anxiety reaction consists of both emotional arousal and cognitive activity, i.e. appraisals, attributions and self-statements.

Anxiety is viewed as a type of self-preoccupation characterised by self-awareness, self-doubt and self-deprecation. These cognitive activities affect both overt behaviour and physiological reactions.

Sarason emphasizes that contrary to classical psychoanalytic theory, self-preoccupation and not an anxiety-drive, is of importance in the development of maladaptive behaviour.

Anxious self-preoccupation is then viewed as concern over one's inadequacies and shortcomings. The anxious person - it is stated - is concerned with any danger, threat or the inability to cope with them. This, however, does not mean that danger and threat necessarily cause anxious self-preoccupation. Self-preoccupation of any type is a function not only of objective life events, but also of the interpretation of those events by the individual. Whether self-preoccupation occurs depends on the skills a person has learned in coping with danger and threat. The anxious person is deficient in these skills.

If the reader refers to the chapters on "Helplessness" and "Self-Concept", it is apparent how near Sarason approaches the formulations of both Seligman and Wiggins. If Sarason's formulation of anxiety and self-preoccupation is accepted, then it can be hypothesized that if a person can be taught a technique whereby his attention is focused on something other than his own inability and his preoccupations with failure, then anxiety will be reduced, and also the negative impact of the cognitive activities or "internal verbalizations" will be reduced.

Irrespective of the dynamics involved when imagery is used, the fact is that it has been used extensively in conjunction with relaxation techniques in clinical practice for the reduction of anxiety, and it was for that reason that the author included this technique as part of the relaxation-training programme.

CHAPTER SEVEN

DESIGN OF THE STUDY

Rationale

It has already been noted that anxiety forms an integral part of psychopathology, and that it would be a worthwhile task to find a means of alleviating it. This study attempts to demonstrate that the phenomenon of anxiety is not a one-dimensional physiological response, but is accompanied and/or preceded by cognitive content of a specific nature, in which the individual views himself as helpless to effect change in his environment. As a result of this incompetence a certain cognitive set develops in which the person views himself in a negative light, and a poor self-concept is formed. The quoted research indicates that a very definite relationship exists between self-concept and anxiety level.

It was postulated that anxiety could be alleviated by teaching subjects an instrumental response to help them regain a measure of control over their environment.

It was also postulated that if the subjects could see that their response was effective it would lead to their reappraising their competence, and thus lead to the individuals developing a more positive attitude to themselves.

		MEANS		STD. DEVIATIONS	
		BEFORE (B ₁)	AFTER (B ₂)	BEFORE (B ₁)	AFTER (B ₂)
A ₁	No-Treatment Group	52,91	51,5	4,20	4,38
A ₂	Contact Group	52,91	51,5	6,37	6,35
A ₃	Relaxation Training Group	50,83	45,75	8,37	12,30
A ₄	Self-Control Training Group	49,75	42,5	7,78	8,19
A ₅	Application Training Group	51,08	44,42	11,34	6,89

TABLE 1

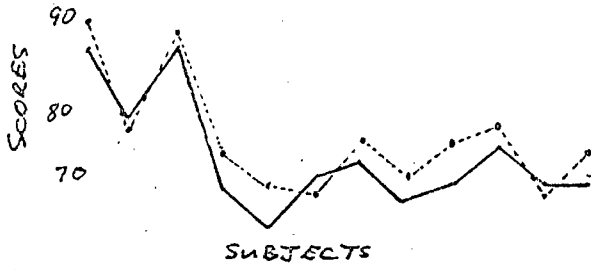
The Means and Standard Deviations for the IPAT:

Before and After Scores

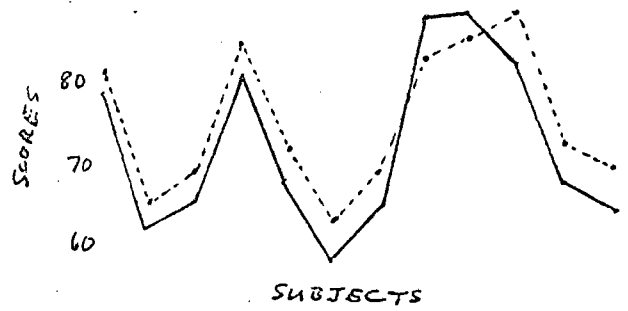
SOURCE	SS	DF	MS	F RATIO	PROBABILITY
<u>BETWEEN SUBJ.</u>					
A	729.9697	4	182.4924	1.7655	P>.05
SUBJ.W.G.	5685.0039	55	103.3637		
<u>WITHIN SUBJ.</u>					
B	572.0332	1	572.0332	22.6046	P<.01
AB	189.1348	4	47.2837	1.8685	P>.05
BxSWG	1391.832	55	25.3060		

TABLE II Summary ANOVA table for IPAT scores.

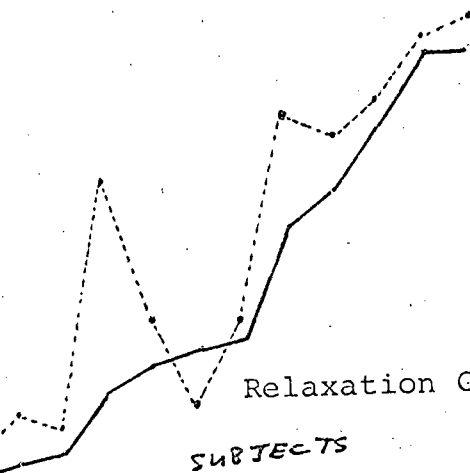
No-Treatment Group



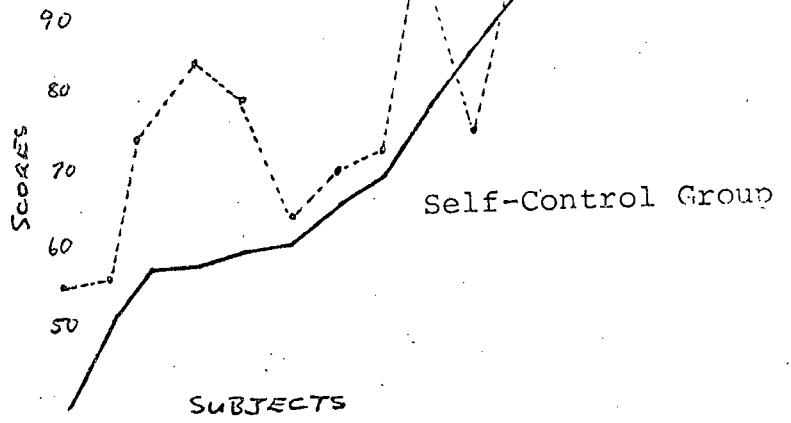
Contact Group



Relaxation Group



Self-Control Group



Application Training Group

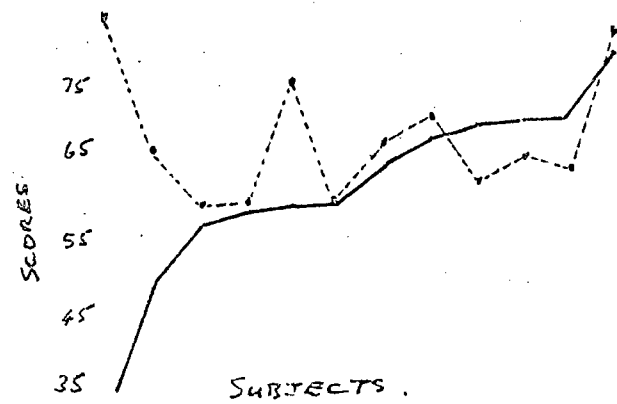


FIGURE II MSGO-1 SCORES

Key:
 — pre-training
 - - - post-training

It was decided to use two control groups and three experimental groups. The two control groups were considered necessary because Tasto and Suinn (1972), suggested that practice on a test may in itself cause subjects' scores to improve. This was controlled for by the use of the "No-treatment Group". This group was tested, and then retested two weeks later without any other contact with the experimenter. There is also the danger of a "Hawthorne effect", because of the attention given to the experimental subjects, irrespective of the experimental conditions. This was controlled for by the use of the "Contact Group". This group was tested in the same way as the rest of the subjects. Then during the following two weeks they had eight hours of contact with the experimenter. During these periods many aspects of anxiety and stressful situations were discussed, but no training or advice was given on how to cope with anxiety. This group was then retested at the end of the eight sessions.

All three experimental groups received the same training in relaxation over a two week period. This involved eight by one hour periods. (See p.107.) During the following two weeks the three groups followed different schedules.

1. The Relaxation-only group continued their relaxation exercises without supervision for a further two weeks according to a signed contract. (See Appendix C.)
2. The self-control group met for four 60-minute sessions

during which they discussed anxiety-provoking situations, and how effective their chosen 'calm-scene' was in reducing anxiety. The group went through each aspect of the relaxation exercises, e.g. breathing, muscle control and imagery, in an attempt to highlight any problems. Each member of the group was encouraged to talk about how well they had been able to use the relaxation programme, both in home practice and in 'real life' situations. Subjects talked about situations in which they had been able to use aspects of the programme in order to bring their anxiety-level under control. The emphasis in the discussion was put on how well subjects were able to control their experienced anxiety-level by doing certain things themselves. The underlying assumption was that the more subjects believed themselves to be controlling their physical state, the more they would in fact be doing so.

3. The Application training group met for four 60-minute sessions during the second two weeks of the experiment. Each session began with a discussion similar to that used by the self-control groups, but shorter. After each subject had had an opportunity to talk, each subject lay on a mat. Ten minutes were then devoted to the subjects' practising their relaxation exercises so that they might be in a relaxed state. Then after a 'Ready' signal a shock or a noxious sound was randomly delivered. The interval between the warning signal and the stimuli was varied to prevent anticipation. The point of this condition was to provide the subjects with stressful situations in which to practise their relaxation skills. After each noxious stimulus each subject was given feedback by means of a digital dial on their pulse rate, skin resistance and blood pressure. At the end of the session a few minutes were devoted to discussing how

the subjects had found the experimental procedure.

What this study attempted to do was to show that relaxation was not only a successful self-control technique in reducing anxiety, but that it also led to an improvement in self-concept. It is expected that the subjects in the "Self-Control Training Groups" and the "Application Training Group" will show the greatest change on both the Anxiety and Self-concept scales. This is because both these groups are given the opportunity to cope by using their own skills. This will facilitate not only behaviour, but also cognitive change in the desired direction. (That is, reduced anxiety and increased self-concept.)

Hypotheses

1. Teaching subjects a means of controlling their high levels of anxiety will not only cause their scores on the IPAT (Anxiety Scale) to improve, (reducing anxiety), but will also positively influence their self-concept scores, as measured by the MSGO-1.
2. It is hypothesised that the two control groups will show no improvement between 'before' and 'after' scores. The "Relaxation Training" group will show a modest improvement, the "self-control" group will show still more improvement, while the "Application Training" group will show the most change.
3. The training given these subjects will have a long-term positive effect, both on their anxiety and on their self-concept scores.

Subjects

Sixty-five standard nine pupils, between the ages of sixteen and eighteen years, were randomly selected out of a population of subjects who had obtained standard scores of between 7 and 10

on the IPAT Anxiety Scale Questionnaire. All subjects volunteered for the study once they were told that they had been selected.

They consisted of fifteen females and fifty males. On the basis of their pre-training standard scores on anxiety they were matched and assigned to one of the five blocks, with sexes being matched separately and kept constant across the five groups. Blocks were then randomly assigned to one of the treatment groups. The five treatment conditions were: Relaxation training only, Relaxation training plus self-control training, and Relaxation training plus self-control plus application training. The two control groups were; the "no-treatment" group and the "contact" group.

Design

The randomized block design was preferred to a completely random design because of the small number of subjects. If these subjects were randomly assigned to the treatment conditions it would be very unlikely that these groups would have been comparable on this basis. The randomized block design is more sensitive than the completely randomised design with small numbers of subjects. (Kirk, 1968, p.147-149).

As a result of the difficulty of obtaining adequate numbers of subjects for this type of study, (it requires a considerable amount of time and energy to be invested by subjects) it was decided to make use of a repeated measures design.

Measures

The effectiveness of treatment was assessed at three points in time: Pre-training, post-training, and a follow-up three months after termination of the experimental procedure. The author decided to do a three-month follow-up, because a training programme of this sort only has any value if it can be proved that the participants maintained an improvement over time.

The assessment of both pervasive anxiety and self-concept ratings were obtained with the aid of a paper and pencil questionnaire battery, consisting of (a) the IPAT Anxiety Scale Questionnaire and (b) the Miskimins Self-Goal-Other Discrepancy Scale-1.

IPAT Anxiety Scale Questionnaire

This questionnaire consists of 40 questions pertaining to the experience of anxiety both overtly and covertly, and is designed to be the closest possible equivalent to a consensus of psychiatric interviews. It is brief and non-stressful and is a clinically-valid instrument for measuring "free anxiety level" in subjects ranging from 14 years upwards.

The IPAT was standardized on a South African population consisting of 9942 scholars between the ages of 15 and 19 years.

Reliability for the Total Scale score is as follows:

- (a) Test-retest (after 2-week interval) : Between 0,83 and 0,88.
- (b) Split-half: Between 0,76 and 0,80 (Cattell, Scheier and Madge, 1968).

No data is available on the test-retest reliability over a longer period.

Construct validity is estimated at 0,85 to 0,90 for the Total Scale (Cattell and Scheier, 1963), in addition the manifest content of the questions have a high face validity. Cattell and Scheier state that, "... correlations are substantial with physiological, behavioural and laboratory tests of anxiety. This demonstration involves complex reasoning, but the essential point is that psychophysiological and behavioural measures of anxiety fall largely in a factor identical with the present questionnaire measure" (Cattell and Scheier, 1963, p.7-8). This questionnaire also distinguishes sharply between normals and high anxiety cases, according to Cattell.

The value of the questionnaire format in the present study lies in the fact that the author's concern lies primarily with anxiety as experienced by the subject himself, rather than an index formed via the experience of an objective or a psychophysiological measure.

Considering the total scores on the Scale, the manual states that an individual sten score of 1,2, or 3 indicates stability, security and mental health generally. Stens of between 4 and 7 are considered to be within the "normal range". Sten scores of 8 to 10 is a "definite indication of psychological morbidity, almost certain to have adverse effects generally on work and social-emotional adjustment" (Cattell and Scheier, 1963, p.13). A sten score of 7 is considered borderline and as such subjects with sten scores of 7 and above were included in this study. With a sten score of 7 the 77th percentile in anxiety level has been reached or surpassed, and Cattell suggests that these subjects are in need of counselling.

Miskimins - Self - Goal - Other Discrepancy Scale - 1
(MSGO-1)

In the chapter on the self-concept, it has been pointed out that the person's conceptual awareness of himself (i.e. the kind of person he recognises and describes himself as being) is not a unitary, monolithic, undifferentiated concept, because a person may describe himself differently at different times in his life, in different situations having different demand characteristics, when he is called upon to adopt different roles in his social life, and so forth. In addition, at any given time within any given environmental situation, a person can describe and conceptualise himself from various points of view.

It would thus be possible to differentiate a person's conception of himself into a great many elements.

The MSGO allows for a description of the self-concept in terms of three elements.

The first and most basic, according to Miskimins and Braucht (1973), is the conception which an individual holds regarding himself as a person at any given moment in his life. This is referred to as the Self-Concept. It follows that an account of the Self-Concept may be obtained by observing the manner in which the person describes himself. Operationally, then, *the Self Concept takes the form of the constellation of conceptual, actional/or verbal behaviours which a person directs towards himself.* From the measurement point of view, the Self-Concept may take many forms, including answering the question, "Who am I?", or placing a check mark somewhere between a pair of polar adjectives such as "Intelligent - - - Ignorant". The MSGO takes the latter approach.

The second distinct conceptual element of the self is referred to as the "Goal Self Concept": this refers to the concept which a person holds (at any given moment in his life) regarding himself as he would like to be.

The third major element of the self is referred to by the term, "Perceived Responses of Others". Every person holds

concepts of himself as he feels others perceive him.

While the MSGO proposes to give an indication of all three of these elements, the present study was concerned only with the first element, and these were the only scores incorporated into the final analyses.

In its standard form the MSGO-1 is a 20-item scale. Each item consists of a pair of polar self-descriptions separated by nine points on a scale. The first 15 items are standard items thought to represent important aspects of a person's self-concept. The final 5 spaces are blank for the subject to provide polar descriptions of his or her own choice, and to rate them in the same way as the standard 15 (See Appendix). In this study, however, only the 15 standard items were included; in addition, each subject rated only the perceived-self portion. This perceived-self part provides a measure of self-esteem. The reason for the inclusion of this test instrument was primarily its ease of administration when compared to many other approaches, especially the Q-sort.

An index of the validity of this scale has been calculated according to the standard methods and it has been found that this scale can differentiate between a normal and pathological population; differentiate various degrees of pathology, that category scores correlate highly with

the total score and that there is a high level of internal consistency. (Miskimins and Braucht, 1973, p.83-103). The results generally confirm the validity of this instrument.

Test-retest reliability over a two-week period for the different categories was within the region of 0,73, with the lowest correlation at 0,48 and the highest at 0,87.

Briefly, correlative studies for the MSGO and established psychological measurement, MSGO results compared to clinical judgements, MSGO and objective behavioural criteria, and extensive internal analyses all indicated that the scale could be a useful research instrument.

The scale was standardized on an American student population and norm tables are available for this population. The results of this study are not affected by the fact that norm tables for a South African population are not available. The author's interest lay in the *amount of change* brought about by the experimental manipulation both between and within preselected groups. The raw scores fulfilled this purpose adequately. A comparison between the American and South African results also lie outside the scope of this study.

In interpreting the MSGO scores it should be noted that a low total score reflects a greater measure of self-esteem than a higher total score, because of the fact that the positive aspect of the polar descriptions are associated

with a low score, and vice versa.

Procedure

The therapy programme was conducted over a period of four weeks with each group meeting four times per week for the first two weeks when the relaxation training was done. The relaxation-only group then continued with their relaxation exercises individually without supervision for a further two weeks, according to a contract which every member had signed and wherein the member undertook to carry on by himself with his relaxation training; to add more weight to this contract the other members in the group signed as witnesses. This contract came to be known as a "Promise Sheet" (Appendix C). Upon termination of the actual relaxation exercises the Self-Control and Application-Training groups met separately for four sessions each, for their respective treatments, during the following weeks. They then continued to practise their relaxation training "by themselves" for another seven sessions, also according to their "Promise Sheets".

In the event that any subject missed a training session, he was rescheduled to listen to the tape-recording of the session. During the relaxation phase, and the Self-Control and Application-Training phases similar arrangements were made for the subjects to attend those sessions which they had missed.

Apparatus

Relaxation Instructions

Relaxation exercises were conducted with the aid of standard prerecorded deep muscle relaxation exercises conducted by a female voice. This tape recording was used in a medium quality portable tape recorder. The volume was set so that all subjects could comfortably hear the instructions. The content of the tape recording consisted of the following instruction: muscle contraction and relaxation, auto suggestion by the subject himself where he had to speak to himself and tell himself how he was relaxing more and more, breathing exercises, imagery, focusing on heaviness in the limbs as relaxation progressed, focusing on warmth in the limbs (Appendix A).

Anxiety Provoking Stimuli

(a) Electric Shock

Electric Shock was delivered with varying voltage with a maximum of 350 volts at ,05 ampere for ,02 seconds.

2cm x 2cm copper electrodes were used and were covered with electrode jelly to ensure maximum conductance.

(b) Noxious Sounds

These were pre-recorded by the SABC and consisted of the following: a baby crying, screeching motor car brakes,

glass shattering, a woman screaming, an explosion, a train whistle, heavy breathing, a moaning voice, a hooter, fighting, a siren, objects falling, a motor hooter, a train siren and a foghorn. The individual sounds lasted from between 4 and 8 seconds and were delivered randomly at 85 db. with the aid of a medium quality tape recorder.

CHAPTER 8

RESULTS

Various statistical procedures were employed to test the validity of the three hypotheses relating to this study. (Page 99).

The validity of Hypothesis I was examined using a 2-Way Analysis of Variance with repeated measures on Factor B, for both the IPAT (Anxiety) and MSGO-1 (Self-Concept) measures.

For the IPAT scores the following results were obtained:

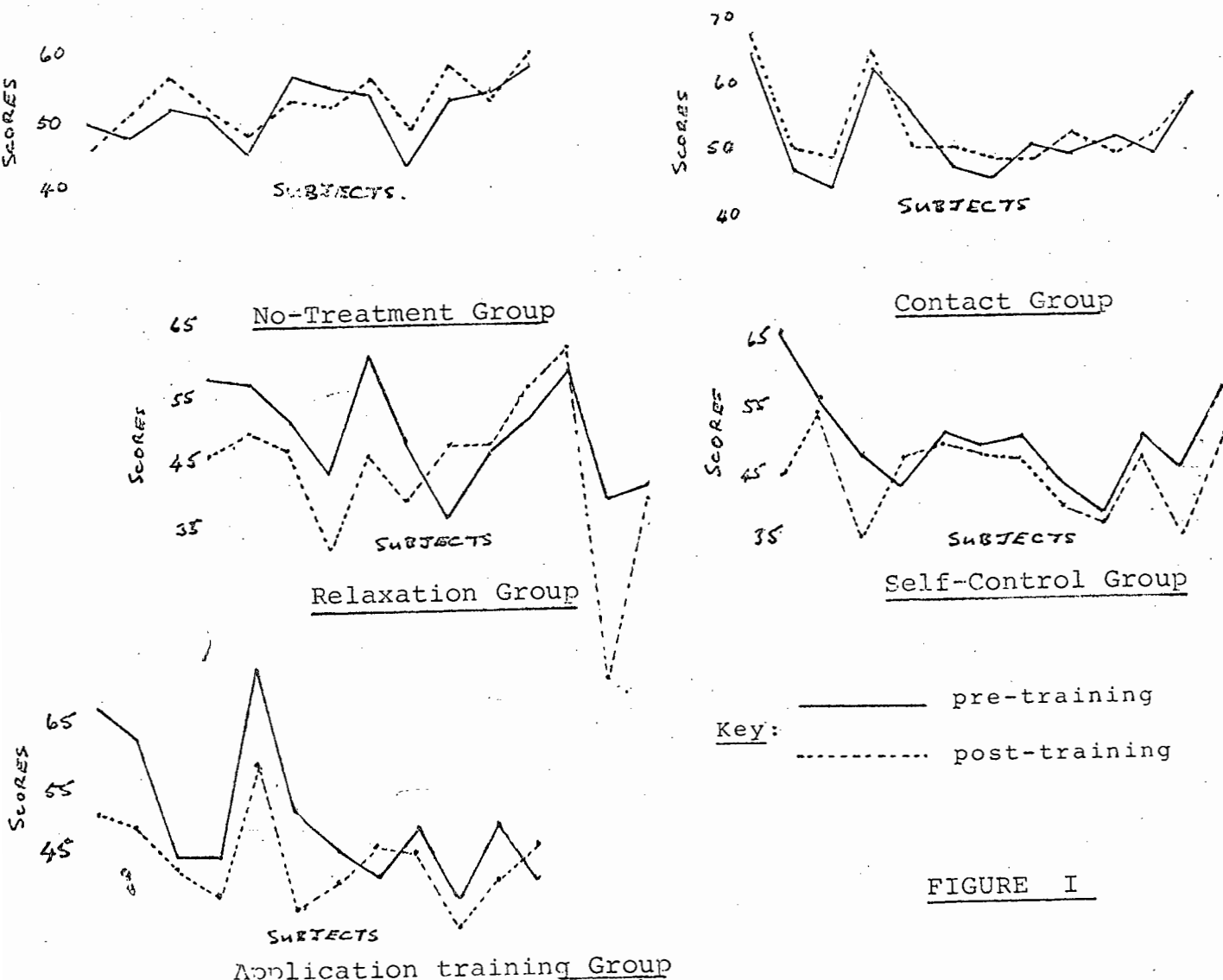
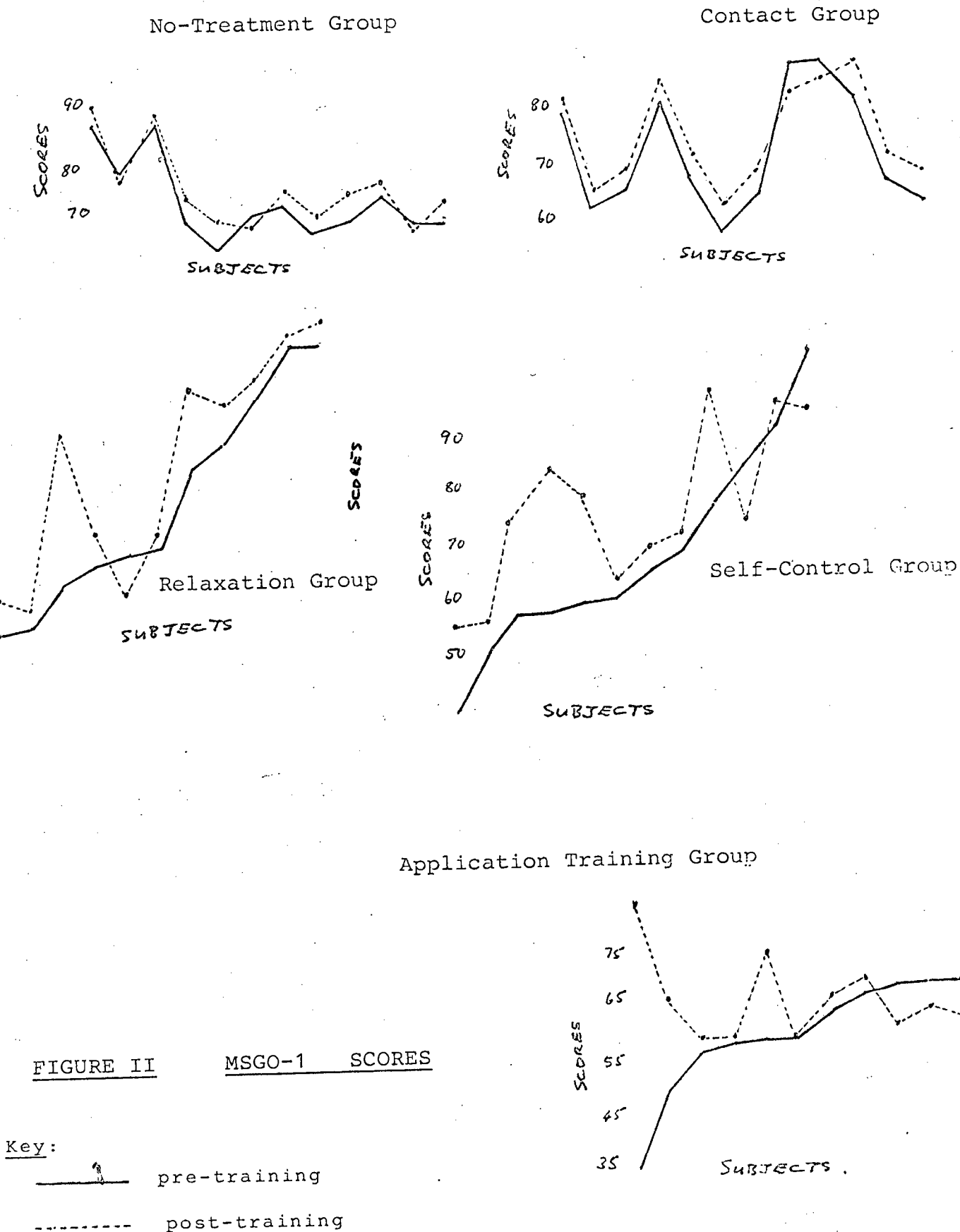


FIGURE I



Considering the AB interaction ($F = 1.87$; $p > 0.05$), it may be seen that this is non-significant. Then, referring to the Main Effects, it can be seen that the A Main Effect, (Control and Experimental Groups) was also not significant. ($F = 1.77$; $p > 0.05$).

However, the B Main Effect (Pre-training - Post-training) was highly significant ($F = 22.60$; $p < 0.01$) indicating a difference between pre- and post-anxiety test scores. Referring to the means $\bar{X}B_1$ and $\bar{X}B_2$ (Table I), it can be seen that anxiety (IPAT) scores were lower after training than before this training.

For the MSGO-1 scores the following results were obtained.

		MEANS		STD. DEVIATION	
		Before	After	Before	After
A ₁	No-Treatment Group	72.17	74	7.53	7.08
A ₂	Contact Group	72.27	74.83	10.89	9.06
A ₃	Relaxation Training Group	63.5	69.67	19.86	21.25
A ₄	Self-Control Training Group	66.83	74.5	18.93	14.31
A ₅	Application Training Group	60.58	67.5	10.95	10.26

TABLE III

The Means and Standard Deviations for the MSGO-1:

Before and After Scores

SOURCE	SS	DF	MS	F RATIO	PROBABILITY
<u>BETWEEN SUBJ.</u>					
A	1643.3789	4	410.8447	1.24151	p > .05
SUBJ.W.G.	18200.469	55	330.9176		
<u>WITHIN SUBJ.</u>					
B	765.0879	1	765.08799	13.2963	p < .01
AB	165.6211	4	41.4053	.7196	p > .05
B x SWG	3164.7891	55	57.5416		

TABLE IV Summary ANOVA table for MSGO-1 scores.

Again a non-significant AB interaction can be seen.

($F = 0,72$, $p > 0,05$) The A main effect is also not significant ($F = 1,24$; $p > 0,05$), but the B main effect is ($F = 13,30$; $p < 0,01$). This result implies a difference between the pre- and post- training scores on the MSGO-1 (Self-concept). If one refers to the column means $\bar{X}B_1$ and $\bar{X}B_2$ it can be seen that self-concept increases after training.

We have now determined that there are significant pre-training/post-training differences overall for the 5 'treatment conditions' on both the IPAT and MSGO-I scores. In order to test hypotheses I and II we now need to determine

the significance of these pre-training/post-training differences for each treatment group separately. To do this, a simple main effects analysis was conducted.

The results for the IPAT scores are given below.

SOURCE	SS	DF	MS	F RATIO	PROBABILITY
A AT B 1	92.6504	4	23.1626	.3600	p > .05
A AT B 2	826.5527	4	206.6382	3.2119	p < .05
W CELL	7076.836	110	64.3349		
B AT A 1	12.0991	1	12.0991	.4781	p > .05
B AT A 2	12.0991	1	12.0991	.4781	p > .05
B AT A 3	154.83984	1	154.8398	6.1182	p < .05
B AT A 4	315.375	1	315.375	12.4624	p < .01
B AT A 5	266.1328	1	266.1328	10.5166	p < .01
B X SWG	1391.832	55	25.3060		

TABLE V Summary table of Simple Main Effects for IPAT Data

It will be noted that there are no significant differences in pre-treatment/post-treatment scores for either of the control groups, ($F = 0.48$ in both cases) but that differences are significant at the .05 level for the "Relaxation only" group and at the .01 level for both the "Self Control" and "Application Training" groups. It is clear that Hypothesis I is well-supported by the data from the IPAT. Looking at the sizes of the F values in Table V, and of the means in Table I it is clear, however, that Hypothesis II

is only partially supported, although the general trend is for the size of pre-treatment/post-treatment differences to increase across the 5 treatment groups. The two control groups both (surprisingly) show exactly the same difference, whilst the "self-control" group shows a marginally bigger decrease than the "Application Training" group.

Turning again to the MSGO-1 analysis, the following was obtained.

SOURCE	SS	DF	MS	F RATIO	PROBABILITY
A AT B 1	1283.2891	4	320.8223	1.6518	p > .05
A AT B 2	526.6640	4	131.6660	.6779	p > .05
W CELL	21365.258	110	194.2296		
B AT A 1	20.0947	1	20.0947	.3492	p > .05
B AT A 2	42.4521	1	42.4521	.7378	p > .05
B AT A 3	228.4140	1	228.4141	3.9695	p > .05
B AT A 4	352.9746	1	352.9746	6.1342	p < .05
B AT A 5	287.3203	1	287.3203	4.9933	p < .05
B X SWG	3164.789	55	57.5416		

TABLE VI Summary table of Simple Main Effects for MSGO-1 data.

Again there are no significant differences in the pre-treatment/post-treatment scores of either of the control groups. But here there is also not a statistically significant difference between the two scores of the "Relaxation only" group, whilst differences for the other two groups are significant at only the .05 level. Hypothesis I then receives substantial but not conclusive support. (It is to be noted that the F value for the "Relaxation only" group, whilst not significant at the .05 level is not far from its tabled value = 4.02). Again, looking at the F values in Table VI, and the associated treatment means in Table III, it is clear that Hypothesis II receives only partial support. The steady increase in pre-treatment/post-treatment scores across groups is present except for results for the Application Training group, where, as with the IPAT scores, the difference is less than it is for the Self-control group. In brief the pattern of results for the MSGO-1 and IPAT scores is substantially the same, but the trends are not so pronounced with the former.

In order to consider Hypothesis II a 2-way Analysis of Variance with Repeated Measures on Factor B, (before, after and follow-up) was carried out on both IPAT and the MSGO-1 data. As no differences in the pre- and post- scores for the two control groups were found, it was not considered necessary to obtain follow-up data for these two groups.

Results for the IPAT data were as follows:

		MEANS		
		Before	After	Follow-up
A ₁	Relaxation Training Group	50.83	45.75	42.67
B ₂	Self-Control Training Group	49.75	42.50	41.83
A ₃	Application Training Group	51.08	44.42	43.75
	Mean of 3 groups	50.55	44.22	42.75

TABLE VII Means and Standard Deviation for the IPAT :
Before, After and Follow-up scores

SOURCE	SS	DF	MS	F RATIO	PROBABILITY
<u>BETWEEN SUBJ</u>					
A	71.1855	2	35.5928	.1544	p > .05
SUBJ.W.G.	7609.1328	33	230.5798		
<u>WITHIN SUBJ</u>					
B	1238.4668	2	619.2334	19.8544	p < .01
AB	27.0938	4	6.7734	.2172	p > .05
B X SWG	2058.4531	66	31.1887		

TABLE VIII Summary table of 3x3 Two-way ANOVA for IPAT scores

The analysis shows no significant interaction ($F = 0.22$), and no significant main effect for factor A ($F = 0.15$). The B main effect was however highly significant ($F = 19.85$). In other words there are no significant differences between treatments, but highly significant differences in the pre-training/post-training/follow-up scores. Analysing those significant differences further with Tukey's Pairwise Comparisons the following results were obtained.

MEANS	TUKEY'S t	df	PROBABILITY
50,55/44,22	6,80	3;66	$p < .01$
50,55/42,75	8,38	3;66	$p < .01$
44,22/42,75	1,58	3;66	$p > .05$

TABLE IX Tukey's pairwise comparisons on pre-treatment/
post-treatment/follow-up means on the IPAT scores

From these results it is obvious that both the post-treatment and the follow-up data differs from the pre-treatment data, but they do not differ significantly from each other.

From this we are justified in suggesting that the decrease in anxiety presumably caused by the training programmes persists over a period of at least 3 months. Thus hypotheses I and III are confirmed in respect of anxiety scores. Once again, however, hypothesis II is not supported (no significant A main effect). These conclusions are further

supported by an analysis of simple main effects (Table X below) which shows no differences between treatments, (Factor A) but highly significant differences in pre-treatment/post-treatment / follow-up scores under all 3 treatment conditions.

SOURCE	SS	DF	MS	F RATIO	PROBABILITY
A AT B 1	11.9932	2	5.9966	.0614	p > .05
A AT B 2	64.0732	2	32.0366	.3281	p > .05
A AT B 3	22.2324	2	11.1162	.1138	p > .05
W CELL	9667.5857	99	97.6524		
B AT A 1	407.5142	2	203.7573	6.5331	p < .01
B AT A 2	462.9522	2	231.4761	7.4218	p < .01
B AT A 3	394.1328	2	197.0664	6.3185	p < .01
B X SWG	2058.4531	66	41.1887		

TABLE X Simple main effects for 3X3 Two Way ANOVA on IPAT data

We now turn to the data obtained from the MSGO-1.

	MEANS		
	Before	After	Follow-up
Relaxation Training Group	63.50	69.67	65.50
Self-Control Training Group	66.83	74.50	57.83
Application Training Group	60.58	67.50	60.33
	63.64	70.56	61.22

TABLE XI The Means and Standard Deviations for the MSGO-1:
Before, After and Follow-up scores

SOURCE	SS	DF	MS	F RATIO	PROBABILITY
BETWEEN SUBJ					
A	294.5098	2	147.2549	.2315	p > .05
SUBJ.W.G.	20989.742	33	636.0528		
WITHIN SUBJ					
B	1689.5156	2	844.7578	8.0385	p < .01
AB	615.3223	4	153.8306	1.4638	p > .05
B X SWG	6935.8477	66	105.0886		

TABLE XII Summary table of 3x3 Two-Way ANOVA for MSGO-1 scores

Again we have no significant interaction ($F = 1.46$) and no significant A main effect ($F = 0.23$), but a highly significant B main effect ($F = 8.04$). Again, applying Tukey's pairwise comparisons the following results were obtained.

MEANS	TUKEY'S t	d.f.	PROBABILITY
63,64/70,56	4,05	3;66	p < .05
61,22/70,56	5,47	3;66	p < .01
63,64/61,22	1,42	3;66	p > .05

TABLE XIII Tukey's pairwise comparisons on pre-treatment/
post-treatment/follow-up means of the MSGO-1 scores

These results indicate that the post-treatment scores are significantly greater than both the pre-treatment and the follow-up scores. However, the pre-treatment and follow-up scores do not differ significantly from each other. These results imply that the effects of the training programmes do not have a long-term effect upon self-concept. This is in contrast to results on anxiety levels, which indicate that the effects of training programmes all do have long term value. In respect of MSGO-1 scores then, Hypothesis I is supported only for short-term changes. Hypotheses II and III are not supported. An analysis of Simple main effects (see Table XIV below) confirms this picture and reveals that the treatment method which produced the most dramatic results was the "self-control" method ($F = 7.95$ for B at A_2). Reference back to Table XI indicates that not only did this group show the greatest gains in self-concept scores immediately after the treatment sessions, it also showed the most dramatic losses at follow-up.

SOURCE	SS	DF	MS	F RATIO	PROBABILITY
A AT B 1	235.4824	2	117.7412	.4174	$p > .05$
A AT B 2	308.1563	2	154.0781	.5462	$p > .05$
A AT B 3	367.2324	2	183.6162	.6509	$p > .05$
W CELL	27925.589	99	282.0762		
B AT A 1	237.8359	2	118.9180	1.1316	$p > .05$
B AT A 2	1670.9824	2	835.4912	7.9504	$p < .01$
B AT A 3	397.4336	2	198.7168	1.8909	$p > .05$
B X SWG	6935.8476	66	105.0886		

TABLE XIV Simple main effects for 3x3 Two-Way ANOVA on MSGO-1 data.

CHAPTER 9

DISCUSSION

As will have become clear in the preceeding chapter dealing with the results of this study, the original hypotheses are only partially confirmed.

Hypothesis I states that teaching subjects a means of controlling their high level of anxiety will have a positive effect upon their performance on both the IPAT, (anxiety scale) and the MSGO (self-concept scale). This indeed proved to be the case, although it appears that in the long term, gains in self-concept were not sustained. Hypothesis II predicted a steady increase in the magnitude of pre-training/post-training differences from the "no-treatment" group, through the "control", "relaxation only" and "self-control" groups to the "application training" group, which it was predicted would show the largest gains. In general this hypothesis was not supported, although there are clear differences between control and experimental groups in respect of the size of pre-treatment/post-treatment differences in scores.

Hypothesis III predicted long-term improvement in both anxiety scores and self-concept. This Hypothesis was supported in respect of anxiety scores, but not in respect of self-concept scores.

It would seem that giving subjects training in relaxation helps them to maintain a lower anxiety level over several months. However, their self-concept ratings dropped back to near and even below their pre-training level.

There are several reasons why the second two hypotheses show negative results. Although all the subjects agreed to practise what they had been taught, there was no control over this. Hillenberg et al (1982) puts forward the use of home practice as one of the factors which make comparison between studies difficult, because they are intrinsically out of the experimenter's control. The results for the 'Self-Control' and 'Application' groups may be depressed because this study required the most effort and commitment from these subjects, not so much in time devoted to practising at home, since this was ostensibly the same for the three experimental groups, but in attending post-training sessions.

It also needs to be noted that in the 'application training' treatment, in which subjects experience mild electric shock, and hear 'stress-provoking' noises, different results might have been obtained if the intention of the study had been to help subjects cope with specific stressful situations. In that case, a different type of questionnaire would have been used which tapped State, rather than Trait anxiety. The subjects would also have been rated immediately after having experienced the noxious stimuli. However, the intention of this study was to give subjects training in controlling their general (Trait) anxiety level.

The superior effectiveness of the "self-control" over the "relaxation only" method which Tables V and VI demonstrate, is in keeping with the results of studies such as those of Chang-Liang and Denney (1976) and Aponte et al (1971), which suggest that a procedure combining self-control and relaxation training is more effective than a relaxation training-only procedure.

Application training did not prove to be superior to Self-control as a technique for controlling anxiety. The reason for the lack of "performance increase" in this group may be related to the way in which training was presented. The subjects in the Application training group were placed in a situation which could potentially have produced learned helplessness, because of the uncontrollability and unpredictability of the noxious stimuli.

It must be noted however, that these subjects were not in a learned helplessness situation in regards to their anxiety reaction, since they had been taught an instrumental response to cope with such anxiety. A possible explanation for this apparent lack of efficacy of the Application training technique, is that subjects may have focused on the noxious stimuli rather than on their coping response.

Although the Tukey's pairwise comparison done on the data from the IPAT showed no significant change between the post-treatment and follow-up scores, it is worth noting that a visual inspection of the raw data suggests that in each case subject's scores did improve further during the three-

month delay between post-training and the follow-up assessment. It might be postulated that during this period the subjects had a chance to practise what they had been taught, and that their life-experiences had reinforced their more relaxed (less fatalistic) approach to challenges. The failure of 'self-concept' to show similar continued improvement is difficult to account for. Presumably the explanation is to be found in the many factors other than failure to cope with anxiety which contribute to a poor self-concept, particularly among school children. Certainly, there exist teachers who seem to equate "lowering self esteem" with "providing motivation for improvement".

The raw data for the experimental groups shows considerable variance (See Appendix E). This means that some subjects benefit considerably from the training programme, while the scores for other subjects scarcely change. It is difficult to know why this is so, but one is tempted to postulate that the training programme was most successful for those subjects who invested the most effort. It would have been interesting to have surveyed these subjects to discover how each person felt about the study, and which had found the training programme most helpful. This sort of information came up in the discussion groups, but no transcript was kept of these sessions, and it proved impractical to run a further questionnaire.

It is felt that the results of this study have given further evidence of the usefulness of the concept of Learned Helplessness. In terms of sociological theory, it is by no means new that failure breeds failure, but the author feels that it adds an interesting dimension to link self-concept with Trait anxiety, the latter of which psychiatry has for a long time acknowledged to be one of the debilitating aspects of depression. It would be interesting in future research to focus on a much younger age range. Sarason *et al* (1960) considers that girls reach an anxiety peak at aged eleven or twelve years, while boys reach this peak a little later at about thirteen years of age. This age coincides roughly with entrance into Secondary School and the new stresses of finding an identity in adolescence.

It is of course important to break the debilitating circle of failure, high anxiety and learned helplessness as chronologically early as possible. However, Goldfried *et al* (1974) draw attention to another facet of the problem. They argue that subjects need to be taught to recognise specific life-experiences which lead to this debilitating cycle. Thus they need to learn not only how to control anxiety, but also when to bring their training to bear, so that the anxiety reaction can be stopped, as it were, before it can take place. More research is needed to incorporate this aspect into anxiety management programmes.

It is questionable whether a training programme is ever as effective as anxiety reduction training with real-life anxiety provoking situations. Both Glaister (1982) and Lehrer (1982) consider live training preferable. Lehrer raises another important question relating to this study. He concludes that it is important for the therapist to give instructions in person, rather than using a tape recorded voice, because the latter is less effective across situations. The greater value of therapist-provided instructions is also advocated by Woolfolk et al (1982). However, in practice the therapist cannot always fulfil this objective. In the present study it would have been possible for the therapist to dispense with the tape recording. However, it was felt that a more standardized effect would be achieved using the experimenter's own voice on a tape recording.

Another reason why this research produced such unclearcut results was that possibly a too 'normal', population was used. It might have been better to have used subjects with at least a score of eight on the IPAT Anxiety scale. This would be more in line with Lavelle et al (1979) conclusion that only the highly anxious subjects are delibitated by induced helplessness situations.

In view of the frequent references made to the need to use the nation's human resources to the full, it seems worthwhile to pin-point one of the factors which cause people to perform below their potential.

Reducing anxiety levels in the population as a whole would seem

to be a not unimportant contribution to make. This is especiallyl so when applied to children who may be suffering quite unnecessary anger and frustration because they are intuitively aware that they are not fulfilling themselves.

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APPENDIX A

Relaxation Training Procedures

Please lean back and close your eyes.

Now stretch your legs as far as they can go. Turn your toes under and tighten the muscles, very, very tight. Hold it. And now also tighten the muscles in your calves and those in your thighs. Make your entire leg tight as a drum, and hold it, hold it, hold it. And now, let your legs sink down and relax all the muscles in your toes, all the muscles in your calves, all the muscles in your thighs. Let your leg go completely limp. And now, feel that wonderful relaxation coming up from your toes, up your calves, and your thighs. Feeling wonderfully relaxed, beautifully relaxed, very calm, very relaxed. Feeling beautiful, just beautiful, wonderfully relaxed.

Now, I want you to stretch out your hands. Make a fist. Feel the tightness, and now make it tighter, tighter, tighter. Hold it. And now also tighten the muscles in your wrist, in your forearm, in your upper arm. Hold it. Hold it. And now, let go, just let go, let your arms sink down and get that wonderful feeling of relaxation, right through your fingers, your hands, now through your forearm, and upper arm. Let your arm go completely limp. Feeling wonderfully relaxed, beautifully relaxed, very calm, very relaxed and beautiful, just beautiful.

Now, I want you to arch your back backwards, raise your chest, and tighten your stomach muscles, and those in your neck. Make them as tight as you can, tighter, tighter, tighter. Hold it, hold it, hold it. And now, let go, just let go, and you get that wonderful feeling of relaxation. Just feel the muscles relax from your back, from your neck, from your chest, from your stomach, all over your

back, all your muscles are feeling wonderfully relaxed.

And now, I want you to tighten the muscles in your face, around your mouth, the muscles in your chin, around your eyes and your forehead. Make them tighter, tighter, tighter, hold it, hold it, hold it. And now, let go, just let go, let go and get that wonderful feeling of relaxation, from all the muscles in your forehead, the muscles around your eyes, the muscles of your cheek, the muscles of your chin and the muscles around your mouth, feeling wonderfully relaxed, beautifully relaxed, very calm, very relaxed, wonderfully relaxed.

Now, I want you to take a very deep breath and hold it, hold it, hold it, hold it. Now, slowly, slowly, let it out, and you're letting out all your tensions, all your frustrations, your anxieties, feeling wonderfully well, wonderfully well. Once again take a deep breath, a very deep breath. hold it, hold it, hold it. Now, slowly, slowly, let it out, relax your tensions, your frustrations, your anxieties, feeling wonderfully well, wonderfully well, wonderfully well.

Now we can deepen the relaxation still further by just using some very special stimulus words. Let's use the words calm and serene. What I would like you to do is to think these words to yourself ten times or so. Don't bother to count. Approximately ten or fifteen times just say to yourself calm and serene and then feel the deepening -- ever, ever deepening -- waves of relaxation as you feel so much more calm and serene. Now you just do that; take your time, think of the words and feel the sensations over and over (pause of about one minute). Good.

Now, I would like you to think of a very hot, heavy, summer day. Think of a very hot, heavy, summer day, one of the days when you are feeling very, very warm, very, very heavy.

Now, keep your eyes closed and just feel that very warm sunshine on your body. You are feeling very heavy, very, very heavy. Very warm, very, very warm. Very heavy, very warm. It's a hot summer day, the sun is shining and you are feeling very, very warm, feeling the warm sun on your legs and the sun makes your legs feel very, very heavy.

Now, you find the heaviness is coming up from your toes, up your calves and your thighs. Very heavy, very, very heavy, very heavy, very relaxed. The heaviness is moving into your fingers, going from your fingers to your hands, to your forearm and your upper arm. Feeling very, very heavy, very, very relaxed, very heavy, very relaxed. The heaviness is going to your stomach, and your chest, up to your back, up to your shoulder blades. Around your neck. Feeling very, very heavy. The heaviness is spreading into your forehead, the muscles of your eyes, muscles around your mouth, muscles of your cheeks and muscles around your chin. Feeling very, very heavy, very relaxed, very heavy, very relaxed.

Now as I count down from 10 to 1, think of the scene that makes you feel calm, that makes you relaxed, and that gives you a feeling of well being. (Pause 10 secs.)

Now, with your eyes closed, see that scene, in all its details, and as I'm counting down from 10 to 1, you are going to find yourself deeper and deeper relaxed and you will have a feeling of well being. Calm and relaxed, and wonderfully well, just relax.

I'm going to count, 10....., 9....., very, very deep, 8....., 7....., deeply relaxed, 6....., 5....., very, very deep, deeply relaxed, 4....., 3....., very deeply, 2....., 1....., very calm, very relaxed, very calm, deeply relaxed.

Think of nothing now but relaxation, feeling wonderfully relaxed, calm, feeling wonderfully well, just relaxed, calm, relaxed, feeling wonderfully well.

When I count to 5, you will open your eyes and you'll feel calm, you'll feel relaxed, you'll feel wonderfully well, 1...., 2...., coming up slowly, 3...., 4...., coming up, feeling relaxed, feeling calm, but alert, 5...., open your eyes, feel relaxed, feel calm, feel wonderfully well.....

(Adapted from Susskind, 1970)

APPENDIX B

Introduction to the Calm Scene

The method of relaxing I am going to teach you is the Muscle-Relaxant method. However, before you learn this, you will first learn another technique which you will use along with the Muscle-Relaxant method. This technique requires you to image in your mind what we call a "Calm Scene".

The Calm Scene

Does thinking about situations in the past where you were calm, relaxed and happy, like lying on the beach, make you feel relaxed? If it doesn't, we are going to see that it does. How will we do this? We are going to get you relaxed by the Muscle-Relaxant method, and then have you think of a calm scene. If you do this a number of times, just thinking about the calm scene will make you feel relaxed.

First, I would like you to choose a calm scene to work with -- one which makes you feel happy, calm and relaxed. Some people feel calm and relaxed when they are moving or walking slowly; others feel more relaxed lying or sitting still.

When you have decided what to use as your calm scene, you will be asked to image it in your mind in as much detail as possible. This is very important. The more details you can imagine in your calm scene, the more it will be of use to you during the relaxation. In order to help you do this, I will describe a calm scene in detail to you within a few moments. Although I would encourage you to choose your own calm scene, the one which has in the past been a real situation in which you have actually felt relaxed, you may use the scene that I provide if you feel that it will be of help to you.

Example

Imagine yourself on a hot midsummer day down at the beach. The sky is clear and very blue. The sun is hot in the sky directly overhead and glistens brilliantly on the burning white sand. The water is a dark blue-green, and very rough. You see the white caps appear and vanish in the distance and, further in, the white foam of the breakers as they pound against the shore. You can feel the warmth of the sun on your body and the coolness of your wet bathing suit, still damp from your recent dip in the cold water. You are lying down on a warm, soft blanket. The sand is warm and firm beneath you; in the distance you hear the sounds of children laughing and playing in the water. You become aware of someone's transistor radio playing. Every now and then you hear the shrill squawks of gulls, gliding in slow circles overhead. You feel calm, warm, happy and very, very relaxed.

Guidelines for Selecting a Calm Scene

Now try to imagine in your mind a calm scene in as much detail as the ones described above. When you have your calm scene clearly in mind, I will go around the room and ask each of you to describe your scene in detail to the others. Then, if you have any problems visualizing a calm scene, I will discuss it with you and try to help you imagine a scene which will be useful to you in the relaxation.

In selecting a calm scene to use in the relaxation exercises, try to select one that meets the following guidelines. If a scene you like meets most but not all of the guidelines it may still be a good one. Discuss it with me.

1. Specific scene. The scene should be a specific place -- not just something vague like "in the woods" or "fishing". Think of each scene as a "snap-shot".

2. All senses. To make your imagined scene clearer, try to use all your senses. While you imagine your calm scene, what do you see, what do you hear, what do you smell, what do you feel? Notice how the examples given above bring in all the senses.
3. No other persons. The scene should not include any people you know -- family members, friends, or co-workers. The reason for this is that there may be times when imagining these people will produce tensions or other thoughts that disrupt the calm scene. (It is allowable, however, to have groups of people you don't know in your calm scene. For example, it would be all right to imagine yourself on a boardwalk with groups of people in the distance.)
4. No active movement or excitement. It is all right to imagine yourself slowly walking along, but avoid active movement or excitement.
5. Something you can experience yourself. The calm scene should be something you have actually experienced, and preferably can occasionally re-experience to refresh the scene in your mind.
6. No drugs, alcohol or cigarettes. This would attach relaxation with these bad habits.
7. Keep the same scene. After you settle on a particular calm scene, stay with it. It is important to have one scene that you keep using so that scene can become a trigger to produce in you a completely relaxed state. If you can't decide immediately, try one scene, such as being at the beach, then change later if you still wish to do so.
8. Keep trying. In the beginning you may find it difficult to get the calm scene into your mind or, more frequently, to keep

it in your mind. If it slips away from you, just relax and
imagine the scene that has replaced it just fading out and
the calm scene coming back after it into your mind.

(Adapted from Susskind, 1970)

APPENDIX C

PROMISE SHEET

I,
promise to do my relaxation exercises per day
for the following days:

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Signed:

.....

Witnesses: 1.
2.
3.

APPENDIX D

MISKIMINS SELF-GOAL-OTHER DISCREPANCY SCALE-1 (MSGO-1)

Name _____ Date _____ Sex: M F
 Birthdate _____ Age _____ Marital Status: S M Sep D W
 Occupation _____ Education _____ Examiner _____

INSTRUCTIONS: PLEASE READ CAREFULLY

The purpose of this questionnaire is to measure your ideas about important areas of living. You will be asked to rate yourself, according to your own experience and feelings, on a total of twenty items. Each of these items is simply a pair of opposite words, such as "good — bad", on which you will be required to give your standing by placing yourself nearer to "good", nearer to "bad", or somewhere in between.

You will be asked to look at each pair of word-opposites in three different ways. These are:

- SELF** — This is defined as the way in which you see yourself, or how you would describe your own experience and feelings. Thus, if you were dealing with the opposite words "good — bad", you would have to decide WHERE YOU ARE on the scale between "good" and "bad".
- GOAL** — This is defined as how you would most like to be. Thus, if you were dealing with the opposites "good — bad", you would have to decide WHERE YOU WANT TO BE on the scale between "good" and "bad".
- OTHERS** — This is defined as how you think other people see you. For the opposites "good — bad", you would have to decide WHERE OTHERS SEE YOU on the scale, nearer to "good" or nearer to "bad" or somewhere in between.

SAMPLE ITEM

The following pair of opposite words, "hard working — lazy", are provided as an example. Consider these word-opposites and rate yourself in the three ways described above — SELF, GOAL, and OTHERS.

		1	2	3	4	5	6	7	8	9		
A. Hard-working	Self										Self	Lazy
	Goal										Goal	
	Others										Others	

First, for the SELF rating — make an X in one of the squares on the first line to indicate where you see yourself as belonging between "hard working" and "lazy". Second, for the GOAL — place yourself on the second line of the scale (labeled GOAL on both ends) according to where you would most like to be, between "hard working" and "lazy". And thirdly, for the OTHERS rating — place an X in a square on the third line (labeled OTHERS) according to where you think other people might rate you as being between "hard working" and "lazy". Now you should have a total of three ratings for the same item — an X on each line (SELF, GOAL, and OTHERS).

If you have any questions at this point, please ask the examiner for help!

SELF — Where you are.
GOAL — Where you want to be
OTHERS — Where others see you.

		1	2	3	4	5	6	7	8	9		
1 Intelligent	Self										Self	Ignorant
	Goal										Goal	
	Others										Others	
2 Creative and Original	Self										Self	Not Creative and Original
	Goal										Goal	
	Others										Others	
3 Physically Attractive	Self										Self	Physically Unattractive
	Goal										Goal	
	Others										Others	
4 Successful In Life	Self										Self	Unsuccessful In Life
	Goal										Goal	
	Others										Others	
5 Competent For Many Jobs	Self										Self	Not Fit For Any Job
	Goal										Goal	
	Others										Others	
6 Friendly and Warm	Self										Self	Unfriendly and Cold
	Goal										Goal	
	Others										Others	
7 Prefer Being With People	Self										Self	Prefer Being Alone
	Goal										Goal	
	Others										Others	
8 Good Relations With the Opposite Sex	Self										Self	Poor Relations With the Opposite Sex
	Goal										Goal	
	Others										Others	
9 Socially Skillful	Self										Self	Awkward Socially
	Goal										Goal	
	Others										Others	
10 Concerned For Others	Self										Self	Not Concerned For Others
	Goal										Goal	
	Others										Others	
11 Happy	Self										Self	Sad
	Goal										Goal	
	Others										Others	
12 Relaxed	Self										Self	Tense
	Goal										Goal	
	Others										Others	
13 High Self-Confidence	Self										Self	Lack Self-Confidence
	Goal										Goal	
	Others										Others	
14 Handle Personal Problems	Self										Self	Can't Handle Personal Problems
	Goal										Goal	
	Others										Others	
15 Alert and Active	Self										Self	Dull and Lifeless
	Goal										Goal	
	Others										Others	
		1	2	3	4	5	6	7	8	9		

Before proceeding to numbers 16 through 20, carefully read the instructions given below:

The final part of the test allows you to construct pairs of opposites which are IMPORTANT TO YOU, but have not been handled or mentioned on a previous scale. Simply build pairs of opposites which are related to your own personal experience and feelings and then rate them in the same three ways, SELF, GOAL and OTHERS. Be sure to put the more favorable opposite (as you see it) on the LEFT-HAND side of the scale.

If you have any questions at this point or find it very difficult to think of words to use for these last items, please ask the examiner for help!

SELF — Where you are.
GOAL — Where you want to be.
OTHERS — Where others see you.

		1	2	3	4	5	6	7	8	9	
16	Self										Self
	Goal										Goal
	Others										Others
17	Self										Self
	Goal										Goal
	Others										Others
18	Self										Self
	Goal										Goal
	Others										Others
19	Self										Self
	Goal										Goal
	Others										Others
20	Self										Self
	Goal										Goal
	Others										Others

If there are any comments you would like to make regarding any part of this examination, please do so below:

APPENDIX E

Within Group Differences : IPAT Raw Scores

No-Treatment Group

Subject	Pre -	Post -
1	50	46
2	48	51
3	52	57
4	51	52
5	45	48
6	55	53
7	55	52
8	54	56
9	43	49
10	53	58
11	54	53
12	58	60

Mean : 52.91

S.D. : 4.20

Mean: 51.5

S.D.: 4.38

Within Group Differences : IPAT Raw Scores

Contact Group

Subject	Pre -	Post -
1	65	67
2	47	50
3	45	49
4	61	64
5	52	50
6	47	50
7	45	48
8	50	48
9	49	52
10	51	49
11	49	51
12	57	57

Mean : 52,91

S.D. : 6,37

Mean : 51,5

S.D. : 6,35

WITHIN GROUP DIFFERENCES : IPAT RAW SCORES

Relaxation Group

SUBJECT	PRE -	POST -	FOLLOW-UP
1	60	48	44
2	59	51	49
3	53	49	44
4	45	34	39
5	62	48	40
6	50	41	37
7	38	49	43
8	48	49	39
9	53	58	56
10	60	64	64
11	40	15	21
12	42	43	36

Mean = 50,83

Mean = 45,75

Mean = 42,67

S.D. = 8,37

S.D. = 12,30

S.D. = 10,69

WITHIN GROUP DIFFERENCES : IPAT RAW SCORES

SELF-CONTROL GROUP

SUBJECT	PRE -	POST-	FOLLOW-UP
1	66	45	61
2	57	55	56
3	48	31	32
4	43	47	46
5	51	49	41
6	49	31	37
7	50	47	32
8	43	39	38
9	38	37	39
10	50	47	45
11	45	32	40
12	57	50	35

Mean. = 49,75	Mean = 42,50	Mean = 41,83
S.D. = 7,78	S.D. = 8,19	S.D. = 8,97

WITHIN GROUP DIFFERENCES. : IPAT RAW SCORES

APPLICATION TRAINING GROUP

SUBJECT	PRE -	POST -	FOLLOW-UP
1	68	52	62
2	63	50	61
3	45	44	45
4	45	39	33
5	74	59	67
6	52	37	40
7	46	41	41
8	42	46	37
9	49	44	30
10	38	34	35
11	50	41	41
12	41	46	43

Mean = 51,08

Mean = 44,42

Mean = 43,75

S.D. = 11,34

S.D. = 6,89

S.D. = 12,73

WITHIN GROUP DIFFERENCES : MSGO-1 RAW SCORES

NO-TREATMENT GROUP

SUBJECTS	PRE -	POST-
1	87	89
2	77	75
3	86	87
4	68	72
5	63	68
6	69	67
7	71	73
8	66	69
9	68	73
10	73	75
11	69	68
12	69	72

Mean = 72,17

S.D. = 7,53

Mean = 74

S.D. = 7,07

WITHIN GROUP DIFFERENCES : TOTAL MSGO RAW SCORES (PERCEIVED SELF)

RELAXATION GROUP

SUBJECT	PRE-SCORE	POST-SCORE	FOLLOW-UP SCORE
1	76	83	79
2	57	60	74
3	84	89	75
4	51	78	76
5	54	60	44
6	42	48	46
7	56	49	47
8	39	41	33
9	94	96	95
10	94	100	100
11	43	46	42
12	72	86	75

Mean = 63,5

Mean = 69,67

Mean = 65,50

S.D. = 19,86

S.D. = 21,25

S.D. = 22,15

WITHIN GROUP DIFFERENCES : MSGO-1 RAW SCORES

CONTACT GROUP

SUBJECTS	PRE -	POST -
1	79	82
2	62	65
3	65	69
4	81	85
5	68	71
6	58	62
7	64	68
8	88	83
9	89	85
10	82	88
11	67	71
12	63	69

Mean = 72,17

Mean : 74,83

S.D. = 10,89

S.D. : 9,06

WITHIN GROUP DIFFERENCES : TOTAL MSGO RAW SCORES (PERCEIVED SEL

SELF-CONTROL GROUP

SUBJECT	PRE-SCORE	POST-SCORE	FOLLOW-UP SCORE
1	83	71	61
2	90	92	89
3	63	y8	53
4	67	70	73
5	107	93	34
6	50	55	56
7	56	73	50
8	39	54	41
9	59	61	59
10	56	83	60
11	75	96	69
12	57	78	49

Mean = 66,83

Mean = 74,5

Mean = 57,83

S.D. = 19,93

S.D. = 14,32

S.D. = 14,65

WITHIN GROUP DIFFERENCES : TOTAL MSGO RAW SCORES (PERCEIVED SELF)

APPLICATION TRAINING GROUP

SUBJECT	PRE-SCORE	POST- SCORE	FOLLOW-UP SCORE
1	35	93	50
2	69	62	71
3	69	64	73
4	64	66	73
5	67	69	78
6	68	61	47
7	57	75	70
8	49	67	52
9	59	59	38
10	58	58	54
11	76	78	74
12	56	58	44

Mean = 60,58

Mean = 67,5

Mean = 60,33

S.D. = 10,95

S.D. = 10,26

S.D. = 14,1

19 JUL 1983