

COGNITIVE STRESS INOCULATION TRAINING FOR ANGER CONTROL
WITH MENTALLY RETARDED INDIVIDUALS

by

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COGNITIVE STRESS INOCULATION TRAINING FOR ANGER CONTROL

WITH MENTALLY RETARDED INDIVIDUALS

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ABSTRACT

The ever increasing and successful use of cognitive behaviour therapies as opposed to respondent conditioning therapies, in behaviour modification, represents a current trend in the integration of cognitive, affective and behavioural variables in skills training procedures designed to effect changes in behaviour. Some of these skills training procedures include ways of effectively generating and maintaining positive self-instruction (self-talk) in order to bring about more adaptive behavioural performances. Because of the cognitive demands involved in such procedures, mentally retarded individuals in need of behaviour therapy have been considered unlikely candidates to be benefit from such procedures.

In this study Cognitive Stress Inoculation Training was given to ten mildly or moderately mentally retarded residents (five males and five females) for the development of anger control. A multiple baseline design across time and subjects was used to assess the impact of training. Monitoring of the subjects took place over 16 weeks including 2 weeks of baseline, 8 weeks of skills training and 6 weeks of follow-up for each resident. The Rotter and Rafferty Incomplete Sentences Blank, and a structured interview which solicited the residents' thoughts, feelings, and probable behaviour in response to three anger-engendering pictures, were administered as pre and posttests. In addition, frequency of temper outburst was recorded by

the subject and ward staff for the duration of the field test.

Substantial reductions in the frequency of temper outbursts occurred at similar points in the treatment program, across all subjects regardless of the specific time of treatment onset. In all cases, the number of outbursts per week at follow-up was less than half of that recorded at baseline.

Statistical analyses of the residents' frequency of outbursts confirmed reliable differences from baseline to follow-up. As well, reliable differences were observed in scores on the Rotter and Rafferty scale and in the cognitive and behavioural responses to the anger-engendering pictures. No reliable differences were confirmed in the residents' responses on the affective variable. This indicates that the residents' capability to feel anger when provoked did not change from pre to posttest but that the manifestation of that anger changed dramatically. The results suggest that the residents learned some cognitive and behavioural skills to deal effectively with their feelings of anger.

Results also suggest that mentally retarded persons can learn some cognitive behavioural skills for independently directing important aspects of their own behaviour. Some implications for the treatment of mentally retarded individuals are drawn. The treatment protocol used in this study is appended in this thesis.

DEDICATION

to my parents

Ruth Albertha

and

Alfred Ferdinand

and to the undaunting patience and devotion

of mama Bobtail and Fluffy-Puff.

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A special tribute to those residents and staff at Woodlands who made this research possible.

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CHAPTER I

A PROPOSAL FOR THE UTILIZATION OF COGNITIVE FACTORS IN
BEHAVIOUR CHANGE PROCEDURES WITH MENTALLY RETARDED INDIVIDUALSIntroduction

In recent years the use of a cognitive-behavioural approach for the modification of behaviour has gained increasing popularity in the field of counselling psychology. Despite the short history of cognitive behaviour therapies, clinical and empirical applications have yielded data supportive of the effectiveness of these procedures for a wide range of presenting problems including test anxiety (Goldfried, Linehan, & Smith, 1978; Meichenbaum, 1972), speech anxiety (Fremouw & Zitter, 1978), social-interpersonal anxiety (Meichenbaum, Gilmore, & Fedoravicious, 1971; Kanter & Goldfried, 1979), pain-related stress (Meichenbaum & Turk, 1976; Turk, 1979) and anger control (Novaco, 1975, 1977, 1979a, 1979b). However, to date this procedure has not been used systematically with the mentally retarded, who by definition have attenuated capacities which reduce their abilities to easily control adaptive behaviour. This research indicates, however, that such strategies may provide needed, effective ways of increasing cognitive and behavioural skills to exert control over impulsive reactions such as anger and aggression.

Cognitive-behavioural interventions operate on the assumption that cognition plays an influential role on behaviour (Bandura, 1969,

1977a; Brewer, 1974; Lazarus & Averill, 1972; Mahoney, 1974; Nisbett & Schachter, 1966; Rimm & Litvak, 1969; etc.). A corollary to the above assumption is that cognitive mediating processes are possible explanatory mechanisms determining behaviour (Bandura, 1977b; Bower, 1978). The inclusion of cognitive variables in behaviour modification represents a response to the need to provide more effective procedures that expand the individual's cognitive as well as instrumental repertoire in exercising greater independence, control and a prolonged treatment effect (Karoly, 1977). A cognitive-change procedure assumes that a person's thoughts, beliefs, perceptions, attributions, self-evaluation, and self-statements, contribute to both adaptive and maladaptive behaviours and that maladaptive behaviours can be altered by dealing directly with the individual's self-verbalization or inner speech, attitudes and beliefs (Beck, 1970; Ellis, 1962; Krumboltz & Thoresen, 1976; Lazarus, 1971; Mahoney, 1974; Meichenbaum, 1977).

To a large degree, contemporary intervention strategies with mentally retarded individuals are based mainly on operant conditioning and social learning techniques. Despite their demonstrated efficacy in promoting behaviour change, increasing independence and controlling cognitive processes related to behaviour, motivation and emotion, cognitive-behavioural procedures have not been used widely with mentally retarded individuals, who are often observed to be overly dependent, externally oriented and generally lacking in independent skills (Jackson & Boag, 1981; Kurtz & Neisworth, 1976; Mahoney &

Mahoney, 1976).

The paucity of use of cognitive-behavioural therapies with mentally retarded individuals may be due to several assumptions about the cognitive deficits inherent in mental retardation. Some of these assumptions will be examined later in this chapter, which proposes that a cognitive-behaviour therapy such as cognitive-stress inoculation training (CSIT)¹, might hold promise as an intervention strategy for populations like the mentally retarded.

The Problem

The problem of over-dependency in mentally retarded people demonstrates a great need for acquiring adaptive skills to lead more self-directed and independent lives. Members of this population typically lack adequate coping and adaptive living skills and rely on others to provide these. The problem of over-dependency becomes compounded when society's expectations of these individuals are reduced and opportunities to overcome such chronic dependencies are not provided (Shapiro, 1981). The results are reduced motivation and a sense of helplessness beyond the level of limitations directly related to, or associated with the retarding condition (Litrownik & Steinfield, 1981). Further, Fisher and Wolfson (1953) indicate that some behavioural and cognitive deficits exhibited by some retarded

¹ Cognitive stress inoculation training is referred to also as self-instruction training or stress-inoculation training (Meichenbaum, 1977; Cormier & Cormier, 1979).

individuals are inexplicable on the basis of mental deficiency alone.

Welch and Seligman (1980) suggest that the current trend toward the integration of retarded individuals in regular classroom settings and the resulting increased exposure to more stressful social situations have the effect of increasing emotional and behavioural difficulties as the retarded individual tries to adjust to more challenging environments. In order to reduce such stressful effects, the authors cite the need for the use of treatment modes other than traditional operant conditioning techniques and drug therapy for those mentally retarded individuals in need of therapeutic services. The authors propose that alternate behaviour change procedures known to be effective with members of the normal population are not used with mentally retarded individuals who have similar behavioural and emotional problems because (1) therapists tend to underestimate the degree of severity of emotional and behavioural problems, and potential for training in the mentally retarded population and (2) that when such problems are acknowledged, they are often misconceived as a function of retardation and therefore not subject to change.

Given the problem of over-dependency on others for the execution of a wide variety of life-skills, and given the problems with many operant conditioning procedures in terms of fostering such dependency, however inadvertently, (Balthazar & Stevens, 1975; Gardner, 1971; Matson & McCartney, 1981), it seemed to this author that some

cognitive intervention strategies might hold therapeutic potential for mentally retarded people. Therefore a systematic intervention programme based on Meichenbaum's (1976) CSIT procedure was developed and implemented for training control of acute anger outbursts in 10 mentally retarded individuals. The implementation of the programme was to also provide the opportunity to: (a) evaluate the potential of mentally retarded individuals to learn the skills comprising CSIT procedure, and (b) to observe for improved anger control with a representative sample of "anger-prone" mentally retarded individuals who had acquired the CSIT skills.

Rationale

In proposing the training of self-help skills with the mentally retarded, Mahoney and Mahoney (1976) argue that the disproportionate dependency of the mentally-retarded "... is not only costly in terms of professional costs and budgets, but it also encourages a style of functioning which impedes the development of individual responsibility" (p. 338). Similarly, the recent thrust towards habilitation and rehabilitation of mentally retarded individuals has witnessed a substantial increase in research devoted to the teaching of adaptive skills and reducing inappropriate behaviours. Programme cost, efficiency and effectiveness become crucial factors affecting the selection and use of interventions for behaviour change and maintenance of such change. The need for the implementation of

effective and efficient behaviour change programmes which enable mentally retarded individuals to learn to direct and control important aspects of their behaviour is viewed as both an economic and therapeutic imperative by Mahoney and Mahoney (1976).

Overview

In this study, the selection and utilization of the skill-acquisition procedure of CSIT was intended to determine its usefulness in terms of efficacy, efficiency and maintenance as a treatment mode for anger control with mentally retarded individuals. The remainder of this chapter outlines some background material relating to mental retardation. In Chapter II a review of the literature on CSIT is presented. This is followed by a detailed description of the implementation of the therapy and data collection procedure in Chapter III. Data analysis and results are presented in Chapter IV. The final chapter contains a discussion of the findings.

Background

To understand why cognitive behaviour therapies have not been used widely with mentally retarded individuals, one must look at the traditional manner in which IQ scores are interpreted, as well as examine some traditional assumptions regarding the educability of mentally retarded individuals. In this study these factors are regarded as having played major roles in the reluctance of researchers

and therapists to explore the usefulness of a cognitively oriented intervention with mentally retarded people.

Definition of Mental Retardation

The array of counterviews about the prevalency of mental retardation is evinced in the definition. While the determination of mental retardation is based typically on performance on an intelligence test, the generally accepted definition of mental retardation is formulated in behavioural terms relating to self-management. Most often the definition takes into account cognitive deficits and related limitations in adaptive (behavioural/social) skills which diminish the individual's ability to perform socially prescribed and sanctioned behaviours.

A review of the literature reveals different perspectives from which mental retardation has been viewed. That of the medical-pathological model is by nature a bipolar perspective which views mental retardation in terms of characteristic patterns of symptoms organized into syndromes, for example, Klinefelter's syndrome, Down's syndrome; Prader-Willi syndrome, etc. In this model the absence or presence of mental retardation is determined by the absence or presence of pathological signs equated with mental retardation. From the perspective of the statistical model the criteria for determining mental retardation are derived from IQ scores reported in standard deviation units on a continuum.

A third view of mental retardation derives from the social system perspective articulated by Mercer (1973). This model views the pathological and statistical models as inadequate for conceptualizing mental retardation within the societal-cultural community. Mercer (1973) contends that mental retardation is more usefully viewed in terms of an individual's role in a particular social system. The term "mental retardate" is thus used to describe an achieved social status, with mental retardation being the role associated with the status.

In defining who is mentally retarded this view holds that mental retardation does not describe individual pathology, but rather refers to the label applied to any person who is retarded from a social system perspective and therefore occupies the status and plays the role of the mentally retarded person in one or more of the social systems in which the individual participates. Hence, if a person does not occupy the social status of "mental retardate", does not play the role in any social system and is not regarded as mentally retarded by significant others in the social system that person is viewed not to be a mentally retarded individual, regardless of pathology, IQ or adequacy of adaptive behaviour.

The current working definition of mental retardation as suggested by the American Association of Mental Deficiency (AAMD) calls explicit attention to the distinction between IQ test score and general adjustment. The AAMD definition states:

Mental retardation refers to significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior, and manifested during the developmental period. (Grossman, 1973, p. 5)

In the majority of cases the Stanford-Binet Scale (Terman & Merrill, 1973), Cattell Infant Intelligence Scale (Cattell, 1960), Wechsler Intelligence Scale for Children (Wechsler, 1949) and Columbia Mental Maturity Scale (revised) (Burgemeister, Blum & Lorge, 1972) are used to determine IQs. Adaptive behaviours and social maturity level are typically assessed by various tests such as Vineland Social Maturity Scale (Doll, 1965) and AAMD Adaptive Behavior Scales (revised) (Nihira, Foster, Shellhaas & Leland, 1969).

Prevalency Rate of Mental Retardation

Mercer (1973) argues that questions concerning the correct prevalence rate and inclusion criteria of mental retardation, are all nonsense questions. This is necessarily so to Mercer (1973), who views mental retardation as a status dependent on a number of factors including the researchers' interests and the purpose of the classification. However, Kauffman and Payne (1975) state that when IQ is used as the sole criterion for defining mental retardation, the following approximate prevalency rates within the general population are obtained (see Table 1):

Table 1
Prevalency Rate of Mental Retardation

Source	Prevalency Rate
Binet	2.63%
WISC	2.20%
Heber	15.86%
Grossman	2.27%
President's Committee on Mental Retardation (1970)	3.00%

(Kauffman & Payne, 1975, p. 36)

Further, Kauffman and Payne (1975) indicated that when Heber's (1959, 1961) and Grossman's (1973) IQ definitions of mental retardation were juxtaposed with the Binet and WISC classification systems, a different prevalency rate was obtained. Extrapolating from the different percentage rates presented in their table, the authors suggested that approximately 2.5 percent of the general population may be mentally retarded. Although the validity of the three percent prevalency rate as estimated by the President's Committee on Mental Retardation (1970) has been challenged (Mercer, 1973) on the grounds that the rate varies depending on who is doing the defining and for what purpose, this three percent rate is commonly used in most references.

When IQ score is relied upon independently from cultural or adaptive considerations, a score of approximately 70 is used as a

cutoff to differentiate retarded from nonretarded individuals (Baroff, 1974; Kauffman & Payne, 1975). However, Heber (1970) states that measured intelligence greater than one standard deviation below the mean, (approximately 84) on most commonly used individual tests of general intelligence, may indicate retardation. This upward inclusion has been called irresponsible and unjustified since it tends to introduce a bias of over-inclusion, especially when considered from a cultural perspective. This upward inclusion also elicited much controversy and criticism (Baroff, 1974).

Given an overall mental retardation incidence rate of approximately three percent of the general population, and based on data described by Kauffman and Payne (1975), the following percentage comparison table is presented:

Table 2
Prevalency and Levels of Mental Retardation in Percentage

	General Population	Retarded Population (3% of General Population) and Level of Retardation in Percentage
Mild	2.3	75
Moderate	0.6	20
Severe-profound	0.1	05

(Kauffman & Payne, 1975, p. 39)

Table 2 suggests that the majority of mentally retarded individuals are mildly retarded. Other researchers, however, cite different levels of retardation. For example, Baroff (1974) and others have presented percentages of 84 (mild), 6 (moderate) and 5 (severe-profound) depending on the measuring instruments used. Regardless of the specific percentages reported, mildly retarded people seem to comprise the vast majority (upwards of 75%) of mentally retarded individuals.

Assumptions Based On IQ

The traditional practice of using an IQ score as the sole criterion of mental retardation, along with assumptions relating to the constancy of IQ, have contributed to pessimistic views of the learning potential of mentally retarded individuals.

Instability of IQ

There has been much discussion of the stability of IQ scores (Clarke & Clarke, 1954; Sarason, 1959; Shertzer & Linden, 1979). Results of studies (e.g., Bowlby, 1951; Chidster & Menninger, 1936; Guertin, 1950; Skeels & Dye, 1939) challenge the traditional assumption that after age 5, IQ scores remain stable and do not change significantly. They argue that such stability is probable given an environment that provides opportunities which enhance mental, psychological and physical abilities. However, for mentally retarded

people such opportunities are seldom the case. This is especially true for those in institutional settings where there is a lack of cultural experience and opportunities to acquire skills essential to performing well on tests of intelligence.

There are abundant data from twin studies suggesting that an enriched environment can influence mental growth. For example, twins reared apart in differing environments tend to have different IQs, the higher IQ being obtained by those in a more enriched and stimulating environment (Newman, Freeman & Holzinger, 1937). This suggests that similar environmental effects might influence the mental development of mentally retarded people. Further, Gordon (1979) observed that when deprived environments prevail, decreases in IQ score occur over time. Such decreases are, however, reversible given positive environmental changes (Sherman & Henry, 1933). For example, Fisher and Zeaman (1970) investigated the intellectual growth pattern of mentally retarded people and found that, especially for mildly retarded persons, growth can occur as they get older. Moreover, Spicker (1966) demonstrated that with overlearning, retention by mentally retarded individuals was similar to that of normal subjects for some academic skills. He continues "Retarded children appear to learn as rapidly as normal children when the material to be learned is relatively simple or is familiar to the child" (p. 93). Kidd (1966) also countered the assumption that for mentally retarded people there is a terminal plateau of learning at about age 16, by declaring,

"There ain't no such thing!" (p. 55).

Despite such research and observation to the contrary, the view of a rigidly constant IQ continues to influence the assumption that further intellectual growth beyond IQ scores assessed at an earlier age is impossible, therefore a retarded person is not a good candidate for cognitive/intellectual improvement. The difference between a condition of mental retardation and an IQ score seems not to be understood very clearly, hence their meanings have continued to be confused in practice despite repeated observation that IQ scores can change given opportunities for improved environmental conditions, and that intellectual deficits in mentally retarded persons are not necessarily hindrances to benefiting from therapy (Kendall, 1977; Parsons, 1978).

Low IQ Disqualifies Individuals from Therapy

Earlier writings (Allen, 1942; Freedman & Sweet, 1954; Luria, 1961) Rogers, 1942, 1951; Witmer, 1946) reflected the belief that mentally retarded individuals were unlikely to benefit from a therapeutic relationship, particularly because language is the main mode of interaction between client and therapist. Also, because cognitive abilities in the mentally retarded are attenuated, and inabilities to control and delay emotional reactions tend to be the norm, retarded individuals have usually been considered inappropriate candidates for therapies utilizing a predominantly verbal mode (Lurie,

Levy & Rosenthal, 1944).

Theorists such as Rogers (1951) have by far been the most empathic in disclaiming the use of any kind of therapy involving cognitive variables with mentally retarded people. Arguments against this mode of therapy focus on the attenuation of intellectual and social repertoires of mentally retarded individuals, thus precluding abilities for verbal and abstract reasoning, and such cognitive skills necessary to govern acting-out impulses such as anger. For theorists such as Slavson (1955) and Freedman and Sweet (1954) even those individuals considered to have "culturally-familial" retardation are considered poor candidates for cognitively oriented therapies since their deficient cultural backgrounds produce impairment in the ability to articulate and to profit from verbal relationships.

These assumptions and attitudes have been countered by researchers such as Parsons (1978), Mahoney and Mahoney (1976), Kendall (1977), Shapiro (1981), etc. Their arguments may be summarized as saying that despite intellectual limitations, and some emotional-behavioural problems incidental to intellectual attenuation, mentally retarded individuals do respond, in varying degrees, to therapy. Further, Kauffman and Payne (1975) have argued that some cases of retardation can be prevented, a few reversed, and in most cases retarded behaviour can be significantly altered, through training. Similarly, Thorne (1960) has contended that the functional intelligence of mentally retarded people might be greatly improved

through instructional conditions conducive to learning.

The attitude that there is a one to one relationship between the degree of present cognitive and behavioural deficiency and potential for behavioural performance reflects a misunderstanding of the meaning of mental retardation: current levels of deficiencies do not necessarily determine potential. On the contrary, training potential appears more closely associated with external factors and influences, such as training opportunities and conditions, and the expectation and attitude of others (Anderson & Greer, 1976).

A Focus on Cognitive Factors in Therapy

A number of contemporary researchers have begun investigating the re-education potential of mentally retarded people with techniques based on cognitive as well as behavioural psychology. Principally, the cognitive component in these procedures are aimed at areas such as attention, expectancy, attribution, and durability of treatment. Cognitive intervention techniques have been used with mentally retarded individuals to deal with perceptual disturbances, disorders in conceptualization and behavioural difficulties.

Cognitive Stress Inoculation Training (CSIT) is one of the many cognitive behaviour therapies for which a large data base exists. As already noted on page 1, this procedure has demonstrated efficacy in treating traditional clients with a wide range of problems such as pain (Levendusky & Pankratz, 1975; Turk, 1979), anger (Madlen, 1977;

Novaco, 1975; Von Benken, 1977) in the treatment of tension headaches (Holroyd, Andrasik, & Westbrook, 1977) and anxiety management (Meichenbaum, 1973; Meichenbaum & Turk, 1976). Similar data based research using this mode of intervention as a total treatment with mentally retarded clients was not evidenced in the review of the literature for this study. However, the few published studies using this procedure with nontraditional clients have demonstrated success even though all but one such studies (Schlichter, 1978) used only portions of the cognitive stress inoculation training programme as part of a larger treatment plan.

Cognitive Stress Inoculation Training (CSIT)

CSIT is a skills-acquisition programme developed by Meichenbaum (1977) to teach both physical and cognitive coping skills in a variety of skill-deficit areas. It was originally used to assist clients with phobic reactions to manage anxiety and stressful situations.

The programme is designed to provide coping skills in moments of stress and anxiety. The ability to cope is acquired through positive self-instructions directed at emotion and behaviour. CSIT is a form of psychological protection or 'inoculation', analogous to a medical inoculation in which an individual's resistance is enhanced by exposure through training to a stimulus strong enough to arouse defenses without being so powerful that it overcomes them. This cognitive-behavioural procedure functions both as remediation and

prevention.

There are three phases to the procedure. Each phase utilizes many skills in achieving proficiency with the technique. Some of these skills involve self-observation, self-monitoring, overt and covert rehearsal of self-statements and other aspects of self-change strategies. Briefly the three phases include: (1) educating clients about the nature of stressful reactions and having clients observe themselves for their particular pattern of anxiety reaction; (2) having the clients learn then rehearse various cognitive coping skills as well as physical coping skills such as progressive and cue relaxation; and (3) transferring the acquired skills to stressful situations either in vivo or through guided imagery. This last phase is designed for practicing in real life situations all the skills acquired in phase two. Because CSIT emphasizes skills-acquisition with an aim towards the development of coping responses when under stress, and because training content is developed to meet the cognitive level, need and experience of the client, it has the potential to be an effective and appropriate intervention mode for mentally retarded clients.

Some studies have been conducted that used CSIT with nontraditional clients. For example, Schlichter (1978) used CSIT to develop anger management skills in institutionalized juvenile delinquents and concluded from the results that the complete treatment package was superior to any of the component parts used in isolation,

and that the cognitive treatment "may benefit clients traditionally regarded as not cognitively oriented" (pp. 6172-3). More data-based nomothetic research using SI training with nontraditional clients such as mentally retarded individuals is needed in order that firm conclusions may be made regarding the efficacy and generality of treatment.

Purpose and Proposal

The purpose of this study is to investigate the skill-training potential of cognitive stress inoculation training with mentally retarded individuals for the development of skills to enable them to direct control over frequent anger outbursts. Because some perceived behavioural deficiencies, including over-dependency, may be directly related to the reduced expectations made of these individuals, the rationale for this study is that if this is so, then such over-dependency and other behavioural deficits ought to be subject to changes in a positive direction, with training. This rationale reflects the views of Robinson and Robinson (1965) who argue that mildly retarded individuals can demonstrate capabilities of adapting to, and coping with, social demands, if given training and the opportunity to use such training.

The proposal being made in this study is that, as a multi-component training procedure, cognitive stress inoculation training can provide the opportunity for effective skill-training in

the areas of cognition, affect and behaviour with mentally retarded individuals as has been the case with normal clients and as cited earlier in this chapter. Some cognitive-behavioural procedures that have been used effectively with mentally retarded individuals are reviewed in Chapter 2.

CHAPTER II
REVIEW OF THE LITERATURE

Over the past two decades, interest in the role of cognition in behaviour modification has shown enormous vitality. This has spawned the growth of a new treatment mode centering around the role of cognitive variables as explanatory mechanisms for behaviour. Writers have focused on integrating cognitive and traditional learning perspectives (e.g., Mahoney, 1974), the role of cognition in self-control interventions (e.g., Karoly, 1977), the manner in which cognitive factors influence psychopathology and therapeutic change (e.g., Beck, 1970, Ellis, 1962), and the influence of ongoing cognitive activity on overt behaviour and affect (e.g., Meichenbaum, 1975, 1977).

One frequently used intervention strategy that has received a great deal of research interest is Cognitive Stress Inoculation Training (Meichenbaum, 1975, 1977). In order to complete a cognitive stress inoculation training programme people must learn to self-monitor their behaviour, assess the degree of appropriateness in their behaviour, be aware of, and deliberately control their self-instructions and initiate verbal self-reinforcement for successes. Further, in its initial form, cue-controlled relaxation was also included as an integral part of the procedure. In this way, CSIT shares a number of component skills with other self-control

procedures like Self-Management Training (cf. Kanfer, 1970; Karoly, 1977). The review of the literature which follows, focuses on some studies utilizing these component skills within CSIT and Self-Management Training programmes with mentally retarded people. The following review of research establishes that mentally retarded people can acquire and maintain the cognitive and behavioural skills that are part of a CSIT programme.

Cognitive Stress Inoculation Training Skills

Self-monitoring

Self-monitoring has been used in a number of studies with mentally retarded people to improve attention to on-task performance, and to decrease disruptive classroom behaviours. Self-monitoring is a two step process whereby the individual learns first to recognize that the target behaviour has occurred, then records its occurrence. This procedure is often used by itself to effect behaviour change since previous research has shown that self-monitoring can have reactive effects on target behaviours (Hiebert & Fox, 1981; Kanfer, 1977; Litrownik & Freitas, 1980; McFall, 1970).

Litrownik, Freitas, and Franzini (1978) tested a self-monitoring training programme in a laboratory setting with thirty moderately retarded children. There were three groups: self-monitoring training, yoked attention control, and no-contact control. Groups

were matched on gender, IQ, MA and CA. Two experimental tasks were assigned to assess self-monitoring (matching of a figure on the top of the page to one of four figures printed below, and a bowling game).

After two practice trials, students in the self-monitoring group were given instructions on how to self-monitor. Later the students were exposed to live and videotaped examples of appropriate self-monitoring on the experimental tasks. Discriminations needed for accurate self-monitoring were also taught using prompting, modelling and fading procedures. Individuals from the attention control group were given an equal number of trials. No instructions or demonstrations of appropriate self-monitoring were provided. Students in this group were given live demonstrations and a video model either doing seat-work or bowling, while self-monitoring. All three groups were posttested.

Retention and generalization of self-monitoring were assessed again one week later. Results showed that in both training tasks the three groups performed accurate self-monitoring on the pretest at chance level. Using appropriate self-monitoring as a dependent measure, a one-way analysis of covariance was performed on the scores at posttest, retention, and generalization assessments with the score on the pretest as a covariant. Results indicated that the training group was significantly better than either control group in self-monitoring during the experimental tasks. The researchers noted that the students were able to learn complex discriminations to

perform tasks as well as learning requisite skills to self-monitor. A strong indication is provided in this study for the potential use of self-monitoring strategies in working with mentally retarded children.

In a study designed to investigate reactivity effects on self-observation, Zeigob, Klukas, and Junginger (1978) obtained results consistent with those observed by Litrownik et al. (1978). They concluded that self-monitoring is a procedure that can be learned by mentally retarded children. Zeigob et al. (1978) carried out their study in a residential setting where they examined the effects of social praise and feedback on the degree of reactivity with two subjects.

The target behaviour for the first subject was nose picking. Trained observers recorded the frequency of the behaviour throughout the study. The subject was trained through modeling and prompting to identify the behaviour and record each occurrence by marking an index card. Training was done over a seven-hour period. Self-monitoring, baseline, and self-monitoring phases were sequentially implemented. In the next phase noncontingent social praise was added to self-monitoring. This was followed by a return to self-monitoring alone and self-monitoring with noncontingent social praise. Fading occurred over a 14-day period with a three and six months follow-up. Results indicated self-monitoring alone to be effective, significantly decreasing the level of nose picking. This low rate of the behaviour was maintained during the two follow-up phases.

The second subject involved a resident who exhibited excessive stereotypic head rocking. A one session training programme in self-monitoring was implemented after baseline. Noncontingent social praise for self-monitoring was then added to the programme. Feedback was a large graphic display on which self-monitored responses were recorded. This display was also used as a means for self-monitoring. In the succeeding phases, self-monitoring alone and self-monitoring with feedback were implemented.

Results showed self-monitoring alone had a reactive effect, reducing the target behaviour substantially. The use of feedback with self-monitoring also appeared to have had a therapeutic effect, lowering the rate of head rocking even more.

In these two studies, reactive changes in the target behaviours are consistent with what is typically the case for normal clients (Kanfer, 1970; Mahoney, 1975; Mahoney & Thoresen, 1974; McFall, 1970; Stuart, 1971). As well, the positive effect of feedback observed in the last study is observed also in nonretarded clients. Typically, a person's performance is enhanced when feedback or knowledge of results is given (Locke, Cartledge, & Koepfel, 1968).

The studies just reviewed demonstrate that although some retarded individuals tend to be overly dependent and generally lacking in some social skills, they can learn some requisite skills needed to direct their own behaviour, especially when instruction is carefully tailored to meet their level of understanding. They have demonstrated their

abilities to retain what they have learned and are able to generalize skills from one setting to another.

Self-assessment

Self-assessment is another component skill in a CSIT programme. Because research has demonstrated that control over behaviour can be exerted simply by assessing or being aware that the target behaviour has occurred without actually recording its occurrence (Gottman & McFall, 1972; Mahoney, Moore, Wade, & Moura, 1973; Masters & Santrock, 1976; McFall & Hammen, 1971), self-assessment has been used as a single intervention strategy to modify behaviours in nonretarded and retarded populations.

In most of the studies, the procedure usually involves comparing present performance on a given task in relation to some preset standard, usually established by a teacher in classroom settings. Based on the premise that individuals tend to adhere to certain standards of performance for various behaviours (Shapiro, 1981) their observed departure from such standards may initiate a corrective response which in turn affects the behaviour in a positive direction without the need for further intervention. Of particular importance with mentally retarded persons is the need to acquire such self-assessment skills and set appropriate standards for their own behaviours.

One of the relatively few studies to investigate self-assessment

potentials of mentally retarded individuals is that of Lecklitner (1981). Lecklitner assigned 30 moderately mentally retarded students between the ages of 14 and 21 years to one of three groups. The task for the students in each group was to turn a handle that would sound a bell after 10 turns. Before the start of the task all 30 students were instructed that at the sound of the bell they were to make a verbal self-assessment of their performance. Students in the first group were told to make positive self-assessment statements such as, "I'm really good at this." The second group of students was assigned to make a negative self-assessment of their performance like, "I'm not very good at this", while group three which served as a control group was instructed to make neutral self-assessment verbalization such as, "1, 2, 1, 2". All self-assessment statements were taught to, and modelled for the students. As well students were given eight practice trials to rehearse the self-assessment statements they were assigned.

The students then worked at the task for as long as they chose and made their self-assessment statements when the bell rang. At the end of the task each student self-assessed his/her performance by selecting either a happy, neutral or sad face sticker. As well students were told to help themselves to as many pennies as they thought their performance deserved. Results indicate that task performance and self-assessment of task performance did not differ for any of the groups. Specifically, students' self-assessment statements did not appear to influence the task performance differentially,

probably because the self-assessment statements were not contingent on actual performance.

The neutral effect of self-assessment on task performance as indicated by this study conflicts with a study done by Frederiksen & Frederiksen (1975) who observed results demonstrating positive effects with the use of a self-assessment procedure for behaviour change. In the Frederiksen and Frederiksen (1975) study, 14 mentally retarded students demonstrating disruptive off-task behaviour were taught how to self-assess their on-task behaviour in a programme aimed at increasing the behaviour. The students were given a token for on-task behaviour based on their self-assessment of that behaviour. Results showed self-assessment with teacher administered tokens was effective in maintaining on-task behaviour for 14 weeks. Furthermore, the behaviour was sustained over another 11-week maintenance period without tokens.

To summarize, self-assessment training as reported in these two studies has been used independently in assessing task performance (Lecklitner, 1981) as well as in conjunction with a token system (Frederiksen & Frederiksen, 1975) to increase on-task behaviour with mentally retarded children. The former obtained a neutral result, the latter a positive one.

Self-reinforcement

Another component skill of CSIT which has been used independently

to initiate behaviour change, is self-reinforcement. Self-reinforcement is also used in other forms of interventions where individuals are trained to administer consequences to themselves contingent upon behaviour. In a self-reinforcement procedure focus is placed on the process of making self-reward conditional upon matching actual performance with prescribed standards of performance. Few studies have focused on teaching only self-reinforcement skills with mentally retarded people. Most studies usually combine other component skills such as self-assessment or self-monitoring along with self-reinforcement procedures.

Litrownik, Lecklitner, Cleary and Franzini (1981) addressed the issue of whether mentally retarded individuals could learn accurate self-assessment and self-reinforcement with training. In pretest, 16 students worked on a symbol matching and a block design matching task. The time for task completion was set by the experimenter and signaled by a bell. The experimenter told some students that they had finished, and others they had not, when in reality all students had finished the tasks. Those designated "finishing" were told to place a "happy face" on a score board on their desks. They were also to help themselves to an edible item from a cup on their desks. Those designated as "not finishing" before the bell rang were instructed to put a green square on their score board meaning a negative self-assessment.

Eight students were then assigned to an experimental group, the

other eight, to a control group. Students in the experimental group were given 30 minutes of self-assessment training by demonstration and practice. Later, the experimental and control groups were measured on their self-assessment and self-reinforcement skills. Self-reinforcement training was then implemented with the experimental group. Self-reinforcement consisted of the students using verbal praise for correct self-assessment. Self-reinforcement training was then faded.

The two experimental tasks were readministered at posttest. Posttest two was done four days later to evaluate for degree of maintenance. One week later six of the eight controls were trained to self-assess and self-reinforce after which these six were reassessed. Results of the study showed that at pretest, regardless of the content of the self-assessment statement assigned to the student by the researcher, all 16 students self-assessed at chance level. Following training, students in the experimental group correctly self-assessed and self-reinforced on both tasks in comparison to the control group which remained at chance level. This effect was also present in the second posttest. However, after six members of the control group were trained they also self-assessed and self-reinforced at levels similar to the experimental group thus replicating the effects of training. This study indicates that some mentally retarded individuals can acquire self-assessment and self-reinforcement skills.

Self-instruction

Self-instruction (SI) training is an integral part of CSIT and has been utilized to alter conditions antecedent to the target behaviour (Dennis & Mueller, 1984). The following studies have used self-instruction in varying degrees to influence behaviours of mentally retarded individuals. In some cases self-instructions have been used singly, and in others, as part of an overall treatment procedure in remedial programmes.

Guralnick (1976) used self-instruction with mildly retarded children between the ages of 6 and 14 years for a comparison study between feedback, modeling, and self-instruction (SI) training in solving complex perceptual discrimination problems. The SI programme was similar to that used by Meichenbaum and Goodman (1971). Results of the study showed that only SI training led to an increase in correct response of matching a figure to one of six alternatives. Generalization to more complex matching familiar figures tests (MFFT) was not obtained.

Increase in attending and academic skills was demonstrated in studies by Burgio, Whitman, and Johnson (1980) and Johnson, Whitman, and Johnson (1980), respectively. A comprehensive SI training programme was implemented by Burgio et al. (1980) which included provisions for generalization. The study consisted of five students: two received SI training, one was used as control and the other two were monitored during the study for the purpose of providing a

criterion comparison and social validation of the intervention. SI training consisted of six specific verbalizations during training. Printing and Arithmetic tasks were used during training and a phonics task was used during the evaluation of generalization. Important to note is that assessment of generalization was made immediately after the sessions ended and the students were in their regular classroom. A multiple-baseline design across subjects was used and data were collected on frequency of SI statements, percentage of off-task behaviour, performance measures related to academic work and ratings of distractibility by the teacher in pre- and posttests. Students receiving SI training developed fewer off-task behaviours and exhibited a high rate of SI statements which they used regularly when working on tasks during the generalization assessments (Burgio, et al., 1980). Similarly, Johnson et al. (1980) conducted a study which focused on skill acquisition in addition and subtraction with three mildly retarded subjects. Their results indicated that SI increased accuracy on task but a decrease in speed of responding was observed. The researchers speculated that as the children engaged in SI they proceeded through fewer problems perhaps because they were spending longer time checking for accuracy of response, and perhaps increases in rate could occur after longer-term experience with using SI to improve academic skills.

Wells, Turner, Bellack and Hersen (1978) reported a generalization similar to Burgio, et al. (1980). SI training was

administered as an independent measure with a female mentally retarded subject who experienced frequent psychomotor seizures that were uncontrolled by medication. A combination of SI, deep muscle relaxation and cue relaxation reduced the seizures to zero on most treatment days. Self-report during a three-month follow-up as well as continued maintenance after the patient was discharged indicated transfer and maintenance effects.

Another study conducted by Peters and Davies (1981) demonstrated the effectiveness of SI in controlling impulsivity with individuals who are mentally retarded. The study consisted of one group which received SI training while observing a reflective model (experimenter/therapist modelling) and a control group that experienced only the reflective model. SI training was designed based on the procedure of Meichenbaum and Goodman (1971). Subjects were assessed for impulsivity on the Matching Familiar Figures Test (MFFT). Posttesting measures indicated that the SI training procedure produced significantly more reflective responding than controls who had only reflective modelling. The authors noted that their findings are in contradiction to Lurii's (1961) contention that retarded individuals are incapable of using the language-based system to influence and control their own behaviour.

In a comparative outcome study Schlichter (1978) used stress inoculation training successfully to develop anger management skills in institutionalized juvenile delinquents. He found this intervention

was more effective than elements or subcomponent parts alone, such as rehearsed practice and relaxation training. Similar observations have been made by Davidson (1976). Rudestam (1980) writes that self-instructional training is an effective strategy for individuals who are deficient in verbal self-control and hypothesize that typically, it was the nature of their internal dialogue that contributed to hostile behaviours (such as anger and rage).

Two recent research reviews (Dennis & Mueller, 1981; Jackson & Boag, 1981) examined a number of studies utilizing cognitive behaviour therapies with the mentally retarded. In the Jackson and Boag (1981) review, these strategies were called self-control procedures, while Dennis and Mueller (1981) referred to similar strategies as self-management training. These reviews reported several remedial programmes involving self-instruction, as well as other component procedures of CSIT such as self-monitoring and self-assessment. All component skills training were reviewed as having some positive effect on behaviour change. In particular, self-instruction training was found to be effective for acquiring a variety of skills such as the setting of performance standards (e.g., Litrownik, Cleary, Lecklinter, & Franzini, 1978), and decreasing drooling (e.g., Thorbecke & Jackson, 1981). Essentially, the reviews indicated that mentally retarded individuals can and do acquire the component skills in CSIT and that acquiring these skills can lead to changes in behaviour. However, no studies were found that tested the effect of combining these skills in

an integrated fasion in a CSIT programme for mentally retarded people.

CSIT For Anger Control

Cognitive Stress Inoculation Training for anger control was initiated by Novaco (1975). Novaco's pioneering research compared the efficacy of CSIT for anger control in 34 chronically anger-prone individuals selected on the bases of an anger inventory (Novaco, 1975), an interview, and a physiological and self-report response to laboratory provocations. Some subjects received "stress-inoculation" plus relaxation training, the second group received only self-instruction training and the control group was given an attention-control condition. After five training sessions, subjects in the combined treatment differed significantly from controls on the anger inventory and measures of arousal (self-ratings of anger, systolic and diastolic blood pressure, GSR, and self-reports of aggressive and nonaggressive coping strategies). Subjects receiving self-instructional training only, improved less than those in the combined treatment but showed significant reductions on the anger inventory compared to controls. Novaco (1975) observed that the results of this study indicated that stress inoculation including both relaxation and self-statements was superior to the component treatments of self-instruction alone or relaxation training alone. Other researchers also have provided additional support for the positive effect of CSIT on aggression and anger arousal (e.g., Crain,

1978; Harvey, Karan, Bhargava & Morehouse, 1978; Madlen, 1977; Von Benken, 1977) violence in inpatients (e.g., Frederiksen & Rainwater, 1981).

Summary

The studies reported above used component parts as well as the entire CSIT programme to deal with a wide variety of behaviours, thus demonstrating the efficacy and versatility of this cognitive treatment mode. CSIT facilitated the acquisition of useful classroom skills and was accompanied by decreases in such maladaptive and debilitating behaviours as impulsivity and seizures. These findings underscore the versatility of this intervention mode and the potential usefulness of CSIT as a treatment strategy with members from the retarded population. They also demonstrate that mentally retarded individuals can acquire component skills in CSIT and can also maintain therapeutic effects once attained.

Although none of the studies which used self-instruction or the full training package of CSIT for anger arousal control was implemented with mentally retarded individuals, the positive results demonstrated by the studies with other groups support this treatment mode as a potentially effective strategy for acquiring skills to gain and maintain control over anger outbursts. Results from these studies suggest that an anger management therapy using cognitive control and relaxation training may be similarly effective with mentally retarded

individuals. The present research was undertaken to investigate whether or not the multi-component intervention of Cognitive Stress Inoculation Training would be effective in controlling anger arousal with mentally retarded individuals.

Research Hypotheses

An anger management programme using the complete training procedure of Cognitive Stress Inoculation training was developed and field-tested to investigate the value of this mode of therapy for anger control with mentally retarded people.

The following three research hypotheses were developed.

1. Mentally retarded individuals will be able to acquire the component skills in the CSIT programme, as demonstrated by their verbal responses to simulated anger provoking events.
2. The intervention will be accompanied by a reduction in the number of anger outbursts.
3. Subjects receiving treatment will demonstrate a reduction in the frequency of the use of anger-aggression related words as reflected in data derived from their responses in their completion of an Incomplete Sentences Blank Scale which assesses level of social adjustment.

CHAPTER III

METHODOLOGY

A description of the experimentally accessible population and the six research criteria used to identify this population, the institution from which it was selected, sample, sampling design and procedure, dependent variables and research design are presented in this chapter.

For the purpose of clarity in describing sampling design and procedure, a distinction is necessary at this early stage between target population and experimentally accessible population, the latter having been utilized in this research. While target population refers to all members of a defined universe, an experimentally accessible population identifies only some members of that universe. These members are usually identified by methods other than random sampling and therefore may not necessarily be representative of the target population. The need to draw attention to this difference is important since the validity of generalization of results rests largely on the representativeness of the sample.

Sampling from an experimentally accessible population was done because of the complexity and prohibitive costs of sampling from the defined target population. However, in this research, the procedure of random sampling from the experimentally accessible population was utilized, thus minimizing the potential for bias.

Experimentally Accessible Population

The experimentally accessible population was identified from among 850 residents at a provincial institution for the mentally retarded in the province of British Columbia, Canada. Identification procedures were as follows:

Step I - Computer Search

A computerized read-out of residents was obtained using the following five criteria:

- 1) mild or moderate mental retardation
- 2) ambulatory (for pragmatic reasons related to getting to and from the research area)
- 3) not psychotic
- 4) not self-abusive
- 5) functional sensory modes

Twenty seven residents were identified on these five defined criteria. A sixth research criterion (a lack of control over anger arousal as perceived by self and others) was used in step 2 which completed the process of identification of the experimentally accessible population.

Step II - Identification of Anger-prone Residents

The wards on which potential subjects lived were contacted by phone and in-person to 1) obtain confirmation of the information on the computer print-out and 2) to assist in identifying those residents

having difficulties in controlling anger. Difficulty in controlling anger was assessed by:

- (a) Staff observation and verbal report
- (b) Ward notes
- (c) Resident self-report.

Resident self-report was obtained only after those residents were identified by staff as having problems in controlling anger, but prior to random sampling.

Charge nurses and psychologists were asked individually whether or not each of the twenty seven residents was considered by staff, and/or peers to have difficulties in controlling anger arousal. Staff members were also asked if they knew whether or not each resident perceived him/herself as being unable to control outbursts of anger. Resident self-report was obtained only after those residents were identified as having problems in controlling anger, but prior to random sampling.

Of the 27 residents identified in step 1, sixteen were reported by staff as having problems with anger control. A brief interview with each of the sixteen residents was held to obtain the resident's self-view and to seek confirmation or disconfirmation of a difficulty in controlling anger. All sixteen residents confirmed a lack of control over anger outbursts. These interviews completed the process of identification of members of the experimentally accessible population which consisted of nine males and seven females.

The average age of the experimentally accessible population (hereafter called the population) was 27.5 years with an age range of 18 - 39 years. (See Table 3) The IQ score for each member was obtained from clinical files. The average IQ was 54 and the range (40 - 68) was 2 - 4 standard deviations below the mean on the measuring instrument (WISC-R). Ten members of the experimentally accessible population were identified as mildly retarded and six as moderately retarded.

Reassessment to confirm IQ scores was not done for this study for the following reasons:

- 1) Lack of funds to defray cost of retesting
- 2) The scrutiny of subtests scores revealed that each member of the population obtained a discrepancy score between verbal and performance subtests. Typically, differences in certain subtest scores, including those of verbal and performance, indicate the existence of some mental disorder such as retardation (Shertzer & Linden, 1979), therefore recorded discrepancies in the subjects' verbal and performance scores were regarded as a reliable indicator of retardation.

The Institution

The study was conducted within an urban residential institution in the province of British Columbia, Canada. The institution provides evaluation, training and treatment for the mentally retarded of all

Table 3
 Characteristics of the Accessible Population

Gender	Females			Males		
Variables	Age	IQ	Level of Retardation	Age	IQ	Level of Retardation
Values	20	57	mild	18	54	mild
	24	43	moderate	19	56	mild
	24	57	mild	24	40	moderate
	28	56	mild	24	53	moderate
	30	68	mild	25	56	mild
	32	40	moderate	32	40	moderate
	33	68	mild	32	59	mild
				36	62	mild
			39	53	moderate	
Averages	27.3	56		27.7	53	

ages whose needs cannot be met within the family or within the local environment of the family. Information provided in the Staff Orientation manual emphasizes the care and treatment of the resident to be more important than shelter. "It [the institution] must promote feelings of acceptance, security, belonging, and self-worth, so that there is a sense of human dignity." (Staff Orientation Manual, Note 1).

At the time of the study there were approximately 1300 staff members to 850 residents. This ratio is substantially smaller than most institutions discussed by Goffman (1961) in which, typically, the resident population is larger than the staff. The institution provides continuing education for its staff and assists in the education of field personnel.

The Sample

A sample of ten residents¹ (five females and five males) was randomly drawn for the research from the population of 16 members. The mean age for the sample was 27.8 years with a range of 19 - 36 years. Mean IQ was 54 with a range of 40 - 68. Thus the sample is representative of the population (see Table 4).

The level of social or adaptive behaviour for all ten subjects was assessed on the Vineland Social Maturity Scale. The clinical files of the subjects indicated that two females and one male was assessed at the mild range of social adaptive behaviour, and two

¹ During the course of the research one resident moved to a community residential setting where the intervention was continued.

Table 4

Sample: Demographic Breakdown by Sex

Gender	Females				Males			
	Age	IQ	Level of Retardation	Level of Adaptive Behaviour	Age	IQ	Level of Retardation	Level of Adaptive Behaviour
Values	20	57	mild	mild	19	56	mild	moderate
	24	43	moderate	moderate	25	56	mild	moderate
	28	56	mild	mild	32	40	moderate	moderate
	30	68	mild	moderate	32	59	mild	mild
	32	40	moderate	severe	36	62	mild	moderate
Averages	26.8	53			28.8	55		

females and four males were assessed at the moderate range, while one female was assessed as severely socially adjusted.

The frequency of the overlap of handicaps in the mentally retarded has been documented (Hewett, 1970; Rutter, Tizard & Whitmore, 1970; Shakespeare, 1975). All ten subjects in the present study, besides being mentally retarded had at least one accompanying sensory impairment. Five subjects had impairment of speech (three females, two males), two males had impairment of speech and vision requiring corrective lenses for the latter. Two females had auditory impairment as well as deficits in speech and vision. These impairments were not absolute and the subjects functioned using all sensory modalities. Some of the residents with speech impairment received speech therapy and one has been taught sign language. The hearing and visually impaired function with the assistance of aids.

Nine of the ten subjects were on medication. Dosage and daily frequency varied for each individual depending on 1) frequency, duration and intensity of epileptic seizures and 2) the extent of excitability and affective mood swings of the resident. Medications were typically from the anti-convulsant drug groups for seizure control and were prescribed under different brand names. The residents' files indicated that in nine of the ten cases mental retardation was due to 'unknown prenatal influences'. In the tenth case retardation was due to postnatal hypoxia (drug overdose) at age 12. As is usually the case with mentally retarded individuals, all of

the subjects had varying degrees of educational deficits. Subjects were verbal enough to carry on short conversations, could count and read words. The mean number of years of institutionalization was 10.5. The range was 2 - 23 years.

Sampling Design

Simple Random Sampling

The names of the sixteen members of the population were each written on separate slips of paper. The names of the nine males were placed on one covered box and those of the seven females were placed in a separate covered box. The box with the names of the females was shaken first and the first name drawn. The second draw was from the box with the names of the males after it was shaken. After each draw from both boxes, the boxes were shaken for the next draw. In this manner ten names were drawn: five females and five males. The names were paired by sex. The name of the first female drawn was paired with the name of the first male drawn. The name of the second female was paired with that of the second male and so on until all five males and five females were matched on the variable of gender. Gender variable was used to observe for possible differences in training effect.

Informational Sessions

Prior to the start of the research and after random sampling, two

brief informational sessions were held with subjects only. The first was to obtain informed consent and to get the subjects' permission to contact parent(s) or guardian(s) to inform them about the research and to obtain their permission for the inclusion of their son/daughter in the research. At this stage two residents chose not to participate, one female and one male. They were replaced by two other residents randomly selected and paired from the remaining members of the population. The second informational session was used to instruct each subject on how to record outburst data, and to solicit the subjects' descriptions of anger provoking events.

Arrangements also were made to meet with parent(s), resident and a ward staff member to formalize permission, explain the nature and purpose of the research and to sign consent forms. See Appendices A, B and C for samples of the informational document and consent forms.

Informational sessions with staff apprised them of baseline, treatment and follow-up phases of the research. They were not informed, however, of the specific periods of each of these phases since such information has the potential of producing expectancy biases in the data being monitored by staff. One week before baseline there was a formal session with each subject, his/her parents and a staff member. This session apprised every one of the nature, purpose and duration of the study. The informational document (Appendix A) was read aloud and the subject was instructed to summarize what he/she understood by it. This was done to ensure that every one,

particularly the subject, understood what the research was all about. Consent forms were read, explained and signed (see Appendices B and C). In this meeting staff were instructed on how and when to start data recording. Similar instructions were given to each resident in a different informational session.

Research Design

A multiple baseline across subjects was utilized in this research. This design is an extension of the single-case experimental procedure and allows for plausible demonstration of a possible causal relationship between treatment and behaviour (Baer, Wolf & Risley, 1968; Craighead, Kazdin & Mahoney, 1976). The procedure requires treatment to be introduced at different points across time, but at the same point after baseline for all individuals.

In the present study the five pairs of subjects began treatment at two week intervals. At each point of intake, two subjects (one male and one female) began a baseline period of two weeks. At the start of the third week, treatment was commenced for the first pair while a second pair and staff began recording baseline data. This continued until all five pairs were eventually introduced into the research.

Research procedures lasted for sixteen weeks for each pair of subjects (two weeks of baseline, eight weeks of treatment and six weeks of follow-up). There was a second six week follow-up for the

first two pairs of subjects to assess for continued maintenance of treatment effect.

Dependent Variables

There were three dependent variables used in the research: frequency of anger outbursts, taped pre- and posttreatment verbal responses made by each subject to the presentation of photographs depicting incidents the subject reported as anger provoking, and social adjustment scores obtained from pre- and posttests on the Rotter and Rafferty Incomplete Sentences Blank Scale (Rotter & Rafferty, 1950).

Frequency of Anger Outbursts

The variable of anger outbursts was the target behaviour being monitored from baseline to follow-up. Observation procedure was continuous where each event of anger was recorded. Observation of a decrease in frequency from baseline to follow-up was taken to be indicative of a positive treatment effect.

Prior to baseline, residents were instructed during an informational session on how to record the data on frequency of anger outbursts. Each resident was given a calendar and pencil and taught how to record events of outbursts under the day and date of occurrence for the duration of the research. Residents were also instructed to record each outbursts as it occurred and in cases where more than one

outburst occurred in one day, each occurrence was to be recorded immediately after its occurrence. Spare calendars were used by the researcher to model, and by each subject to practice data recording until the resident demonstrated proficiency in carrying out the task of data recording. The residents became proficient at data recording by the end of the session. They demonstrated this proficiency by finding randomly named months and entering a check mark under randomly named dates and days with a 100% accuracy.

Reliability of outburst data. Data on frequency of anger outbursts recorded through the sixteen weeks of the research were recorded by the subjects as well as by staff. Measures for data reliability on anger outbursts are discussed.

- 1) A description of what constitutes an anger outburst for each resident was agreed upon by resident, staff and researcher. Subjects described what they perceived as their typical anger response to provocation. The subject's descriptions were accepted as a definition of that subject's expression of anger. Descriptions/ definitions varied for each subject. Some common behavioural and emotional elements include screaming, hitting, kicking, pushing, shouting, swearing, upturning furniture, body tremors, laboured breathing, crying, sweating, flushing of the face, etc.

- 2) Both residents and staff kept separate records of daily anger outbursts.
- 3) Subjects were to report to staff all anger outbursts that occurred off the ward, or out of the presence of staff.
- 4) It was agreed that discrepancies between staff and resident data would be discussed to determine source of omission. It was further agreed that if the discrepancy could not be resolved, the lower recorded frequency would be taken if a discrepancy occurred during the baseline and follow-up phases. However, if an unresolved discrepancy occurred during treatment, the higher recorded frequency would be taken. This procedure would ensure that such discrepancies would not be enhancing to any treatment effects. Exact duration and time of baseline, treatment and follow-up phases were known only to the researcher who would make the necessary adjustments in data on a master recording sheet, should unresolved discrepancies occur. In actual fact, no unresolved discrepancies occurred between staff and resident data. There were instances where the resident failed to report to staff an outburst that occurred off the ward. However, in each case the resident had recorded the incident in his/her

data calendar. In instances where staff data were greater than those of the subject's, the subject would acknowledge having had those outbursts and explained he/she had forgotten to record them. Data discrepancies were always resolved. There were 35 instances of discrepant data of the nature just described and all were resolved objectively. Of these 63% (22) were staff omissions and 37% (13) subject omissions. The 35 instances of resolved discrepant data represented 10% of all incidences of anger outbursts recorded.

Taped Pre- and Posttreatment Verbal Response to Pictures

During the same informational sessions on data recording each subject was probed and instructed to describe 3 events he/she found anger provoking. This information went towards the compilation of four pictures depicting anger provoking events or situations for each resident. Three of these pictures were presented in pre- and posttesting.

Pictures were presented one at a time. On presentation of each picture, the resident was instructed to describe the content of the picture, and to describe his/her feelings, thoughts and possible behaviour response to the anger provoking event illustrated in the picture (see Appendix E). The subjects' responses to each question

were rated with respect to the number of anger and nonanger words contained in the responses. The responses to "How would you feel?" and "What would you feel?" were combined to form a feeling measure, i.e., feeling anger or feeling nonanger. Responses to "What would you think?" became the thinking measure, i.e., thinking facilitatively or thinking nonfacilitatively. These responses to "What would you do?" became the action measure, i.e., aggressive action or nonaggressive action. See Appendix E for scoring sheet. All verbal responses were taped to observe for frequency of aggressive responses between pre and posttest.

Reliability for anger response data to pictures. Reliability was obtained by having two scorers rate the pre and posttests recorded responses to the pictures depicting events the subject described as anger provoking. The blind scoring method was used. As well, three pre- and posttreatment taped responses were duplicated and included in each set scored by the same two scorers to observe for within scorer reliability. An interrater r of .98 was obtained.

Social Adjustment Scores on Rotter and Rafferty Scale

The Rotter and Rafferty Incomplete Sentences Blanks (ISB) Scale was given to subjects as a pre- and posttreatment measure of social adjustment. The scale is a semistructured projective technique consisting of 40 incomplete sentence stems. Each response is assigned a value of 0 - 6 yielding a total score as an index of overall adjustment to a variety of events, situation or experiences. Theoretically,

scores can range from 0 - 240 (40 x 6).

Respondents are asked to complete sentences for which the first word or words (stems) are given. For example: "I like ..."; "The best ...", "What annoys me ...". The test is usually administered by giving the test protocol to the subject, reading the instructions aloud and having the subject complete the sentences by writing his/her responses next to each stem. The content of the sentences are scored on the dimensions of conflict, positive and neutral responses. Omissions are not scored but frequencies of omissions are prorated in arriving at the subject's adjustment score.

Validation of the Incomplete Sentences Blanks was obtained by the blind scoring method, the scorer not knowing whether the completed test was that of a socially adjusted or maladjusted person (Rotter & Rafferty, 1950). The test manual further describes that validity data were obtained from several groups of students who were either self-referred or were previously classified from various referral sources as either adjusted or maladjusted, i.e., as needing or not needing personal counselling in different areas of adjustment. For some of these groups a cutting score of 135 on the ISB correctly identified 78% and 59% of adjusted and maladjusted females, respectively. The same cutting score correctly identified 89% and 76% of adjusted and maladjusted males, respectively (Rotter & Rafferty, 1950).

The test manual reports reliability measures which were obtained

on a split-half reliability procedure. The correct split-half reliability coefficients of .84 was obtained based on the records of 124 male college students, and .83 on 71 female students. Inter-scoring reliability measures of .91 and .96 were obtained on the records of 50 males and 50 females, respectively (Rotter & Rafferty, 1950). There were two versions of the test; a high school and a college version. The high school version was used in the present study because it is the version used within the institution.

The Rotter and Rafferty Incomplete Sentences Blank test (1950) is normed on a mean score of 127.4 for normal females and 127.5 for normal males with a cutting score of 135. The test was used in this study to observe for possible social adjustment effects from pre- to posttesting.

The use of the Rotter and Rafferty Incomplete Sentences Blank (1950) was based on several considerations relating to the content of the treatment and the mental levels and language skills of the subjects. There is no time limit for response therefore the stress of time-demand is minimized. The sentence stems are short and straightforward and constituted by words that are easily comprehended. Most of the stems solicit first person responses therefore they have the potential of soliciting the subject's involvement on levels of cognition, emotion and behaviour. Subjects' are given the opportunity to respond with more than a "yes"/"no" answer.

From an administrative point of view the test is easy to

administer and does not require special training. It is sometimes used at the institution as part of a test battery for routine assessment and staff psychologists are familiar with its content and purpose. None of the subjects in this study had been previously tested on the measure.

The reasons outlined for the choice of this semi-projective test does not mean there are no related criticisms. The matter of differential test standardization for each discrete population with which tests are used holds true for the Rotter and Rafferty Incomplete Sentences blanks (1950). The authors of the test protocol have clearly not lost sight of this need and are exploring the use of the test for diagnostic purposes in mental institutions. The point made by the authors that application of the test (or any test) to illiterate individuals may yield insufficient material as an evaluative tool, is well taken. To offset such possible insufficiency of written responses the researcher in the present study read aloud the sentence stems to each subject and recorded the subject's verbal responses. Hence this administration procedure controlled for differences in reading and writing skill levels among subjects.

Reliability of scores. Reliability of scores obtained on the test protocols in this study was ensured by having both pre- and post-treatment responses scored independently by two practicing psychologists familiar with the test and scoring procedure. The blind scoring method was used. Reliability for within scorer consistency

was obtained by having three pre- and posttreatment protocols duplicated and included among each set scored by the two psychologists. An interrater agreement of .98% was obtained. Responses were rated at three levels: overall adjustment; frequency of words of anger, and frequency of phrases of anger with personal intent to act aggressively.

Treatment

In Chapters 1 and 2 the nature of cognitive stress inoculation training was described. What follows now is a description of the treatment procedure used in the research.

Training was implemented over an eight week period following two weeks of baseline. Each subject was individually trained one hour per week, in the same setting, for the duration of the research. As mentioned earlier, one of the residents moved to a group home after the baseline period. Training was continued in the group home for this resident.

The five phases of the research were conducted over the following number of weeks:

- 1) Baseline - weeks 1, 2
- 2) Educational phase - weeks 3, 4, 5
- 3) Skill acquisition phase - weeks 6, 7, 8
- 4) Transfer phase - weeks 9, 10
- 5) Follow-up phase - weeks 11, 12, 13, 14, 15, 16.

Baseline data were collected at the end of the two week baseline period. Throughout the training period, weeks 3 - 10, data were collected, verified and recorded by the researcher at the end of each session.

The training programme was an adaptation of Meichenbaum (1977), presented within the context of Instructional Counselling (c.f. Hiebert, Martin & Marx, 1981). The Instructional Counselling approach encourages the subject's active involvement and commitment towards the process of behaviour change. Appendix D contains full details of the treatment protocol.

The content of each training session was structured and overviewed for each subject. Progress of training was dependent entirely on the extent to which the subject understood the content of, and learned the skills taught in each session. Therefore at the end of each session the subject was instructed to summarize the training activities to which feedback was provided regarding the subject's accuracy of recall.

During the first training session, pretest measures were obtained on the Rotter and Rafferty Incomplete Sentences Blanks and on the subjects' responses to presentation of pictures depicting anger provoking situations (see Appendices E and F respectively, for the protocol of the taped interview for picture presentation and for the pictures depicting anger-engendering situations as described by the subjects).

Educational Phase (Phase I)

The educational phase of the training extended over the first three weeks after baseline. It included a brief description of the adaptive function of anger, identification of physiological arousal, and the concept of self-statements or self-talk. The concept of self-talk appeared to be the most difficult aspect of the training to be grasped by subjects. They were assisted in identifying and describing self-statements by the use of games and puzzles (see Appendix G). These activities developed an awareness on the part of subjects as to the nature of self-statements, which they later learned how to use purposefully when self-instructing.

Physiological arousal. Physiological changes accompanying outbursts of anger were identified. The researcher gave an example of what, for her, was an anger provoking event. She described physiological changes of arousal of increased heart rate, and nervousness of the hands accompanying her response to the source of provocation. Subjects were instructed to recall and describe events of provocation, and to describe how their bodies reacted in response to such provocations. These events and accompanying body changes were readily identified and described by subjects. Feelings of tightness of the throat, laboured breathing, nervousness in arms and legs, tension of the neck, shoulders and stomach, flushing of the face, excessive sweating of palms and soles of feet, increased heart rate and body temperature were described by subjects as ways in which their bodies

reacted to provocation.

Identification of self-statements. Card games, puzzles of various sizes and pieces, colour matching, money sorting, building with design blocks and guessing games comprised the activities used to develop awareness, identification and description of the content of self-statements. The researcher described what for her, was an anger provoking situation. She vocalized the kinds of appraisals and self-instructions she was mentally engaged in, in response to the source of provocation. Game activities were then used by the researcher to model self-instructions, as well as to teach subjects how to identify cognitive activities. Subjects were told that they could eventually learn how to make conscious efforts at using positive alternative responses to anger provoking situations.

During the games, the researcher vocalized her thoughts that would normally remain subvocal. For example, the researcher took the first turn at solving one of the puzzles. She picked up the first piece and said aloud:

I wonder where this piece goes. Let me try it here. Oh no, it does not fit. Let me try it over here this time ... there, it fits. That other piece looks like it will fit in that corner. No, it does not. Let me take it out and try it here. It does not fit here either. Oh boy, I wonder where it goes. I will leave it for last. Let me try fitting the other pieces. These two pieces go here and here. Good. Now there is only one piece of puzzle left to fit and only one space left empty so they must go together. Let me see, I will put it there. Yes, it fits. Good I am finished. I have solved the puzzle. I told myself where to fit

the pieces and I also told myself when I was incorrect. I listened to myself and did what I told myself to do. Now it's John's turn to solve the puzzle. Let me take the pieces out and give the puzzle to him. There, I have taken the pieces out.

The instructions directed to John were, "Here, John, it's your turn to do the puzzle. When you are solving the puzzle let me hear you say aloud the things you will be saying to yourself. Say them aloud just as I did."

All games were played in a similar manner to develop the subject's skill of tracking and vocalising his/her self-statements and to use them purposefully in overt behaviours. Subjects were praised for verbalizing self-statements.

Next, subjects were instructed not to vocalize their self-statements while playing the games but to listen attentively to what they were saying subvocally, and to do what they were telling themselves to do. As the subjects played, the researcher interrupted at various points and asked the subject to verbalize what he/she had just said to him/herself when he/she corrected a wrong move in the game. Subjects were now able immediately to verbalize their self-statements through which they had realized and corrected the error during the game. Verbal praise was provided by both the researcher and the subject for the subject listening to, and acting upon his/her self-statements.

The general concept of self-statements as an ongoing mental activity was transferred to the target behaviour and focused specific-

ally on what subjects "said to themselves" when provoked. The relationship between positive statements and their effects on behaviour were modeled for each subject. They said that when they were angry they often generated a number of self-denigrating statements. For example, they said to themselves that they were picked on because they were not liked, too fat, stupid, retarded, etc. Subjects' self-statements also included instructions to hit, kick, cry, push, swear, etc. The researcher suggested that such self-statements do not help in making them feel good about themselves and they make it difficult for people to respond with more 'positive' behaviours when provoked. Subjects were further instructed that they would learn more positive self-statements to replace the negative ones they had described.

Skill Acquisition Phase (Phase II)

The fourth, fifth and sixth sessions focused on skill acquisition. Positive self-appraisal, objective appraisal of the anger provoking event, deep muscle and cue relaxation techniques as well as developing and using congratulatory statements for non-hostile responses to provocation were taught to the subjects.

Positive self-appraisal. Positive self-appraisal was focused on teaching subjects new and more functional ways of viewing themselves, as well as new ways of thinking about, and responding towards events they found anger-provoking. Self-esteem and self-worth statements

were also included in self-appraisal statements. Some positive self-appraisal statements generated by subjects with assistance from the researcher were, "I don't have to shout or hit." "I can handle this if I remain calm." "I am not dumb." "I know how not to explode while letting them know I don't like what they did." "I will not get into a fight because I know how to express my feelings in a more positive way."

Objective appraisal of anger provoking events. The researcher modeled and taught subjects self-statements directed at objective appraisal and evaluation of anger-arousing situations. Objective appraisal included: "Why am I getting angry now?" "Did I do anything to deserve this?" "Is this really worthwhile getting upset about?" "Is it so bad after all that I am going to get mad about it?" "Is it worth my time?" "This situation is making me angry but I don't have to scream."

Subjects were taught to look at events as situations in which they have a choice of response and that the training would give them skills which would enable them to exercise such choices. Subjects were instructed to problem-solve in terms of appraising stressful situations and evaluating whether or not these situations were worth being angry about, and if so, how to express effectively and without tantrums, their feelings of displeasure.

Progressive and cue-controlled relaxation techniques. Progressive and cue-relaxation techniques (Hiebert, 1980) were taught to

enable subjects to use this strategy to calm and decrease physiological arousals when angered. Subjects were instructed to practice every day as well as on occasions when they were stressed or being provoked. It was emphasized that daily practice was essential in producing and benefiting from the relaxation effect; they were told that it was also more difficult to get angry when the body is in a relaxed state. (See Appendices H and I for progressive relaxation and cue-controlled relaxation protocols.)

Congratulatory self-statements. Congratulatory self-statements were developed to reinforce the successful application of positive coping skills when provoked. Some of these statements were, "I controlled my anger and was able to speak up without shouting." "Good for me. I did not get angry even though I felt like I was going to." "I am getting better at not screaming and I told them I did not like what they did." "Well done, I did not strike out." "I am sure learning how to handle provocations. It makes me feel good about myself."

After each skill acquisition session subjects were instructed to practice their coping skills so they would become familiar and comfortable with this newly acquired positive way of responding to provocation.

Phase III - Transfer Phase

The last two weeks of training provided the subjects with

opportunities to practice their new skills. Firstly, they overtly practiced their skills to imagined, described and researcher simulated anger provoking situations. Subjects talked themselves through anger provoking scenarios and coping strategies. They were then instructed to practice covertly. During covert practicing the researcher interrupted subjects from time to time to enquire what subjects were feeling, thinking, doing, and why.

After subjects demonstrated competency in the use of the coping skills, the researcher simulated anger engendering events earlier described by each subject. The subjects then practiced their coping procedure, to which feedback was provided by the researcher.

For example, on presentation of a simulated anger provoking event, the subject's dialogue for a typical rehearsal session consisted of the following components:

Identifying and acknowledging antecedent physiological arousals.

"My heart is beating faster and my hands are shaking. This means I am getting angry. I need to do my relaxation to calm me so I do not blow-up. I don't want to blow-up and start screaming."

Objective appraisal of anger provoking event. "Is this something I want to get upset and angry about? Is it worth my time? What do I have to lose if I don't get mad?"

Affirmation of a desired coping response. "Yes, I am upset but I do not have to yell and scream. It is not so bad, it's not worth the energy. Let me relax and calm myself. I can handle this. Now I feel

better and can speak to her about not pushing ahead of me in the line."

Confronting the source of provocation. "Listen, you pushed ahead of me just now and I don't like that kind of behaviour. I am going to stand in front of you where I was before. Please do not push ahead of me again. If you need to be in front of me ask next time."

Congratulatory self-statements. "I did it. I told her I did not like her pushing in front of me and I did not get angry. Good for me. I am learning to control my anger and to express myself effectively."

Closure was produced on the eleventh week of the research period. Posttests on the two measures used in pretests were done in a similar manner as per pretests.

Follow-Up Data

Subjects and staff were instructed to continue data recording for six more weeks. Follow-up data were collected for the last three pairs of subjects at the end of the six week follow-up period. Two six week periods of follow-up data were collected for the first two pairs of subjects. Staff and subjects' data were compared for agreement.

Data analyses for all dependent measures described in this chapter are presented in chapter four.

CHAPTER IV

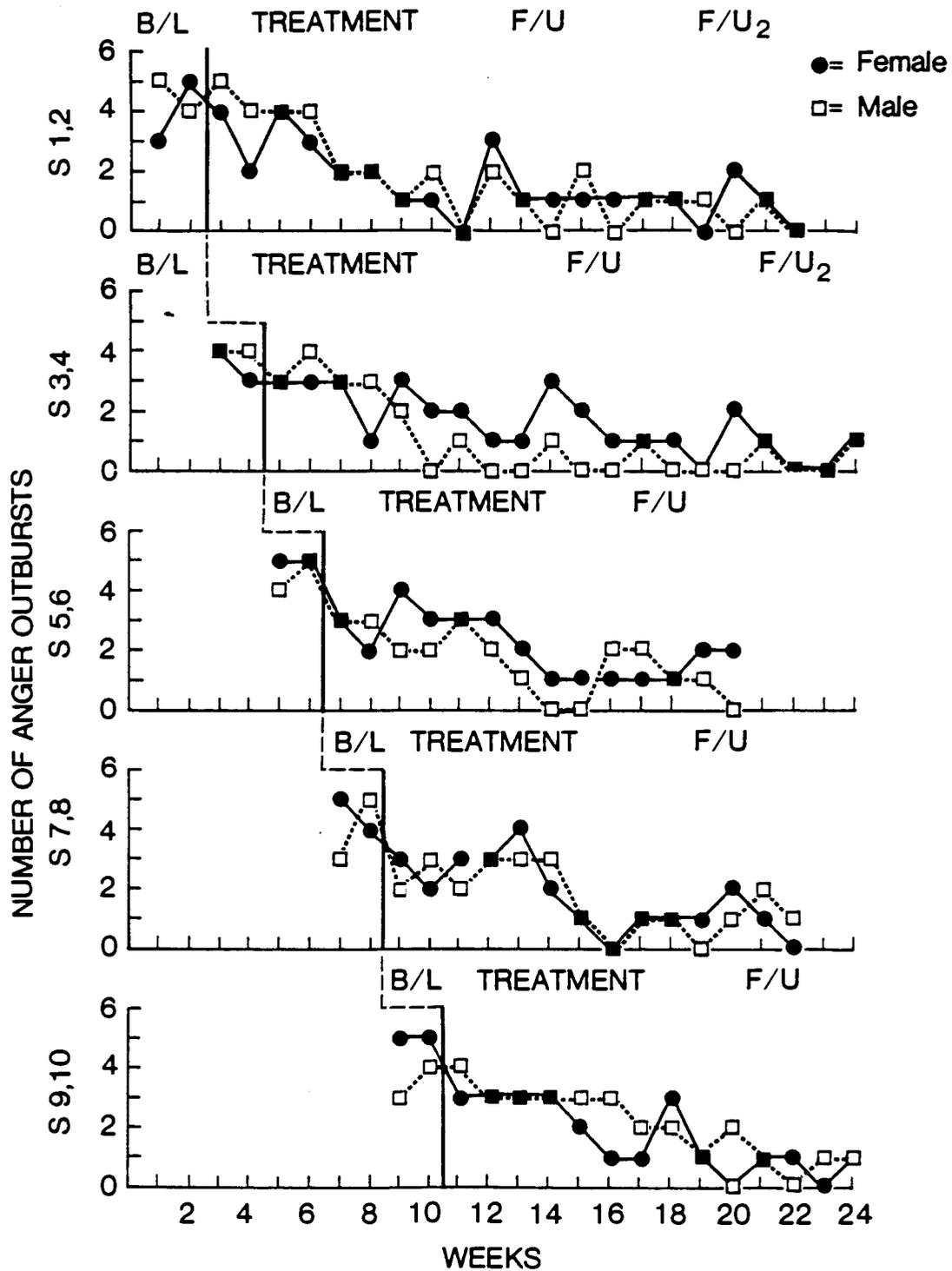
RESULTS

This chapter is organized into three main headings: analysis of anger response, analysis of response to Rotter and Rafferty Incomplete Sentences Blank (ISB), and interpretation of verbal response to three pictures depicting anger inducing behaviours.

Anger Response

The weekly number of anger outbursts for each pair of subjects in the multiple baseline design is depicted in Figure 1. It can be seen readily that the scores for each subject remain generally stable across baseline (week 1 and 2) and the educational phase (weeks 3 - 5), begins to decline during the skill acquisition phase (weeks 6 - 8), and reaching a low during the transfer phase (weeks 9 - 10). This low level is maintained during follow-up (weeks 11 - 16).

In order to check the reliability of these changes the scores of the subjects were aggregated across the treatment intervals and a one way analysis of variance was conducted on the resulting mean scores. The data are reported in Table 5 and Figure 2. The anger responses fell from the highest average of 4.25 at the end of baseline to an average of 0.98 at the end of follow-up. This represents a decrease of approximately 77%.

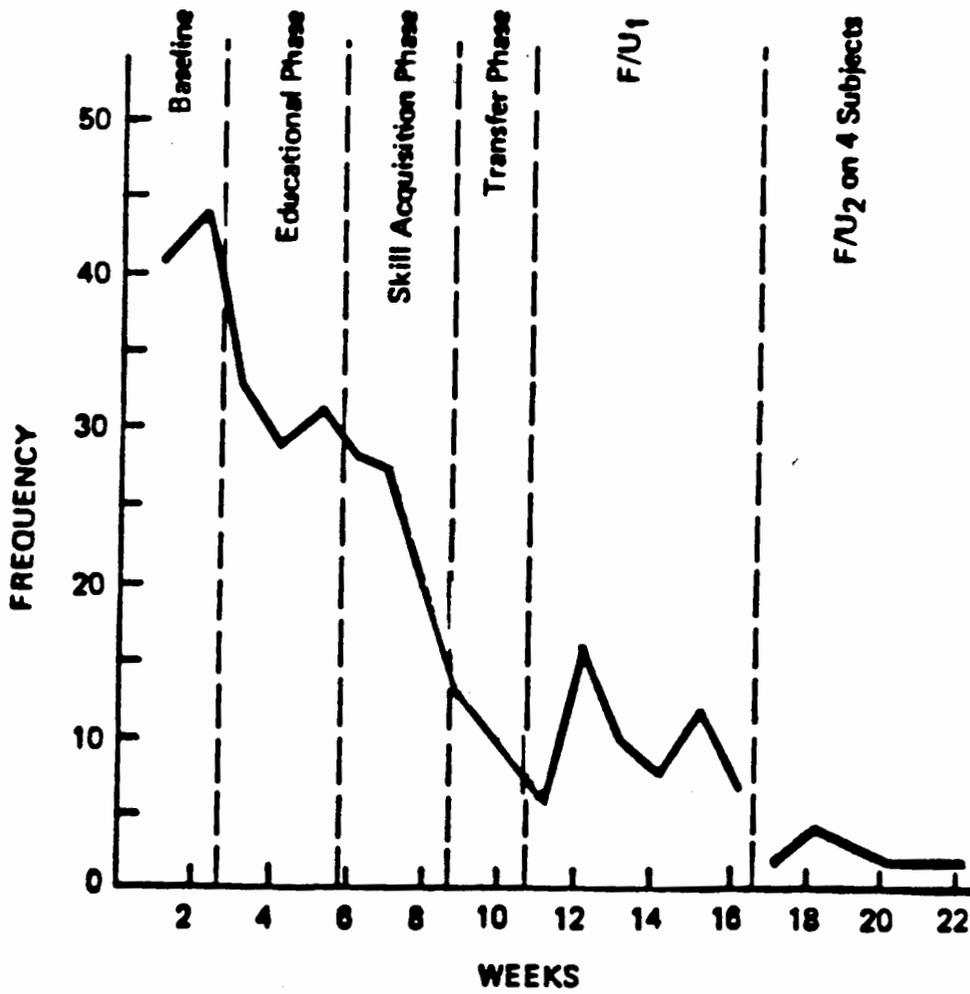


Frequency of Anger Outbursts for 10 Mentally Retarded Subjects

Figure 1

Table 5
 Mean Weekly Anger Response for 10 Subjects

Phase	Week	Mean Response per Week	Mean Response per Week per Treatment Phase
Baseline (weeks 1 - 2)	1	4.1	4.25
	2	4.4	
Treatment - Educational (weeks 3 - 5)	3	3.3	3.10
	4	2.9	
	5	3.1	
Treatment - Skill Acquisition (weeks 6 - 8)	6	2.8	2.5
	7	2.7	
	8	2.0	
Treatment - Transfer (weeks 9 - 10)	9	1.3	1.15
	10	1.0	
Follow-up (weeks 11 - 16)	11	0.6	0.98
	12	1.6	
	13	1.0	
	14	0.8	
	15	1.2	
	16	0.7	



FREQUENCY OF ANGER OUTBURSTS OF 10 MENTALLY RETARDED RESIDENTS

Figure 2

One way ANOVA confirms follow-up scores for the group were reliably different from baseline scores, $F(9,36) = 74.900$, $p < .001$. Post hoc analysis using Scheffé indicated reliable decrements between baseline and education, and skill acquisition and transfer phases $F(4,36) \geq 10.52$; $p \leq .05$. The differences between the educational and skill acquisition phases, and between transfer and follow-up were not statistically reliable.

Summary

Anger response declined at about the same point in treatment for all subjects, suggesting that the treatment is responsible for changes in the target behaviour. Thus, the anger response curves from the multiple baseline design, and the ANOVA results, suggest that the treatment has a causal effect on the anger responses of the 10 subjects.

Sex Differences

The data were analyzed to observe for differences in treatment effect for males and females. The means from baseline to follow-up are presented in Table 6 and Figure 3. Two way analysis of variance for repeated measures confirmed no reliable differences between males and females $F(1,8) = .566$, $p > .473$. There was also no reliable interaction, $F(4,32) = .556$, $p > .698$, suggesting that the treatment was acting in a similar manner for both genders across time. Taken as

Table 6

Mean Anger Response for Males and Females
Across All Phases of Treatment

Phases/Conditions	Males	Females
Baseline	4.10	4.40
Educational	3.20	3.00
Skill Acquisition	2.53	2.47
Skill Transfer	1.00	1.30
Follow-Up	0.83	1.13

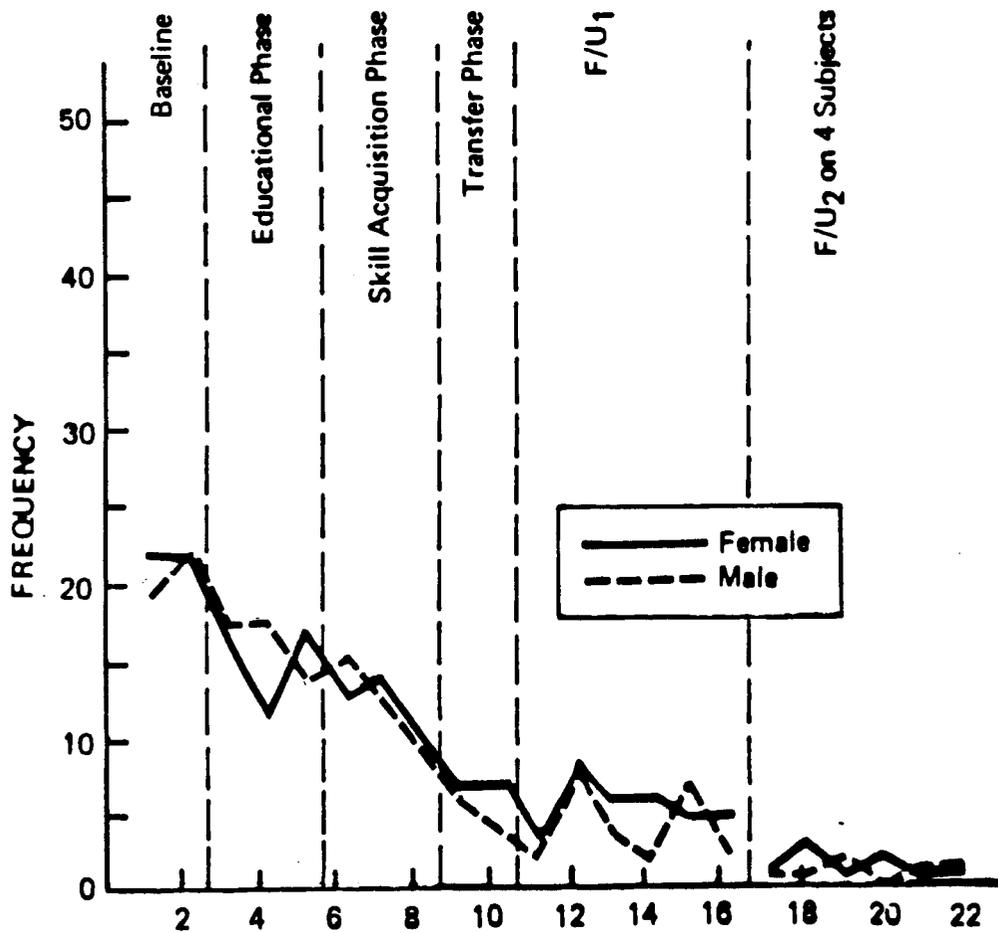


Figure 3. Weekly frequency of anger outbursts across all phases of treatment for males and females.

a whole, it seems that the intervention was equally effective for both males and females.

Rotter and Rafferty Incomplete Sentences Blank (1950)

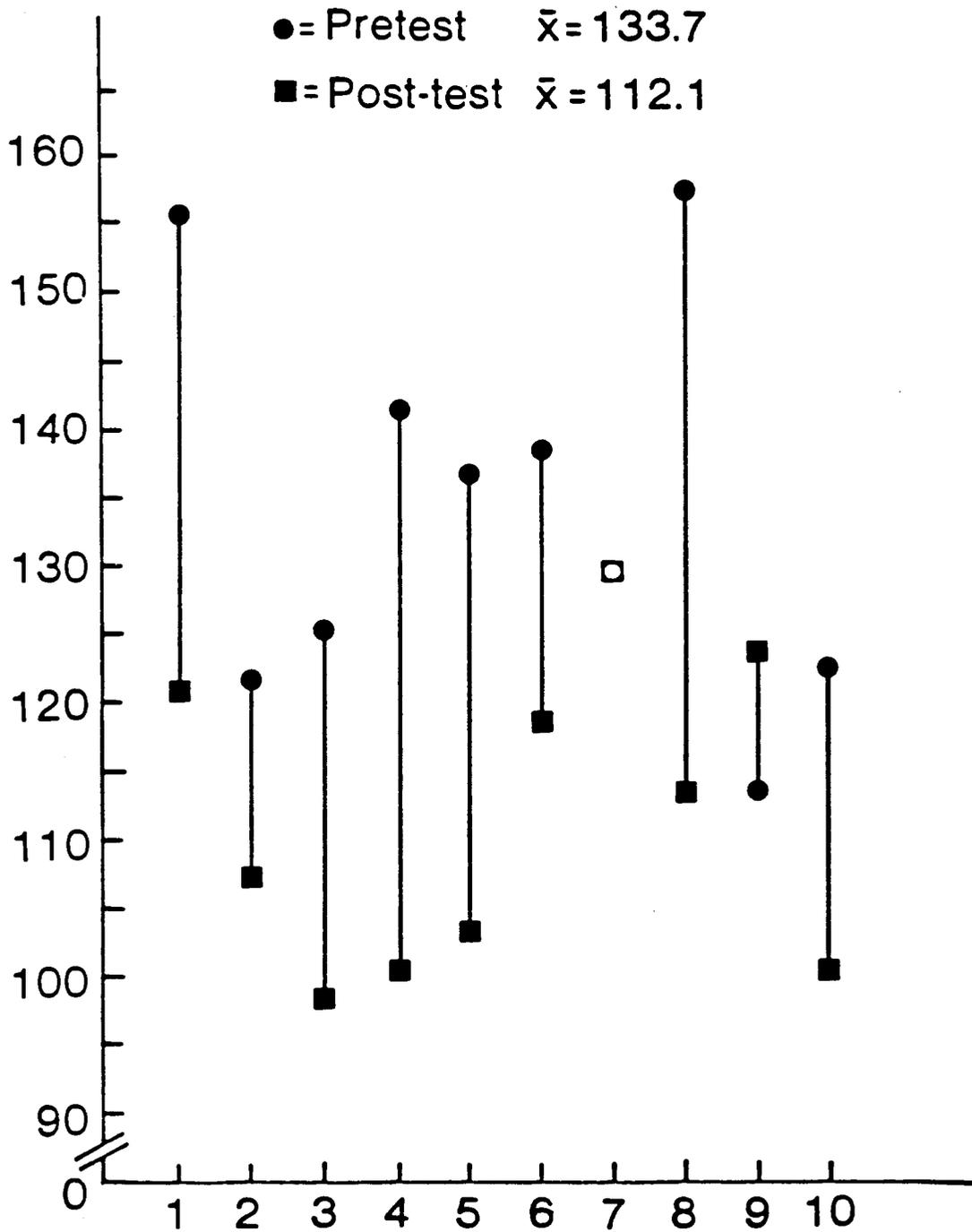
The responses to the Incomplete Sentences Blank were rated in three ways: overall adjustment, frequency of anger words, and frequency of phrases of "anger with personal intent to act aggressively". Data on overall adjustment scores are presented graphically in Figure 4, and are summarized in Table 7. The analyses of the results are summarized below.

Overall Adjustment

Pretest and posttest scores for the 10 subjects were reliably different $t(9) = 3.63, p < .005$.

Sex

Two way ANOVA confirmed posttest scores and pretest scores for males were reliably different from posttest scores and pretest scores for females $F(1,8) = 13.066, p < .007$. Reliable interaction effects were not observed, $F(1,8) = .901, p > .370$. The summary of Analysis of Variance is presented in Appendix L.



1SB SOCIAL ADJUSTMENT SCORES
 10 MENTALLY RETARDED RESIDENTS

Figure 4

Table 7

Mean Scores and Standard Deviation of Scores on the
Incomplete Sentence Blank for 10 Mentally Retarded Residents

Test-time	Subjects	Overall Adjustment	Anger Words	Anger Phrases with Personal Intent
Pretest	males	134.8 (17.64)	6.6 (4.72)	1.4 (0.89)
	females	132.6 (15.46)	6.2 (2.28)	1.4 (0.89)
	group	133.7	6.5	1.4
Posttest	males	108.6 (9.42)	2.8 (2.39)	0.0 (0.00)
	females	115.6 (15.35)	2.6 (2.28)	0.0 (0.00)
	group	112.1	2.7	0.0

Anger Words

Anger words refer to any hostile or aggressive, anger-related words such as "angry", "hate", "kick", "fight", "push"; while those such as "When I kick", "I would hit", "I would get angry and fight", were regarded as phrases of anger with personal intent. To arrive at a score for each subject, the number of such words, in all the subjects' responses, were counted. The results are presented in Table 7.

The posttest scores were reliably different from pretest scores for the group $F(1,8) = 6.018$, $p < .04$. Analysis of variance for repeated measures confirmed no reliable differences between males and females $F(1,8) = .057$, $p > 0.82$. There was no reliable interaction effect. The summary of analysis of variance is presented in Appendix J.

Anger Phrases with Personal Intent

Frequency of anger phrases with personal intent was reliably different for the group from pretest to posttest, $F(1,8) = 24.5$, $p < .001$. No reliable sex difference $F(1,8) = 0.0$, $p > .999$ and no reliable interaction effects were observed. Analysis of variance summary is presented in Appendix K.

Summary

Data analyses of response to the Incomplete Sentences Blank

indicate that the 10 subjects improved in adjustment level after the intervention and that the adjustment was in a similar direction for both males and females.

Taped Response to Three Anger Engendering Pictures

The procedure for designing, administering and scoring the simulated anger provoking situations has been described in Chapter III. Means and standard deviations for pretest and posttest feelings; thinking and probable action responses are reported in Table 8.

Correlated t tests indicated no reliable difference between posttest and pretest scores for the feelings dimension in either the "angry", ($t(9) = 0.90$, $p > .394$ or "not angry" ($t(9) = 0.32$, $p > .758$) categories. However, both parts of the thinking dimension demonstrated a reliable change. "Thinking nonfacilitatively" decreased reliably from pretest to posttest $t(9) = 3.50$, $p < .007$, and "Facilitative thinking" showed a reliable increase from pretest to posttest, $t(9) = -3.28$, $p < .010$. Similarly, "aggressive action" that would be taken in response to the situation in the pictures, showed a reliable decrease from pretest to posttest, $t(9) = 3.72$, $p < .005$, and "Nonaggressive action" showed a reliable increase from pretest to posttest, $t(9) = 3.87$, $p < .004$. There was no reliable difference in the responses of males and females on all three dimensions.

These results are particularly important as indicators that the subjects had acquired the coping skills the intervention programme was

Table 8

Means and Standard Deviations for Feeling, Thinking and Action Responses to Anger Provoking Pictures

Scale	Time		t	P
	Pre	Post		
Feeling				
Angry	23.0 (2.3)	18.0 (1.8)	0.90	.39
Not angry	32.0 (2.3)	34.0 (2.4)	0.32	.76
Thinking				
Facilitative	12.0 (1.4)	26.0 (1.0)	3.28	<.01
Nonfacilitative	11.0 (1.0)	0.0 (0.00)	3.50	<.01
Action				
Aggressive	22.0 (1.9)	2.0 (0.4)	3.72	<.05
Nonaggressive	15.0 (1.2)	3.0 (1.3)	3.87	<.04

designed to teach. The feeling responses indicate that the subject's ability to feel anger did not change from pretest to posttest. Such a change also was not the purpose of the training. The residents still felt angry when provoked, however they had acquired some coping skills to deal with their feelings of anger. Some of these skills included more facilitative ways of thinking and generating more constructive and positive nonaggressive behavioural responses. These results have much importance in relation to premises held on the adaptive function of anger (Novaco, 1975) and the importance of being able to express feelings of anger in adaptive ways.

Summary

Analyses of the data on the 3 dependent variables indicate that the training not only had a positive effect in decreasing the frequency of anger outbursts of the 10 subjects, but that the subjects had also made gains in levels of social adjustment. As well, they learned ways of thinking about, and dealing with provocation more effectively. One finding of particular importance is the subjects' responses to the anger provoking pictures. These results indicate that the subjects had learned the skills taught in the training and that these skills did not inhibit their ability to feel and express anger, but that the skills they learned provided them with more facilitative ways of dealing with their feelings of anger. Discussion relating to the major findings of the research are presented in Chapter V.

CHAPTER V
SUMMARY AND DISCUSSION

In this chapter the results of the research are summarized. The major findings, implications and limitations of the research are then discussed, and a direction for further research is suggested.

Summary

The present study addressed the issue of whether mentally retarded people could acquire skills to regulate effectively or manage anger through the cognitively oriented intervention procedure of Cognitive Stress Inoculation Training. The results indicate that (a) mentally retarded persons can learn the coping skills contained in CSIT, (b) learning and using these skills have facilitative effects on thinking, and behaviour and (c) such facilitative effects result in decreases in the number of anger outbursts and increases in overall adjustment. These suggest that Cognitive Stress Inoculation Training is a viable intervention procedure for training mentally retarded individuals in the acquisition of skills of independence and self-control for anger-related problems.

Discussion

CSIT, Anger, and Adjustment

Results of the study undertaken in this thesis demonstrate that mentally retarded individuals can be taught requisite skills within a cognitive behavioural framework to control anger. Mentally retarded people are commonly believed to be highly dependent, externally oriented, and generally lacking in independent skills but results of this study and those obtained in other research (Lecklitner, 1981; Zeigob, Klukas, Gunginger, 1978; etc.) demonstrate that mentally retarded persons can learn some skills for independently directing their behaviour. This offers strong support for the use of cognitive behavioural techniques in the education and training of these individuals.

Undoubtedly, part of the reason for the success of the training programme used in this study lies in the multimodal, multicomponent nature of CSIT. Although some unimodal interventions may be sufficient to deal with some types of presenting problems (e.g., relaxation for muscle tension), results of this study along with results from other studies focusing on comparative outcomes (cf. Novaco, 1975; Peters & Davies, 1981; Schlichter, 1978) confirm the efficacy of multi-component, multi-modal interventions when used with members from both normal and retarded populations.

One important advantage of a multicomponent, multimodal intervention such as CSIT, especially when training mentally retarded

individuals, is that specific skills can be isolated and taught individually. Skill practice can occur in all skill areas until they are learned, and more practice is provided as the training progresses until the skills are overlearned. Further, practice activities can be initially isolated, identified and practiced, then all component skills can be later combined into a total intervention to be again practiced as a sequential whole which is later transferred and generalized into real life situations. Because of the graduated practice, as well as the substantial amounts of practice provided in the training, CSIT is an ideal intervention for client groups such as mentally retarded persons.

Taped Responses

One of the strengths of this research lies in the use of responses which were taped at pre and posttest. Results from the analyses of these responses provided a measure that reliably confirmed that the subjects actually acquired adaptive skills from pretest to posttest. Increases in adaptive skills, as indicated by the subjects' verbal responses, were consistent with positive changes in the target behaviour at the end of training and follow-up. The taped responses served as an effective way of identifying that the subjects did acquire the skills and that the target behaviour did not merely change of its own accord.

Implications

A fundamental question of this study was what effect does CSIT have for control of anger arousal with mentally retarded people? This question was central because the literature review revealed that the procedure has not been implemented in its full package with members of this population. All of the studies reviewed in Chapter II that dealt with the training of mentally retarded individuals, utilized only some sub-component parts of CSIT and many of them made use of external reinforcers such as a teacher, token or edibles, thus making it unclear as to which contingencies were really controlling the behaviour.

There is still a great need for nomothetic research and CSIT with mentally retarded individuals in areas of anger management and the training of other kinds of skills of independence. Such research needs to be based on long-term follow-up phases to allow better identification of the parameters of cognitive-behavioural interventions with mentally retarded people. Despite this need, some implications arising from the results of this study offer some possibilities for the use of this intervention with mentally retarded persons.

As a means of decreasing the cultivated habit of dependency observed in many mentally retarded people, CSIT clearly holds some promise. Results have provided evidence that cognitive intervention procedures can be used effectively to regulate anger arousal and that

mentally retarded individuals can learn and retain cognitive-behavioural skills in order to direct their behaviour towards a desired outcome.

Related implications in terms of these findings centre around adjustment factors in public schools where previously institutionalized mentally retarded individuals are being integrated and educated. Other problems of adjustment pertain to community living on leaving an institution. Emotional and adjustment problems may be alleviated by an intervention such as CSIT. Because this mode of intervention is effective either as a preventative or a treatment strategy for stressful experiences, it could become a part of the community placement preparation for clients moving out of institutions to be educated or to reside on the "outside".

Through the formulation of self-statements, covert and overt practice, imagery and rehearsal (which are all contained in the programme) individuals would be able to influence their perception of provocation or other potentially stressful situations and guide their responses to successful, pre-determined resolutions. They will have learned, even before they have encountered specific kinds of stressful experiences related to integration, that they do have choices of responding to stress, and such options, if exercised, impart a sense of control, thus reducing the threat value of provocation or other stressful encounters.

Because major aspects of CSIT involve covert modeling, it means

that the skills can be rehearsed or practiced at any time and place and can therefore be ready at any moment when needed. It is recognised by this researcher that perceiving a source of provocation, especially an unexpected one, and preparing to make choices of responses through self-talk and the relaxation response are not events that necessarily occur in tandem. The dynamics and fluidity of perception and behaviour do not occur tailor made, and similar sensations may elicit different responses at different times. However, one of the key elements for the successful use of CSIT lies in practice and rehearsal in a variety of contexts, especially if positive ways of confronting provocation is an entirely new skill for the individual. Cue relaxation training is one way of ensuring that all coping skills can be rehearsed and used on any occasion where stress or any other thwarting events are experienced.

Implications in areas of personal competence pertain to mentally retarded people becoming more responsible for their behaviours thus decreasing their learned dependency on others for direction and approval in important aspects of their lives, such as interpersonal relationships. The minimization of possible behavioural manipulation by therapists and/or custodians would be another source of gain for these individuals who could learn that they are capable of making mature judgements and behaving accordingly.

Limitations of the Research

Accessible Population and IQ Retest

Financial restrictions allowed for the sampling of only one institution. Admittedly, residents in institutions are not necessarily representative of all mentally handicapped individuals, since in comparison with the uninstitutionalized they are thought to have greater attenuation in language and behavioural skills (Balthazar & Stevens, 1975; Centerwall & Centerwall, 1960; Lyle, 1959; Stedman, Eichorn, Griffin, and Gooch, 1967). However on this same basis one institution may be presumed to be similar to other such institutions. Another limitation pertains to the retesting of IQ to substantiate levels of retardation. Intelligence quotients were not retested for the purpose of this research because of financial restrictions. This research relied on the subjects' clinical records to ascertain their level of intellectual functioning as assessed on the WISC-R. It was, however, conscientiously borne in mind that the mentally retarded was included in sample restrictions placed on the original standardization of the WISC-R.

A further limitation of this research concerns that of the small sample size as well as the utilization of an available population rather than a random sampling of the target population. These limitations speak to the need for larger controlled outcome studies based on stratified or random sampling from the target population. One would then be more confident that results obtained from such

studies could be generalized to the target population within a small margin of error.

Directions for Further Research

The most obvious need for further research lies in the field of parameter identification of types and degree/severity of provocation that are effectively diffused using Cognitive Stress Inoculation Training with mentally retarded people. In this regard two areas are suggested.

Anger Inventory

First, there is a need for the development of a hierarchy of possible anger provoking events specific to the mentally retarded population, especially those in institutions. A number of anger Inventories do exist (Buss & Durkee, 1957; Novaco, 1975), but they do not reflect the lifestyle and probable experience of institutionalized mentally retarded individuals. These Inventories may therefore be limited in their sensitivity to the experience and environmental conditions of the retarded population.

In this research an attempt was made to seek information regarding which situations or events made subjects angry more frequently, before commencing the study. Results of this attempt are reflected in the composite pictures developed from the residents' responses, and used at pre- and posttest. Such an anger provoking

inventory might then be used as part of a standardized screening process as well as a pre- and posttest measure of anger response to situations of provocation specific to this population. The development and use of such an instrument would assist in the formulation of more conclusive statements about generalization of treatment effect using such interventions as CSIT for anger management with mentally retarded people.

Anecdotal Data Recording

In this research, recorded data on daily frequency of anger outbursts reflected only those occasions when the subject lost self-control in an anger-inducing situation. Data were not descriptive of the number of provocations the subject experienced each day, what was the nature of all provocations, which ones were successfully dealt with by their using the skills taught, and whether the training was not effective in coping with the nature of those provocations that resulted in outbursts of anger.

There is a need for a more sensitive diary-like data recording procedure capable of accounting for, and describing the nature of provocations in terms of frequency and severity (the aspects of severity and perhaps frequency might have been able to be pre-established in the Anger-Inventory). This would allow for analyses of those anger-inducing events not effectively coped with by the training, thus identifying in this way, the parameters of

effectiveness of the treatment for anger control with institutionalized mentally retarded persons. Similarly, the frequency of perceived provocation could be monitored simultaneously. This would provide useful information as to whether the treatment had any effect on increasing the subject's level of tolerance to perceived provocation such that some events previously perceived as anger-provoking, were later judged as no longer thwarting. Perceptual differences of this nature may reveal further therapeutic aspects of the intervention not immediately obvious nor made available in checkmark accounts of anger outbursts.

Post-training Anecdotal Self-Reports

The efficacy of Cognitive Stress Inoculation Training for acquiring a wide range of adaptive skills was demonstrated on a number of occasions through self-report on chance encounters between the researcher and a number of the residents, after the training period was finished. One resident reported that she had lost 15 pounds by using the training to stop herself from having second helpings at meals, and was also able to tell herself she did not need sweeteners in her drinks. She said whenever she had the urge to snack in between meals she used her cue relaxation and imagery to take her mind away from food. She used imagery to 'go' to her "special hide-away place". The present researcher did not check the veracity of this account with ward staff because the resident appeared to have lost weight and there

seemed no reason to doubt her account of her ability to self-direct her behaviour towards a desired outcome.

Another resident reported that he had reprimanded a bus driver who almost drove off without him one morning after it had snowed and he was picking his way through the slush so as not to fall. He said he used his "head-talk" and cue relaxation not to yell at the driver, but he was quite angry that the driver was impatient "when the sidewalk was so slippery".

A third anecdotal report occurred most recently when another resident reported that the chart on his ward for residents who 'misbehaved' did not have his name on it because he was talking out his anger to people who made him angry, rather than shouting and fighting.

Anecdotal accounts such as these, months after training, strongly suggest the versatility and long term effects of CSIT with mentally retarded individuals. These reports indicate transfer as well as generalization of the treatment. Thoresen and Mahoney (1974) refer to such cognitive-behavioural techniques as superior to external control techniques in maintaining treatment gains with a wide range of behaviours for nonretarded clients. Such a claim may hold equally true for retarded individuals, as has been clearly demonstrated by results of this study on anger control. These anecdotal accounts of assertive behaviours, personal responsibility for weight loss and positive resolution of provocation, as described voluntarily by some

residents, speak to significant implications concerning the use of CSIT with mentally retarded people.

Gap in Research and Practice

The integration of cognitive and affective factors within the field of behaviour modification grew out of operant conditioning practice and research, much of which was done with mentally retarded individuals in various settings. Ironically, the explosion of published research dealing with operant conditioning techniques with the mentally retarded, is not similarly witnessed in the area of cognitive behaviour research. Probable reasons for the paucity of cognitively oriented strategies have been outlined and discussed in Chapter I. Yet such strategies may offer the most promising approach for skill acquisition, generalization effect and greater dependency on self, rather than others for behaviour management and control. Many research findings that might make a contribution to clinical practice with mentally retarded individuals are not evidenced in clinical routine or in training programmes. Practice tends to be somewhat removed from mainstream clinical research, perhaps because research findings are typically communicated only through journal publication. In this sense the technology of cognitive behaviour interventions with mentally retarded individuals is fulfilling an heuristic function which may facilitate communication between researchers but not between researchers and those working in clinical or applied settings. Thus,

the social importance of the technology is yet to be realized fully.

Conclusions

A review of the literature dealing with therapy with mentally retarded individuals reveal several reviews (e.g. Cowen & Trippe, 1963; English, 1975; Gunzburg, 1958; Robinson & Robinson, 1965; Sarason, 1959; Stacey & DeMartino, 1957; Sternlicht, 1965, 1966a; etc.). However, none of these focused on, or made reference in any substantial way, to cognitive-behavioural procedures. For example, Sternlicht (1966b), an advocate of the rights of mentally retarded people, favoured a nonverbal therapeutic procedure for retarded delinquent females. He concluded in his study that "the emphasis in the group treatment of delinquent retardates must be upon nonverbal activity and communication" (p. 91).

In other studies where measurable improvements were not obtained, for example, Albin and Dinitz (1965), Subotnick and Callahan (1959), the change procedure revealed a lack of specification of the 'inappropriate' behaviour to be changed through therapy, as well as a well defined procedure or technique whereby behaviour change could be measured.

The procedure of CSIT is one in which the target behaviour must be specified and defined and a set of procedures implemented whereby specific skills are taught to, and acquired by the individual. Validation of skill acquisition is obtained by practice and

demonstration of skills by the client. As in CSIT, most successful intervention techniques demonstrated clarity in the goals and objectives of the therapy as well as clear, defined procedures such as in Seymour and Stokes (1976) and Snyder and Sechrest (1959) studies where they obtained positive behaviour changes with mentally retarded clients.

Other successful interventions implemented by Agras, Leitenberg, Barlow and Thomson (1969), Hayes (1977), Panyan, Boozer and Morris (1970), Parsons (1978), Slivkin and Bernstein (1968), etc., indicate that (like CSIT) effective intervention must be clearly structured and goal oriented, objectives must be precisely defined and there should be opportunities for both therapist and client feedback. Bailer (1967) views measurable outcomes or goals and objective instrumentation as essential if therapeutic effectiveness is to be determined by the extent to which given procedures produce specific behavioural changes.

The current move in North America towards "normalization" of mentally retarded people, such that they will increasingly have available to them "patterns of life which are as close as possible to the regular circumstances and ways of life of society" (Ferrin, 1982, p. 39) is a move requiring the provision of services and training in all areas of need including education. However, the term "normalization" in and of itself is not magic. Needs, services and training have to be specific in their definitions, objectives and

goals. Training and education have to be programmed for success if the potential benefits of normalization are to be realized. Kidd (1966) considers that the majority of mentally retarded children, particularly those of IQ 65 and up, are the products of experiential deprivation (linguistic, mental, emotional, physical). As well, Jensen (1970) cites data indicating that 75% of individuals within the IQ range of 50 - 70, evince no signs of neurological damage and appear clinically normal. He suggests that such cases of retardation with no clinically identifiable cause are "cultural-familial" retardation. For these individuals, functional assessments and appropriate programming to meet specific, individual needs must be implemented and carefully monitored if their education is to have any reversing effect on retardation due mainly or partly to experiential deprivation.

Educational integration does not mean mere physical proximity to "normal" children in a classroom setting. This of itself does not promote learning. Learning is more likely to occur when diligent planning and utilization of programmes which have proven effective are implemented. Planning for this must take into consideration the skill to be acquired, appropriateness of instructional level and other important variables such as degree of retardation, age, environmental factors, etc. Without such global considerations it is a mere travesty to assume that retarded students will profit both academically and socially merely by what may be called token physical proximity to "normal" students. Similarly, it is also a travesty to

expect teachers without specific training and knowledge of the state of the art vis-a-vis research and practice with the mentally retarded, to be effective remediators.

The study described is essentially a skills training procedure involving the integration of cognitive, affective and behavioural factors for behavioural change. The central focus was to teach mentally retarded individuals some coping skills to express their feelings of anger and displeasure effectively, and without tantrums. The training provided response options under the control of the individual. Such options are seen as necessary in order to exercise choice, control and responsibility in directing independently, important aspects of one's own behaviour.

With specific reference to the problem of integrating mentally retarded children into 'normal' classrooms, it would appear reasonable to propose CSIT theory and techniques as offering a useful resource for both administrative programme-planning, and for specialized teacher training towards the goal of successful integration.



Instructional Psychology Research Group

Faculty of Education
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V5A 1S6

APPENDIX A

(604) 291-3395

INFORMATIONAL DOCUMENT

My name is Doreen Malcolm. I am a student at Simon Fraser University where I am engaged in studies towards an advanced degree in counselling. In fulfilling the requirements for this degree I plan to do a research project at Woodlands.

I would like to inform you about the research and ask for your important participation. These 2 pages are to describe to you and your son/daughter what the research is about and what your son/daughter will do should he/she decide to participate.

The Research

The research is to find out whether or not individuals who tend to have frequent outbursts of anger to provocation can learn how to express their feelings in a nonhostile manner by learning to change the way they think and behave whenever they are provoked.

Your son's/daughter's participation

This study involves teaching your son/daughter new ways of thinking about him/herself and his/her behaviours, and some new ways of thinking about situations and people that make him/her angry. When your son/daughter has learned these new ways of thinking and behaving he/she will be able to better express his/her feelings of hurt without getting angry.

One of the ways of determining how effective the programme has been is to observe how your son/daughter thinks before and after the programme. I can do this by asking him/her to complete sentences which I have started. The sentences I will use are already in a test form called the "Rotter and Rafferty Incomplete Sentences Blank".

I am requesting the participation of your son/daughter in the research and your permission to give the Incomplete sentences blank test to him/her as a part of the programme to teach him/her control over his/her anger.

In this research, the test results will be used only to compare your son's/daughter's thoughts before and after the research to observe if he/she thinks differently about the same sentences.

Your son/daughter will be able to see and know how well he/she has learned to control his/her anger by keeping a daily count of the number of times he/she gets angry. Your son's/daughter's participation will be for 10 weeks and I will be working with him/her 1 day per week at Woodlands.



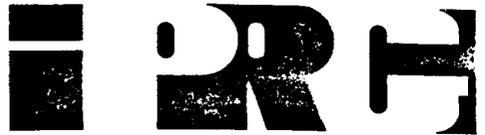
The name of your son/daughter will not be written on the test sheets nor on any of the material pertaining to the research. Each participant will be assigned a letter code which he/she will use throughout the research. All information and materials relating to your son's/daughter's participation will be confidentially dealt with. If both you and your son/daughter decide that he/she will participate he/she will be given a consent form for both of you to read and sign your consent. This consent form, when signed, ensures your son/daughter the right to end his/her participation in the research at any time during the research, should he/she wish to do so.

If you need additional information, or if you have any questions about the research and your son's/daughter's participation, please feel free to contact one of the following persons:

Doreen Malcolm - Woodlands, 521-2611 local 323.
Dr. Wayne Poley - Woodlands, 521-2611 local 287.
Dr. Bryan Hiebert, S.F.U., 291-3389.

Your kind participation will be greatly appreciated.

Instructional Psychology Research Group
Faculty of Education
Simon Fraser University
Burnaby, B.C., Canada
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(604) 291-3395

APPENDIX B

PARENT(S) / GUARDIAN(S) CONSENT FORM

I (We) have read the informational document and understand the way the research will be done and the use and purpose of the Incomplete Sentences Blank test. I/We give permission for the test to be used with my/our son/daughter and for my/our son's/daughter's participation in the research as described in the informational document.

Signature of parent(s)/guardian(s)

Signature of resident

Signature of researcher

Signature of witness

Date signed



(604) 291-3395

APPENDIX C

RESIDENT'S CONSENT FORM

I have been asked by Doreen Malcolm to participate in a research on anger management. I have read the informational document about the research to be carried out at Woodlands.

O R

The informational document about the research to be done at Woodlands has been read to me by Doreen Malcolm in the presence of

I understand what is going to be done, the purpose of it and how the Incomplete Sentences Blank test will be used. I also understand what is required of me. I have signed the informational document which tells me about the research.

I understand that at anytime during the research I can end my participation with no consequences to me. I understand that there are no risks involved and that my participation will be handled with confidentiality.

I understand that over a 10 week period between April 18th and August 20th, 1982 I will meet 1 day per week with the researcher to learn new ways to manage my anger, and that I may obtain a copy of the results of the research by contacting Doreen Malcolm, the researcher.

I also understand that I may discuss any complaints I may have about the research with either: Doreen Malcolm - 521-2611 local 323
Dr. Wayne Poley - 521-2611 local 287
Dr. Bryan Hiebert S.F.U., 291-3389.

I understand the procedure of the research and the extent and conditions of my participation. I am signing below, my consent to participate in the research.

Signature of resident

Signature of researcher

Witnessed by:

Date Signed:

APPENDIX D

TREATMENT PROTOCOL

(Cognition stress inoculation training in the treatment
of acute anger outbursts in the mentally-retarded)

by

Doreen Malcolm

and

Bryan Hiebert

Simon Fraser University

I

- A. Random sampling.
- B. Inform wards of programme and names of residents in sampling.
- C. Meeting #1 - meet with resident and inform of inclusion in research.
Obtain informed consent and permission to contact parents.
- D. Obtain names and addresses and phone numbers of parents.
- E. Contact parents by phone and inform about their son's/daughter's selection for training to control anger. Explain the nature of training and request parents' consent to their son's/daughter's participation.
- F. Set date with parents for formal meeting at Woodlands as follow-up to phone conversation to formalize informational session and signing of contract.
- G. For parents who cannot be reached by phone and those who cannot be reached at last known address, have Woodlands manager sign in capacity of parents.

II

Meeting #2

- A. Meet with parents and residents at Woodlands. Give informational document to parents and resident to read. After this, I will read aloud content of informational document making sure to carefully explain its content in words that both residents and parent can understand. I will confirm resident's and parent's understanding of the content of the document by asking them to tell me in their own words what it is they understand.
- B. Answer questions and provide further information for those who need to know more about the research.

- C. Give consent form to parents and resident to read. After this, I will read aloud content of consent form making sure to explain its content in words that both resident and parents can understand. I will verify parent's and resident's understanding by asking them to tell me in their own words what it is they understand from the consent form.
- D. Answer questions and provide further information or explanation about consent form for those who need further information.
- E. Parents, resident, witness (ward staff) and I sign consent form and informational document.
- F. Parents, resident, institution and I get copy of signed informational document and consent form.

Meeting #3 with staff and resident separately.

Preliminary Meeting with Ward Staff and Resident.

Meeting With Ward Staff.

- A. Review content of meeting.
- B. Obtain staff confirmation of resident's presenting problem.
- C. Obtain history of resident's problem.
- D. Obtain past interventions and effects, if any.
- E. Obtain information on other present interventions, if any.
- F. Obtain resident's daily routine such as school, work, meal times, planned social activities, etc.
- G. Obtain information on medication, effects, if any.
- H. Obtain information on organic problems, psychiatric and medical problems, if any.
- I. Obtain staff's general impression of resident's behavioural patterns.
- J. Brief staff on start and completion dates, procedure of training and duration of each session.
- K. Arrange day and time when resident will be worked with.
- L. Arrange with staff where sessions will be held with resident.
- M. Describe and demonstrate data collecting procedure.
- N. Solicit staff co-operation and assistance in data collecting and recording.
- O. Leave with staff, a prepared chart with the resident's name and dates for data recording. Staff being blind to duration of baseline and treatment phases.
- P. Instruct staff on day to begin data record.
- Q. Summarize meeting.

- A. Meet resident.
- B. Talk with resident about his/her perception of problem.
- C. Inform resident that we will be working together to learn new ways of managing his/her anger.
- D. Ask resident to name or describe things, situations, events or people that make him/her angry.
- E. Inform resident of date, time, place and duration of sessions.
- F. Inform resident when sessions begin.
- G. Tell resident he/she will be writing down the number of times he/she gets angry every day.
- H. Explain to, and show resident how to record the number of times he/she gets angry, in calendar provided.
- I. Practice data recording with resident on spare calendar.
- J. Give resident calendar and pencil to record data.
- K. Instruct resident on day to begin data recording.
- L. Instruct resident to inform staff of all anger outbursts that occur off the ward.
- M. Instruct resident about next meeting time.
- N. Instruct resident to take calendar to next meeting.
- O. Summarize content of meeting.

Meeting #4 - Continuation of pretreatment/baseline phase

- I. Meet with staff.
 - A. Collect data.
 - B. Remind staff to continue data recording.
- II. Meet with resident.
 - A. Collect data from resident for previous week.

- B. Instruct resident to continue data recording.
- C. Instruct resident about next meeting time and place.
- D. Remind resident to inform all anger outbursts that occur on the ward to staff.
- E. Remind resident to take calendar to next session.

III. Verify resident's data with staff data.

NB: Verification and confirmation of resident's data will be done after each session by checking resident's data against staff data. If discrepancies exist and they cannot be resolved the lower total will be recorded during the baseline phase and the higher sum will be recorded during the training phrase.

Training Session I - Pretests; begin cognitive preparation.

Overview:

- i. Structure session.
- ii. Collect data (End of baseline phase)
- iii. Pretests.
- iv. Introduce cognitive preparation.
- v. Home work.
- vi. Summarize session.

I. Structure session.

- instruct that data will be collected.
- instruct that pictures of anger provoking situations will be presented for the resident to answer some questions about.
- instruct that some sentences will be given for the resident to complete.
- instruct that we will talk about anger and how it's a natural behaviour that happens to everybody at some time.
- instruct that the resident will be given home work.
- instruct that the session will be summarized.

II. Collect data.

- instruct resident to tell number of anger outbursts for past week.
- check resident's calendar to confirm number.
- instruct resident to recall and describe one or two of those incidences of outbursts and provocation.

- instruct resident to describe content of anger reaction: what he/she felt; thought; did. The last 2 instructions will assist in identifying resident's level of awareness and serve to establish point at which cognitive preparation will begin.

III. Pretests.

- A. Photographs - present 3 photographs individually, of anger provoking situations previously described to me by resident during preliminary meeting.

When each picture is presented, instruct:

- Look at this picture.
- Tell me how many people are in the picture.
- What are the 2 people doing in the picture.
- Point to the person that is being pushed (hit, kicked).
- If you were the person being pushed (hit, kicked) how would you feel?
- If you were the person being pushed (hit, kicked) what would you feel?
- If you were the person being pushed (hit, kicked) what would you think?
- If you were the person being pushed (hit, kicked) what would you do?
- Residents responses will be taped.

- B. Rotter and Rafferty Incomplete Sentences Blank.

- read aloud, instructions to resident.
- give resident 1 test protocol and pencil.
- instruct resident to complete sentences.

If resident is not literate enough to read, comprehend and complete sentences, I will:

- read each sentence aloud to resident.

- instruct resident to tell me what he/she wants me to write down to complete each sentence.

III. Introduction of cognitive preparation.

- A. cite examples of my work at Woodlands with other residents (pilot study) who successfully learned skills to assist anger control.
- B. provide rationale for training - explain:
 - that because resident has frequent outbursts of anger we will be working together to learn ways of controlling anger and at the same time learning how to express negative feelings in a non-angry way.
 - that training will last for 8 weeks.
 - we will meet 1 day per week for 1 hour at the same time, same place and on the same day.
 - that when we meet he/she will learn new ways to think and feel about provocations and upsetting situations.
 - that he/she will learn new ways of thinking about him/herself and that these new ways will help to control anger outbursts.
 - that at the end of 8 weeks he/she will know how to respond calmly to provocations.
 - instruct that next session he/she will learn more about the training and what he/she will do.
 - that he/she will learn more about anger.
 - that I will share with them some of the situations that I find provoking.
 - that I will share with them how I respond to provocations.
 - that he/she will begin to learn how he/she responds to anger by observing changes in his/her body and listening to him/herself.

V. Home work.

110.

- instruct resident to continue to keep a record of number of anger outbursts for each day.
- remind resident to report all anger outbursts that occur off ward to staff.

VI. Summarize session.

- if you have questions, please ask.
- instruct resident to summarize what he/she learned.
- descriptive praise for resident's efforts.

Training session II - Continue cognitive preparation.

Overview:

- i. structure content of session.
- ii. data collecting.
- iii. continuation of cognitive preparation
 - self talk; physiological changes.
- iv. home work - data recording.
- v. summarize.

I. Structure procedure of session.

- review previous section.
- instruct resident data will be collected.
- we will continue to learn more about how to control anger.
- we will find out the things you say to yourself and what changes happen to your body when you are angry.
- I will tell you some of the things that make me angry.
- I will tell you some of the things I think and show you some of the things that happen to my body (the way my body changes) whenever I am angry.
- you will continue to record the number of temper outbursts you have per day and take your calendar with you to the next session, just like you have done today.
- we will sum up what we have done today at the end of the session.
- please ask any questions you may have.

II. Data Collecting.

- instruct resident to tell number of anger for past week.
- check resident's calendar to confirm number.

- instruct resident to recall and describe one or two of those anger outbursts and the provocation.
- instruct resident to describe content of his/her anger reaction; what he/she felt; thought; did. These last 2 items (instructions) will assist in identifying resident's level of awareness and will establish point at which cognitive preparation will begin.
- descriptive praise of resident's efforts.

III. Continuation of cognitive preparation.

- A. Instruct that every one feels anger from time to time and it is a normal reaction when controlled. Instruct that anger serves a useful function of expressing or communicating negative feelings. Instruct that the expression of negative feelings is a healthy behaviour when there are no accompanying behaviours or hostility or aggression.
- B. Instruct resident about the components of the training.
 - training has 3 parts:
 1. the first part teaches you how to find out the different ways you react to provocation. It helps you to know what you think feel and do when provoked.
 2. the training is to teach you some new ways of coping or handling provocation instead of getting angry and losing your temper.
 3. the training provides opportunities for you to practice the skills you will learn to cope with provocation.

C. Modelling my reaction to provocation.

- in this session you will learn that when you get angry there are 2 different things that happen to you. You will learn what these two things are and how to notice them easily as you react to provocation.
- your anger reaction, my anger reaction and everybody's anger reaction has two parts.
- I will tell and show you the two things that happen to me when I get angry. This will help you to understand how to find those two things that happen to you when you get angry.
- (modelling my reaction to provocation) for example, I do not like being shouted at. Whenever I am shouted at I get upset and angry. One day when I was learning to drive, my driving instructor and I had an argument in which we were disagreeing about the way I should drive. She spoke to me in a loud voice. I was not agreeing with her and her voice got louder and louder as she told me how awful I was driving the car. She was afraid that I might have an accident and was expressing her concern but I did not like the way she did this.
- (preparing for provocation) I could tell that her loud voice was beginning to make me angry because I noticed my heart was beating faster and my hands were shaking. These are the first things I notice that happen to me when I am getting angry ... my heart beats faster and my hands shake ... like this (model shaking hands).

- so I said to myself, my instructor is shouting at me and am getting angry at her shouting at me because my heart is beating faster and my hands are shaking. If there were something I could tell myself to do to help me to remain calm and not get angry at my instructor for shouting at me, I could do and control my anger while calmly letting her know I do not like being shouted at.
- as we work together you will learn some things to tell yourself to do in order to control your anger whenever you are provoked.

D. Teach resident how to observe for, and to identify body (physiological) changes.

- I have told you and described to you the 2 things that I notice about myself whenever I am getting angry. The first is that my body acts differently - my heart beats faster and my hands shake. The second is that I notice that I talk to myself.
- now we will begin to find out what changes occur to your body when you are angry.
- tell me what happens to your body when you are angry?
- if resident cannot describe physiological changes, I will:
- model different situations that make me angry and describe accompanying physiological changes for each scenario.
- if resident does not have the awareness of body changes, assist resident to acquire this awareness by instructing resident to think of a situation in which he/she is being provoked.
- instruct resident to describe aloud the situation as if it were really happening to him/her right now.

- instruct resident to pay attention to the entire body from head to toes.
- say: You have just described a situation which you find anger provoking. You are now angry. Tell me what is happening to your:
 - forehead
 - eyes
 - mouth
 - throat
 - voice
 - shoulders
 - stomach
 - heart
 - hands
 - palms
 - feet
- describe possible changes that can occur to these various body parts as a result of the body's reaction to the stress of provocation.
- assist resident to describe/identify his/her body changes.
- provide descriptive praise for resident's effort.

IV. Home work.

- remind resident to continue data recording.
- remind resident to take calendar to next session.
- remind resident to report all anger outbursts off the ward to ward staff.

- instruct resident to focus on body changes (how does heart beat, face feels, voice sound, etc.) should he/she encounter provocation during the coming week.

V. Summarize session.

- if you have questions, please ask.
- highlight points learned by resident.
- solicit resident's input in summarization.
- descriptive praise for resident's efforts.
- instruct that next session we will continue to focus on body changes.
- instruct that next session we will learn about self-talk.

Training session III - Cognitive preparation continued - identification of physiological changes and self talk.

Overview:

- i. structure session.
- ii. data collecting.
- iii. finish off with identification and description of physiological changes.
- iv. begin identification and description of self-talk.
- v. home work.
- vi. summarize session.

I. Structure session.

- review previous session.
- collect home work.
- instruct that resident will finish off identifying and describing body changes when reacting to provocation.
- instruct that we will begin identifying and describing content of self-talk in reaction to provocation.
- instruct that resident will be reminded to continue data recording.
- instruct resident to ask questions throughout session.

- instruct that content of session will be summarized at end of session.

II. Data collecting.

- instruct resident to tell number of outbursts for past week.
- instruct resident to describe some of those anger provoking events.
- check resident's calendar to confirm data.
- descriptive praise for having recorded frequency of anger outbursts.

III. Complete the process of identifying and describing body changes.

- as in training session II, plus:
- instruct resident to identify and describe those body changes he/she observed that accompanied his/her anger reaction to provocation during past week.
- descriptive praise of resident's efforts for having monitored those body changes during anger provoking situations over the past week.

IV. Begin identification and description of content of self-talk when reacting to provocation.

- last week I told you some of the things I said to myself when my driving instructor shouted at me. Let me remind you of some of those things I said to myself.
- I said to myself, "My instructor is shouting at me and I am getting angry because my hands are shaking and my heart is beating faster. I am not going to accept her shouting at me". I heard myself saying all those things to myself.
- now we will begin to find out some of the things you say to yourself when ever you are provoked.
- tell me what you say to yourself whenever you are angry.
- if resident cannot do this I will say;
- earlier on in the session you told me some situations that made you angry last week. You told me some of the changes you observed to occur to your body and you also wrote down the number of times you got angry.
- tell me some of the things you thought during those occasions when you were angry last week.

- if resident cannot describe nor recall the thoughts he/she had during those angry outbursts he/she recorded I will assist him/her in developing skills to be aware of self talk.
- model situations in which I get angry and describe content of self-talk.
- play card games with resident and anticipate behaviours such as self-corrections on the part of the resident, that indicate self-talk on the part of the resident.
- pursue reason for self-correction or change of mind due to mental awareness of error, and make the link clear to the resident that his/her self-correcting behaviour is as a result of self-talk.
- use puzzles in the same way as card games making sure to have 2 of each puzzle; one intact the other in pieces. The resident will use the intact puzzle as a guide providing ongoing feedback to minimize frustration and to enhance the resident's skill at arriving at the correct solution. Most importantly, the intact puzzle serves the function of heightening the resident's awareness of error. This heightened self-awareness of error is here assumed to promote internal dialogue or self-talk, evidenced by self-correction on the part of the resident.
- guessing games: instruct resident to guess which of 2 boxes contains the blocks; which bag contains the crayons, which of 2 pictures (faces down) is that of a flower; which of 2 containers has the blue ball, etc.
- for all guessing games, resident will be instructed not to respond aloud. Just indicate response by pointing to the container or object.

- after resident indicates his/her response to each question by pointing, instruct resident to say aloud what he/she said to him/herself before or during the time the choice was made.
- emphasize to resident that his/her choice was as a result of what he/she said to him/herself silently and that he/she acted on his/her self-talk, since he/she had not spoken aloud.
- congratulate resident for his/her efforts at identifying and describing content of self-talk.

V. Home work.

- remind resident to continue data recording.
- remind resident to take calendar to next session.
- remind resident to report all anger outbursts that occur off the ward to ward staff.
- instruct resident to focus on self-talk and its content, should he/she encounter provocation during the coming week.

VI. Summarize session.

- if you have questions, please ask.
- highlight points learned by resident.
- solicit resident's input in summarization.
- descriptive praise for resident's efforts.
- instruct that next session we will finish off learning about his/her self-talk by playing some more games.
- instruct that he/she will also begin to learn how to use body changes and self-talk to control anger.

Training session IV - completion of identification of self-talk introduction of rehearsal phase/skill acquisition.

Overview:

- i. structure session.
- ii. data collecting.
- iii. finish off identification and description of content of self-talk through games.
- iv. focus self-talk on resident's anger reaction when provoked.
- v. home work.
- vi. summarize session.

I. Structure session.

- instruct that we will review previous session.
- instruct that we will collect data.
- instruct that part of session will be spent on finishing off identification and description of content of self-talk through playing games.
- instruct that part of session will be spent focusing on his/her self-talk and its content, when reacting to provocation.
- instruct that we will begin to learn how to use body changes and self-talk to control anger.
- instruct he/she will be reminded to continue to record data.
- instruct resident to ask questions any time.
- instruct that content of session will be summarized.

II. Collect data.

- as in session III.

III. Finish off identification and description of self-talk through games.

- review last sessions activities.
- continue with games and puzzles.
- instruct resident to play game/puzzle and say aloud what he/she does.
- reinforce by also tracking aloud behaviours of resident during game/puzzle.
- instruct resident to continue game/puzzle without vocalization.
- instruct that I will also follow (track) resident's behaviours silently during game.
- emphasize that although resident is not saying anything aloud he/she is nevertheless saying what he/she is doing silently to him/her self.
- when resident makes a self-correction I will say aloud: "Stop. Tell me what you said to yourself that caused you to correct yourself."
- point out to resident that although I did not hear him/her speaking, I knew she/he had said something to him/herself through self-talk, because of the correction he/she made.
- next I do puzzles and vocalizes all my behaviours (both self-talk, and my observable behaviours).
- instruct resident to track aloud all of my observable behaviours during game, including when I do self-talk to correct my error.
- instruct resident that I will continue to play the game, but this time I will track all of my behaviours sub-vocally.
- instruct resident to continue tracking my behaviours, but to do so sub-vocally.

- instruct resident that when he/she is tracking my behaviours sub-vocally, and he/she observes that I do self-correction he/she is to say aloud: "Stop. Tell me what you said to yourself that made you correct yourself".
- at this point I will describe content of my self-talk to confirm to resident that I was indeed listening to my self telling me that I had made an error and how to correct that error, which I did and which he/she had observed.
- next, place a number of Canadian and American pennies in a pile on the table.
- instruct resident to identify and sort coins into 2 different piles, 1 pile for Canadian pennies and the other pile for American pennies.
- instruct resident to do the sorting one at a time, sub-vocally.
- I will silently observe for resident's self-corrections. When these occur say aloud to resident: "Stop. Tell me what you said to yourself that caused you to realize you made an error and resulted in your correcting that error".
- emphasize to resident that his/her choice of piles was as a result of what he/she said to him/herself silently, since he/she had not spoken aloud.
- point out that that is what self-talk is all about and that we all talk to ourselves both when we are angry and when we are not and that we also behave according to the things we say to ourselves.
- provide descriptive praise to resident for having verbalized his/her self-talk throughout the games and also for having listened to, and acted upon the content of his/her self-talk.

- the objectives of most of the instructions and activities on p.122 & 123 are to: (1) reinforce identification and recognition of self-talk and its content. (2) Importantly, to demonstrate to the resident that different content of self-talk results in different behaviours or choices leading to different consequences. For example, when we have 2 different kinds of coins and we have the task of sorting the coins into different piles; and when we recognize through self-talk that some of the coins are Canadian and some are American, that realization means putting the Canadian coins into a different pile than that which the American coins are placed.
- instruct that similarly, the content of self-talk when we are angry or provoked, determines what we do in response to provocation.
- the objectives of the last 2 lines are to assist resident to realize that the content of self-talk determines behaviours and to prepare the resident for the next phase of skill acquisition to consciously control the content of their self-talk and physiological changes when provoked so that their reaction will be a non-hostile response.

IV. Focus the process of self-talk to content of resident's self-talk when reacting to provocation.

- transfer process of general self-talk learned through games to specific self-talk that occurs when resident is angry.
- instruct resident to imagine a situation in which he/she is being provoked.
- instruct resident to describe aloud the situation as if it were really happening to him/her right now.

- instruct resident to focus on what he/she is now saying to him/herself about his/her feelings ... about the source of provocation.
- now instruct resident to say aloud what he/she was saying silently, or thinking about his/her feelings and the source of provocation.
- provide resident with several opportunities to practice this and to master the skill of being conscious of the content of his/her self-talk when provoked and when angry.
- provide descriptive praise for resident's efforts.
- review physiological (body) changes accompanying anger reaction.
- review that content of self-talk influences behaviour and consequences.
- instruct that sometimes people react with anger to provocation because their self-talk contains negative perceptions and doubts about their self worth and abilities.
- instruct that sometimes people react with anger to provocations because their self-talk contains information that make them unsure of themselves and make them feel threatened and incapable of self-control.
- that people sometimes react with anger to provocation because their self-talk tells them they are being personally attacked.
- that people sometimes react with anger to provocation because they have always reacted that way simply because they do not know any other way to react.
- instruct that next session will focus on learning skills to cope with provocation.

V. Home work.

- as in session III.

VI. Summarize session.

- if you have any questions, please ask.
- highlight important points of session.
- instruct resident to offer summarization of session.
- descriptive praise of resident's efforts.
- remind resident that next session we will learn positive self-talk.
- instruct resident next session we will also learn relaxation skill to control body changes that occur during anger response to provocation.

Training session V - Continuation of skill acquisition phase

Overview:

- i. structure session.
- ii. data collecting.
- iii. describe phases of anger reaction.
- iv. continue skill acquisition (positive self-talk).
- v. preparation for progressive relaxation and cue-controlled relaxation training.
- vi. acquisition of progressive relaxation and cue-relaxation skills.
- vii. home work.
- viii. summarize session.

I. Structure session.

- instruct that last session will be reviewed.
- that we will collect number of anger outbursts.
- that we will learn about the phases of anger.
- that part of the session will be spent on learning positive, coping self-talk.
- that part of session will be spent on learning how to relax.
- that resident will be reminded to continue recording number of anger outbursts for coming week.
- instruct resident to ask questions any time during session.
- that content of session will be summarized at the end of session.

II. Data collecting.

- record number of anger outbursts.
- instruct resident to describe the provocation events.
- to describe body changes accompanying the anger response.

- to describe the content of self-talk during those anger response(s).
- descriptive praise for resident's recording of data; description of anger provoking event(s); description of body changes and description of content of self-talk.

III. Instruct resident on the phases of anger.

- instruct that anger response is a series of phases.
- that anger response is not one big explosion without warning signs.
- that anger response can be divided into 3 phases.
- that during each phase we do different things.
- during first phase, we prepare for provocation ... we know when we are being provoked. We know this by feeling that our body changes, e.g. your heart may beat faster, or your shoulders tense, etc.
- during the second phase we either cope with the provocation by listening to, and acting upon the positive content of self-talk and relaxing the body and not get angry, if we know how, and calmly express our displeasure, or we do not cope with the provocation, and get angry.
- during the third phase we feel good about having coped and congratulate ourselves for not getting angry, yet was able to express our feelings of displeasure about the source of provocation, or we continue to feel upset and angry about the provocation, as well as for having been angry.
- we will now learn some skills to help you cope during all 3 phases of your response to provocation.

IV. Continue skill acquisition of positive thought substitution.

- instruct resident that he/she is a worthwhile person capable of learning positive behaviours.

- that he/she has many functional behaviours that he/she likes.
- instruct resident to describe aloud, some things he/she likes about him/herself.
- instruct resident to say aloud: "I am a capable person. I like myself and I can learn how to cope with provocation".
- instruct resident to make-up his/her version of the above, retaining the central theme of a positive attitude.
- instruct resident to say his/her version aloud until he/she is comfortable with what he/she is saying.
- instruct resident to say it silently; that is, to rehearse positive self-talk.
- instruct resident to say aloud: "Even if people directly provoke me I can control my anger, yet express my feelings, because controlling my anger is the most important thing to me".
- instruct resident to make-up his/her version and interpretation comfortable with a positive view of him/herself.
- instruct resident to say his/her positive statement silently over and over, that is, to rehearse and be comfortable with positive self-talk.
- rehearse all positive self-talk.

V. Preparation for progressive-relaxation and cue-relaxation training.

- instruct resident to touch and name body parts (example, forehead, cheeks, tongue, mouth, chin, stomach, knee, leg, buttocks, etc.)
This procedure serves as a checklist to establish whether or not the resident knows the various parts of the body which will be relaxed during relaxation training. If they do not know all of the parts and names, teach them by modelling.

- instruct that body changes can be used to tell that he/she is being provoked.
- instruct that these body changes (emotional arousal) can also be used as cue or sign to use positive self-talk to calm the body.
- instruct that when the body is calm and relaxed it is hard to get angry because one cannot be relaxed and angry at the same time.
- instruct resident to again identify and describe his/her body changes in response to anger so he/she will be always aware of them.
- instruct resident in the acquisition of positive self-talk directed at relaxing body. For example, if emotional arousal (body change) to provocation is stiffening of, or tension in the shoulders, resident can say: "My shoulders are feeling stiff. They are telling me I am getting angry. This means I have to do something positive to make my shoulders relax and help me be calm so I can face the provocation and cope with it and not get angry".
- instruct resident to make-up his/her own version of positive self-talk directed at his/her tense body when responding to provocation.
- see that resident maintains the idea for the need of positive action to be calm and relaxed when he/she makes up his/her version of self-talk.
- instruct resident to say the above in his/her own words, aloud.
- when resident is comfortable with his/her positive self-talk, instruct him/her to rehearse silently.
- for each body change or tension described by resident instruct and assist resident to use them as cues to make up and rehearse positive self-talk directed at relaxation.

- instruct that resident will now learn how to calm and relax his/her body when he/she tells him/herself to do so through positive self-talk.

VI. Acquisition of progressive and cue-controlled relaxation skills.

- instruct resident how to relax by tensing and relaxing each part of the body as is outlined in the attached relaxation protocol.
- instruct that relaxation response is opposite to tension.
- instruct that when body is relaxed he/she is less likely to respond with anger to provocation.
- rehearse cue relaxation training.

VII. Home work

- instruct resident to rehearse positive self-talk during week.
- instruct resident to practice relaxation response every day and to use it to cope with provocation during coming week.
- instruct resident to record the number of positive self-statements used to control anger outbursts during coming week.
- instruct resident to continue recording number of anger outbursts during coming week.

VIII. Summarization of session.

- if you have questions, please ask.
- highlight skills learned by resident.
- solicit resident's summarization.
- descriptive praise of resident's efforts.
- instruct that next session we will continue with practicing all skills learned.

Training session VI - Conclusion of skill acquisition phase.

Overview:

- i. structure session.
- ii. data collecting.
- iii. acquisition of non-hostile responses to provocation.
- iv. acquisition of congratulatory self-statements.
- v. relaxation.
- vi. closure on skill acquisition phase.
- vii. prepare resident for practice phase.
- viii. home work.
- ix. summarize.

I. Structure session.

- instruct that we will review last session.
- we will collect the data on number of anger outbursts.
- we will collect the data on number of positive self-talk used to prevent anger outbursts.
- he/she will learn alternate ways of expressive negative feelings in a non-hostile way.
- he/she will learn self-statements to congratulate self for coping positively with provocation.
- he/she will rehearse relaxation response.
- that home work will be set.
- ask questions anytime during session.
- that content of session will be summarized.

II. Data collecting.

- as in session V.

III. Acquisition of non-hostile responses to provocation.

- rehearse skills acquired in past sessions in order to make logical connection for next skill acquisition.
- instruct that anger serves a useful function of expressing or communicating negative feelings.
- instruct that the expression of negative feelings is a healthy behaviour.
- that when he/she is calm, and is in control of a situation of provocation he/she can think clearly about the situation, decide whether or not it is worth bothering about, then decide what to do that will maintain his/her feeling of control.
- instruct that if the situation causes negative feelings and is judged to deserve a response, he/she can communicate his/her feelings calmly and without anger. (for each situation of provocation described by the resident, I will assist the resident to develop a dialogue that clearly and effectively communicates, in a non-hostile way, his/her feelings and thoughts about the provocation occasion).

IV. Acquisition of congratulatory self-statements for effectively coping with provocation.

- instruct that we all like to feel good about ourselves and capable of coping.
- that when he/she copes with provocation by controlling his/her anger as well as accomplishing the act of effectively communicating his/her aggravation in a non-hostile way, he/she would reward him/herself for his/her success.

- you can do this by telling yourself: "I did it. I did not get angry." "I just coped with provocation and I feel good about it." "It worked.", etc.

V. Rehearse cue-relaxation response.

- as in session V.

VI. Produce closure on skill acquisition and rehearsal phase.

- highlight skills learned.
- review/summarize objectives of coping skills.
- encourage resident to continue rehearsing all coping skills on his/her own during the coming week.

VII. Introduce practice phase to prepare resident for next 2 sessions.

- instruct that next 2 sessions will be spent practicing all coping skills learned.

VIII. Home work.

- as in session V p. 127; plus:
- instruct resident to evaluate provocation occasion, determine its importance, and respond accordingly in a positive and non-hostile way or ignore.
- instruct resident to practice congratulatory self-talk.

IX. Summarize session.

- if you have questions, please ask.
- highlight skills learned.
- solicit residents summarization of session.
- descriptive praise of resident's efforts.

TRAINING PHASE - TRANSFERTraining session VII - Begin application phase of training.

Overview:

- i. structure session.
- ii. data collecting.
- iii. model application of coping skills.
- iv. begin skill application to imagine provocations.
- v. begin skill application to role play scenarios of provocation.
- vi. home work.
- vii. summarize session.

I. Structure session.

- instruct that we will review last session.
- instruct that we will collect data on number of anger outbursts for past week.
- instruct that we will collect number of positive self-statements used to control anger outbursts.
- instruct that we will talk about effects of relaxation cue to control anger during past week.
- instruct that he/she will be given opportunities to imagine and describe provocation events, and practice all coping skills to those imagined provocations.
- instruct that he/she will be given opportunities to role play events he/she finds anger producing and will practice all coping skills to those events.
- instruct that home work will be set.
- instruct that session will be summarized.
- instruct resident to ask questions any time during the session.

II. Data collecting.

- collect number of anger outbursts for past week.
- instruct resident to describe the provocation events.
- instruct resident to describe content of his/her positive self-talk used to control anger.
- instruct resident to describe relaxation response used to control anger.
- provide descriptive praise to resident for data collecting and for practicing skills to control anger.

III. Modelling of skill application.

- now that you are practicing your coping skills to control your reaction to provocation I will describe to you how I use those skills to control my anger to provocation. This is to help you realize that you are not the only one that gets provoked and feel anger. The positive thing for you and I is that we have learned skills to control our anger.
- do you remember some time ago I told you I was getting angry at my driving instructor for shouting at me?
- I told you that I was not driving very well and my teacher started shouting at me.
- I was getting angry because I do not like being shouted at.
- (preparing for provocation) I could tell that her loud voice was beginning to make me angry because I noticed that my heart was beating faster and my hands were shaking.

- so I said to myself, my instructor is shouting at me and I am getting angry ... my heart is beating faster and my hands are shaking like this (model shaking of hands). But not to worry, I can handle this. As long as I stop my hands from shaking and my heart from racing, I won't get angry at her.
- let me take it easy by relaxing my hands to stop them from shaking.
- I was doing self-talk and listening to myself too! I talked silently to myself and I listened.
- I told myself to relax my hands and I relaxed my hands by clenching and unclenching them until they stopped shaking ... the same way that you did when you first learned to relax.
- I did not want to use the long method of relaxing by tensing and relaxing all of the individual parts of my body so I used my relaxation cue to relax my entire body just like you now do and I became calm and relaxed all over ... so very calm and relaxed.
- (confronting the provocation) because I did my positive self-talk and did my relaxation I did not get angry because I cannot be relaxed and angry at the same time.
- so I talked in a calm quiet voice to my instructor and told her that I did not like her shouting at me and please not to shout at me again. I told her that if I were not driving safely then she should tell me so quietly and then I will listen to her.
- (coping/managing the provocation) because I listened to my self-talk I was able to talk to my instructor calmly. She listened to me calmly and I was happy and so was she.
- and that's how I managed the provocation.

- I congratulated myself for not getting angry by telling myself that I had handled the situation well. I used self-talk to remind myself that I did not get angry, yet I was able to let my instructor know I did not like to be shouted at.
- now you too are coping with provocation using the same skills I use.

IV. Begin skill application to imagined provocation.

- instruct resident to describe situation that usually provokes anger.
- for each situation described, instruct resident to close eyes and imagine incident is really happening.
- (for example) instruct: "Describe aloud the incident. Continue to imagine the situation as if it were actually happening now and you feel yourself getting angry because this other resident pushed you while you were waiting in line for your supper. Now describe to me what is happening to your body. O.K., you said your hands are shaking. Your shaking hands is a sign that you are being provoked. Continue to pay attention to that sign ... pay attention to them. Now imagine yourself saying, hey, I am getting angry, that means it's time to relax and do my self-talk. That's well said. Now say it again. That's good. Now tell me how you are going to make yourself relax. That's correct ... you use your relaxation cue and your hands are now very relaxed. Now tell me what you are saying to yourself now that you are relaxed. That's good ... you have told yourself that you are relaxed and in control. Now say that aloud. That's good. Now tell me what you are saying to yourself. Yes, that's a positive self-statement ... you have told yourself to tell the other resident that you do not like to be pushed and please do not do that again. Now continue to imagine the other resident is here behind you

in line and tell him/her aloud what you have just told me. That's good, you have told him/her loud and clear. Now tell me what you are saying to yourself. Yes, that's a positive thing to tell yourself ... that you have done a good job of controlling your anger. Now say that aloud. That's good. You have done a very successful job of controlling your anger. How do you feel now?

- instruct resident to practice coping skills to other imagined and experiential provocations.
- provide descriptive feedback for resident's practice.

V. Role play scenes of provocation and skill application

- same procedure as on p.138. However, with role play scenarios there will be an added effect of interpersonal conditions by my acting as a source of provocation to the resident as the resident provides me with the content of the scenarios that provoke anger in him/her.
- the objective of role playing imagined provocations is to provide the resident with interpersonal stimuli to elicit a high level of emotional involvement and motivations that have a real life quality as the resident practices in a controlled environment.
- descriptive praise for each successful practice.

VI. Home work.

- as in session VI.

VII. Summarize session.

- if you have questions, please ask.
- highlight resident's successful application of coping skills.
- solicit resident's summarization of session.
- remind resident that he/she will increase the use of coping skills as he/she experiences success for having done so.

- remind resident that congratulatory self-statements will make the use of positive coping skills a habit which will result in fewer anger outbursts.
- remind resident that use of congratulatory statements after each coping situation will make him/her feel good about him/herself.
- remind resident to use relaxation cue to experience a calm and relaxed body.
- descriptive praise for resident's efforts.

Training session VIII - conclusion of skill application.

Overview

- i. structure session.
- ii. data collecting.
- iii. continue skill application to imagined provocations.
- iv. continue skill application to role play scenes of provocations.
- v. home work.
- vi. summarize session.

I. Structure session.

- instruct that last session will be reviewed.
- data will be collected for number of anger outbursts during past week.
- data will be collected on number of positive self-statements used to cope with provocation during past week.
- instruct that part of present session will be spent practicing coping skills to imagined (experiential) provocations.
- instruct that we will continue to apply coping skills to role play provocations during present session.
- instruct that next session is end of training.
- instruct that home work will be set.
- instruct that session will be summarized.
- instruct resident to ask questions at any time during session.

II. Data collecting.

- as in session VII.

III. Continue skill application to imagined provocations.

- as in session VII.

IV. Continue skill application to role play provocations.

- as in session VII.

V. Home work.

- as in session VI.

VI. Summarize session.

- if you have any questions, please ask.
- highlight resident's successful application of coping skills.
- solicit resident's summarization of session.
- remind resident that he/she will increase the use of coping skills as he/she experiences success for having done so.
- remind resident that congratulatory self-statements will make the use of positive coping skills a habit which will result in fewer anger outbursts.
- remind resident that use of congratulatory self-statements after each coping situation will make him/her feel good about him/herself.
- remind resident to use relaxation cue to experience a calm and relaxed body and state of mind.
- instruct that during next session, pictures used in first session will again be used for him/her to describe his/her feelings and thoughts about each picture.
- instruct that incomplete sentences given in first session will again be given in next session for him/her to complete.
- provide descriptive praise for resident's efforts during session.

Training session IX - Posttests and closure.

Overview:

- i. structure session.
- ii. data collecting.
- iii. posttests: pictures; incomplete sentence blanks.
- iv. review skills learned over past 8 weeks.
- v. debrief on purpose of pictures and incomplete sentence blanks.
- vi. instruct on follow-up.
- vii closure.

I. Structure session.

- instruct that data will be collected.
- instruct that this is final session.
- instruct that he/she will be shown pictures and will be asked to answer some questions about pictures.
- instruct that incomplete sentence blanks will be given for him/her to complete.
- instruct that he/she will be asked to continue recording data (follow-up).
- instruct that we will close training by talking briefly about all skills learned over past 8 weeks.

II. Data collecting.

- collect number of anger outbursts for past week.
- instruct resident to describe some of those provocation events.
- instruct resident to describe content of positive self-talk used to control anger.
- instruct resident to describe relaxation used to control anger.

- provide descriptive feedback to resident for data collecting and for practicing skills to control anger.

III. Posttests - pictures and incomplete sentence blanks.

- present pictures representing scenes of provocation as described by resident.
- proceed as in session I.
- administer incomplete sentence blanks.
- proceed as in session I.

IV. Review all coping skills learned over past 8 weeks.

- highlight importance and effect of positive self-talk on behaviour.
- highlight importance and positive effects of relaxation on behaviour in response to provocation.
- highlight the need to express feelings of displeasure to provocation in a calm, direct and positive manner.
- highlight the importance and positive reinforcing effects of congratulatory self-statement for having coped with provocation.

V. Debrief resident on pre- and posttests.

- instruct that the presentation of pictures before and after training was to find out how he/she thought, felt, and what he/she would do if he/she were the person being provoked in the pictures.
- that his/her response to the pictures was to see whether or not his/her reaction (thoughts, feelings and behaviour) was different to the same source of provocation before and after training.
- instruct that incomplete sentences were to see if he/she completed the sentences with more positive coping words after the training than he/she did before the training.

VI. Follow-up instructions.

145.

- instruct that follow-up means the time between end of training and when I will see him/her and ward staff to collect data on the number of anger outbursts during that period of time.
- instruct that the period of time is for 6 weeks (except in the case of the first 4 residents who will have 2 six-week periods of follow-up).
- instruct that I will collect follow-up data 6 weeks after training.
- show the 6-week date on resident's calendar and instruct resident to circle the date.
- instruct that number of anger outbursts is to be recorded every day in the same manner as he/she has been doing.
- remind resident that all anger outbursts off the ward are to be reported to ward staff as he/she has been doing.

VII. Closure.

- remind resident that this is last session.
- instruct resident to practice coping skills every day.
- instruct resident to always use coping skills when provoked.
- instruct resident to always use congratulatory self-statements after every successful control of anger.
- remind resident to continue data recording for 6 more weeks.
- remind resident to report all anger outbursts to staff.
- remind resident of date I will collect follow-up data.
- if you have any questions, please ask.

- instruct resident that he/she is free to ask for results of research/study and may do so by contacting any of the following 3 persons:
 - Doreen Malcolm, Woodlands: 521-2611, local 323.
 - Dr. Wayne Poley, Woodlands: 521-2611, local 287.
 - Dr. Bryan Hiebert, Simon Fraser University, 291-3389.
- thank resident for participating in training, and provide descriptive praise for resident's efforts throughout training.

APPENDIX E

Protocol of Taped Interview on Presentation
of Anger-Engendering Pictures

- 1) I am going to show you 3 pictures and ask you some questions about each picture.
- 2) Look at this picture.
- 3) Tell me how many people are in the picture.
- 4) What are the people doing in the picture?
- 5) Point to the person that is being pushed/kicked/hit.
(In the case of one subject the questions were:
Point to the person that is being talked about/kicked/hit).
- 6) If you were the person being pushed/kicked/hit, how would you feel?
(In the case of one subject the questions were:
If you were the person being talked about/kicked/hit, how would you feel?)
- 7) If you were the person being pushed/kicked/hit, what would you feel?
(In the case of one subject these questions were:
If you were the person talked about/kicked/hit, what would you feel?)
- 8) If you were the person being pushed/kicked/hit, what would you think?
(In the case of one subject these questions were:
If you were the person being talked about/kicked/hit, what would you think?)
- 9) If you were the person being pushed/kicked/hit, what would you do?
(In the case of one subject these questions were:
If you were the person being talked about/kicked/hit, what would you do?)

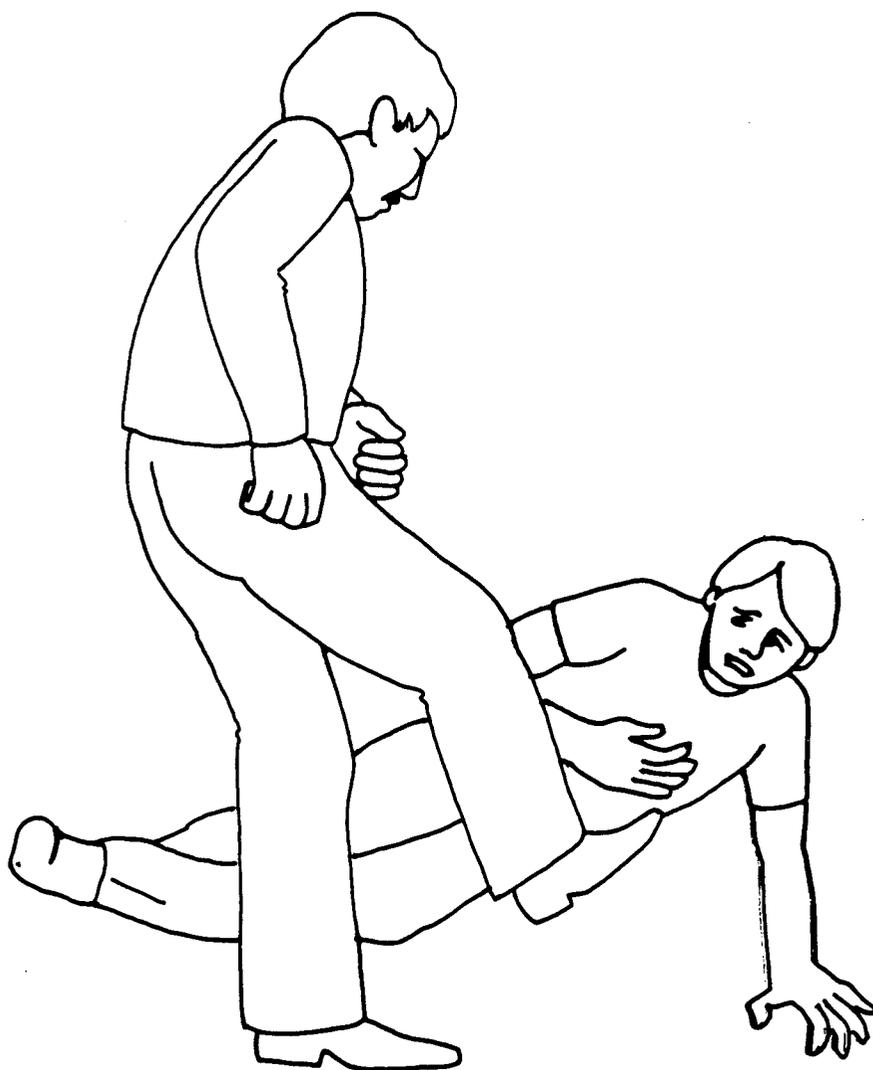
SCORING SHEET

COUNSELLOR- STATEMENT	FEELING		THINKING		ACTION	
	(anger)	(nonanger)	(non-facilitative)	(facilitative)	(aggressive)	(non-aggressive)
1-5						
6 "...how would you feel...?"						
7 "...what would you feel...?"						
8 "...what would you think...?"						
9 "...what would you do...?"						

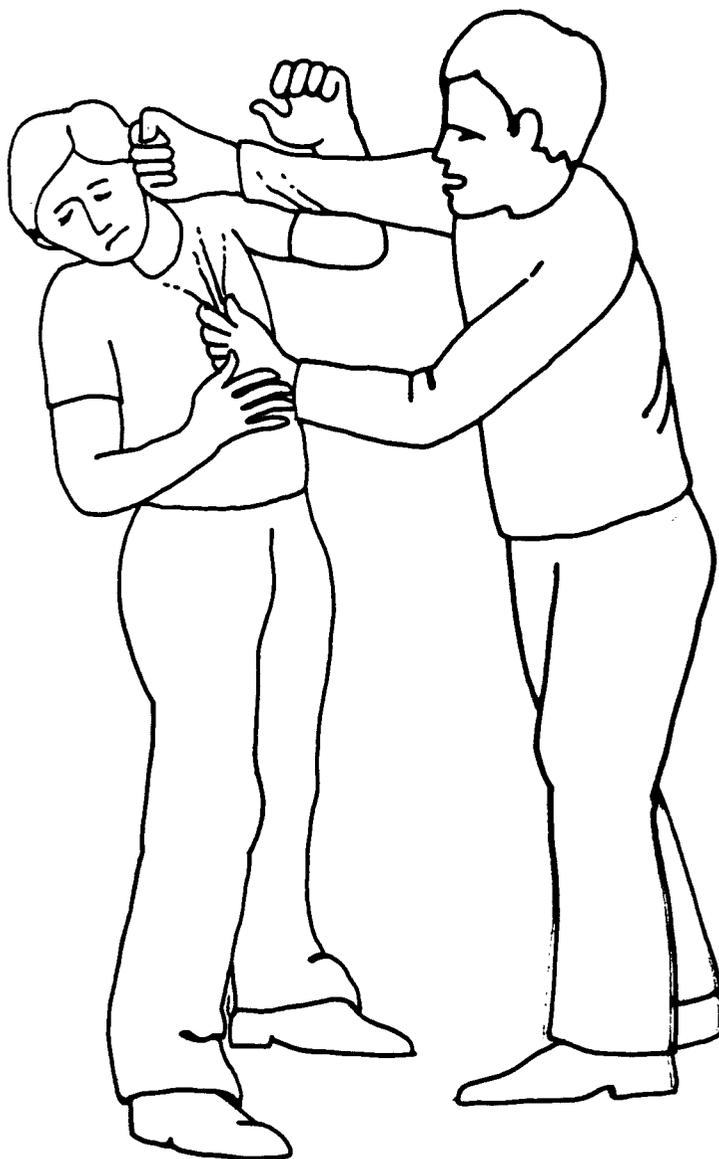
TAPE ID CODE:

APPENDIX F

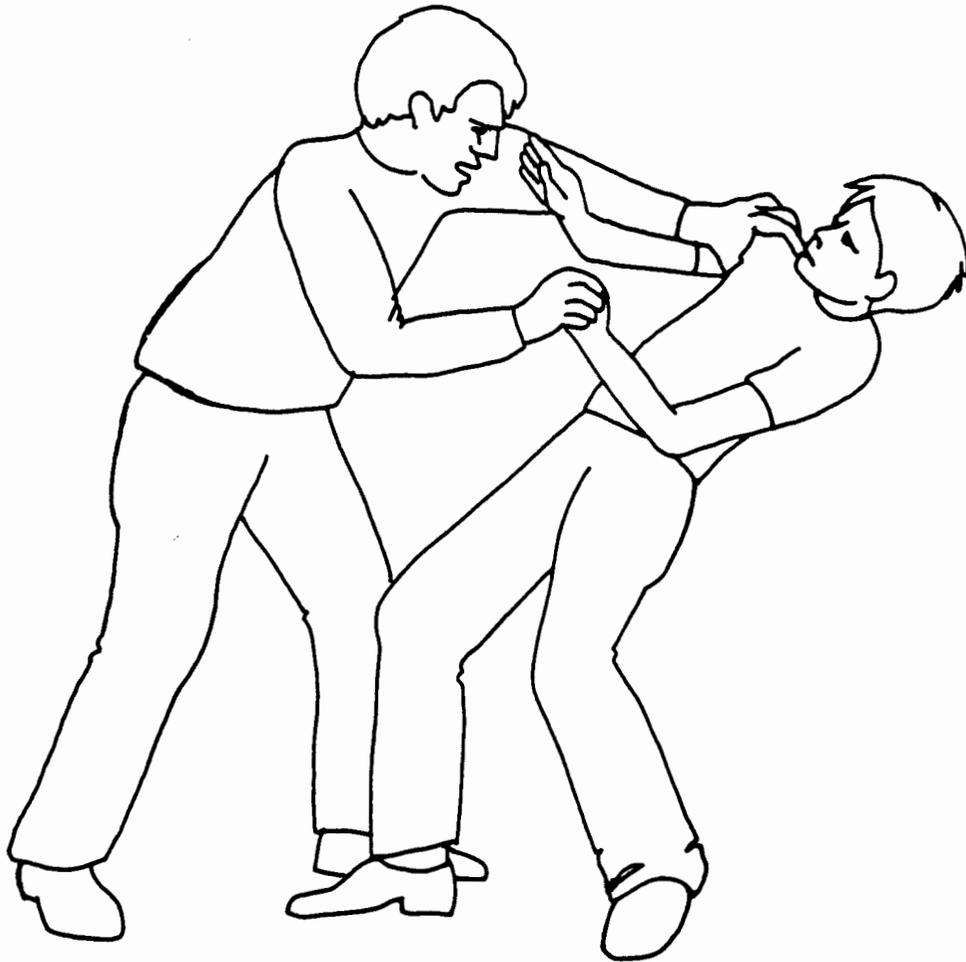
Example of Anger-Engendering Event



Example of Anger-Engendering Event

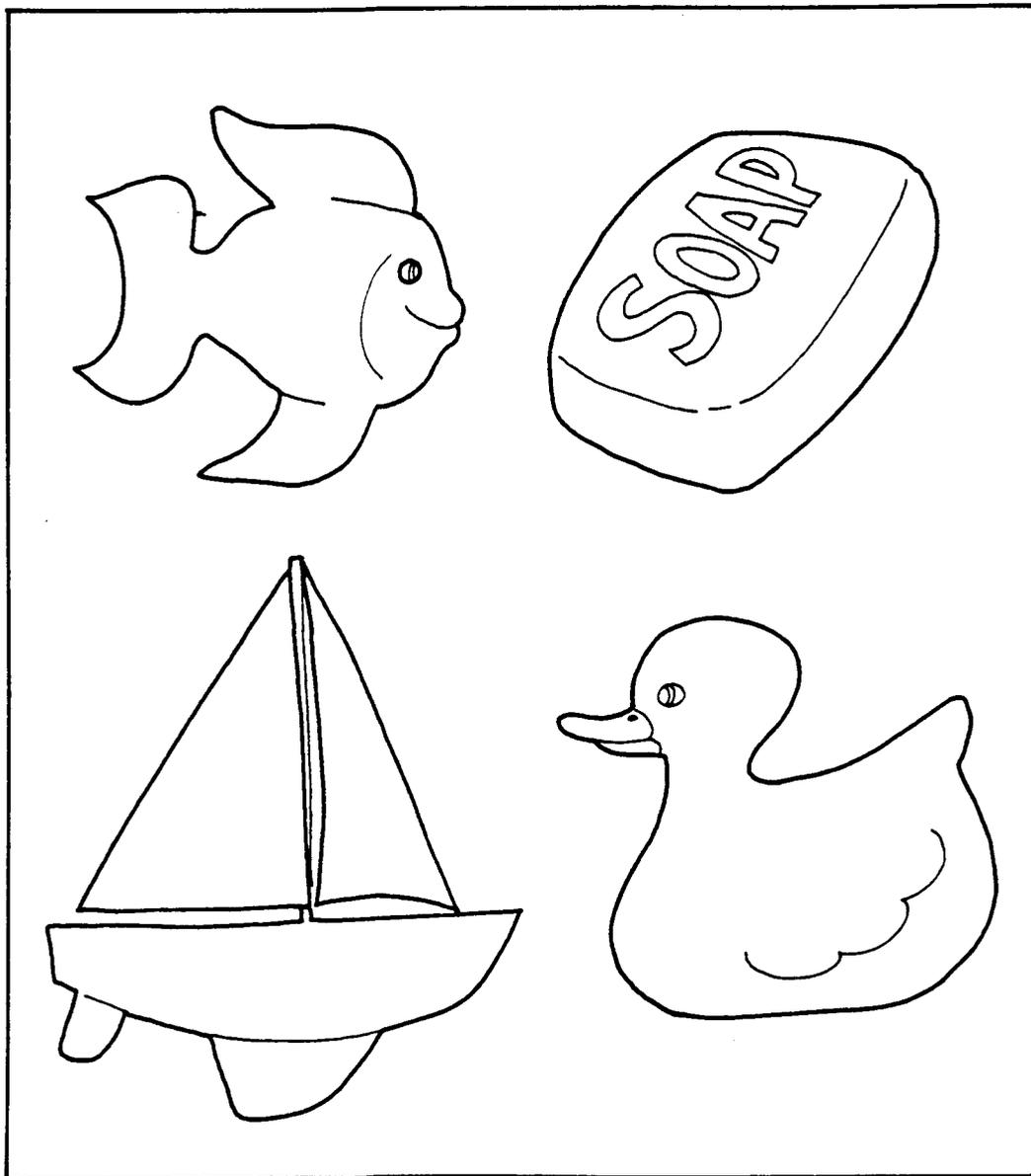


Example of Anger-Engendering Event

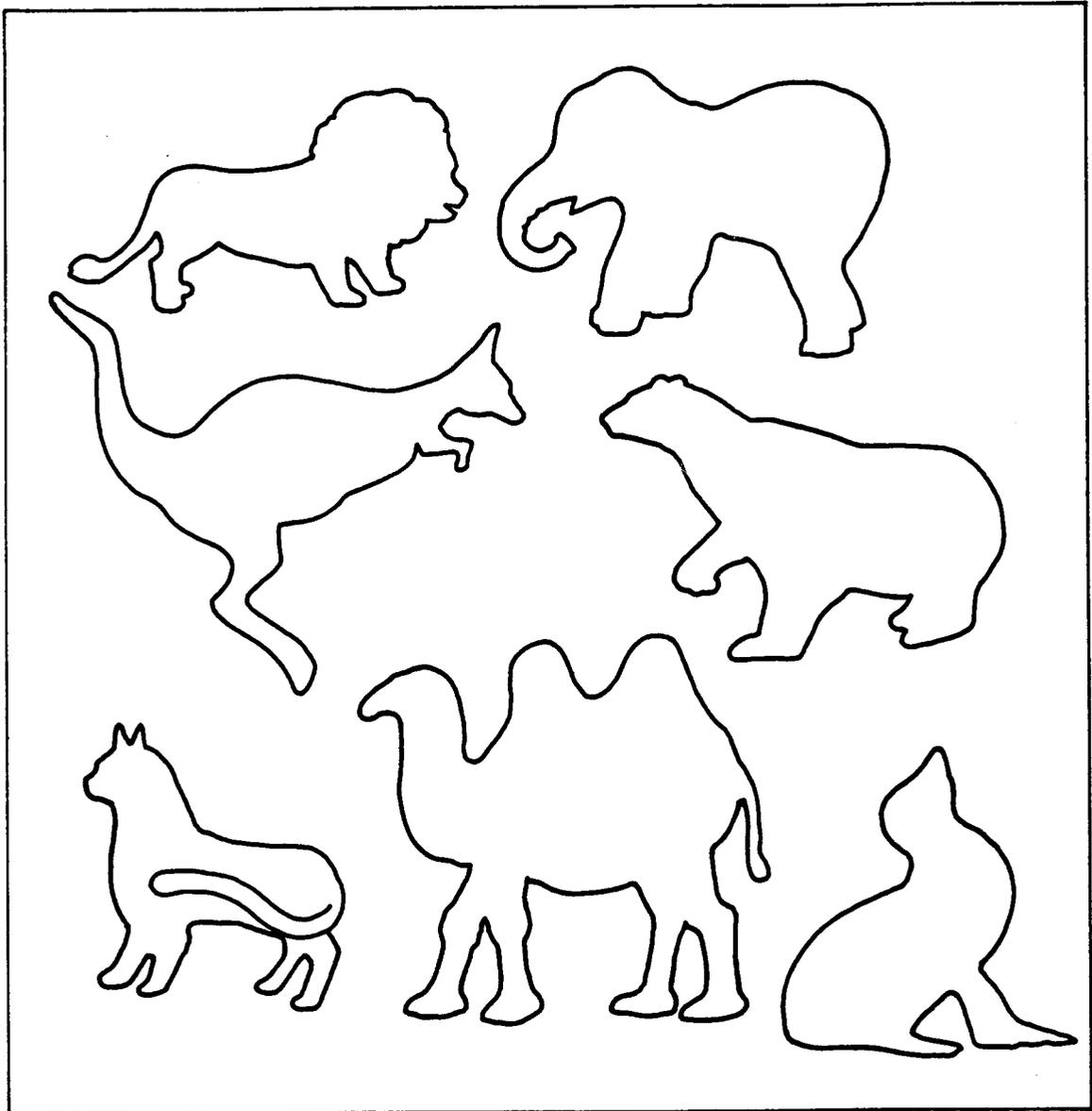


APPENDIX G

Example of Puzzles Used in Training



Example of Puzzles Used in Training



Adapted From

Dr. Bryan Hiebert

The purpose of this tape is to teach you deep muscle relaxation. If you practice, you can learn to relax at will; to put yourself into a very pleasant and comfortable state known as deep relaxation. I'd like you to start by loosening any tight clothing and finding a comfortable position and then closing your eyes. This method works by teaching you to identify tension in various parts of your body and then to identify the opposite of that tension, which is deep relaxation.

I'd like you to clench your right hand into a fist ... clench your right hand into a fist and just think about the tension in your right hand ... Feel the knuckles becoming white with tension ... and then let it relax. Notice the contrast between the tension and the relaxation ... Once again, clench your right hand into a fist and study the tension in your right hand ... and then let it relax. Notice the pleasant contrast between tension and relaxation.

Now clench your left hand into a fist and study the tension in your left hand ... Then let it relax. Notice the contrast between tension and relaxation. ... Once again, clench your left hand into a fist and study the tension in your left hand ... And then let it relax -- just let it go loose and limp and relaxed ...

Now bend your right hand at the wrist and point your fingers up to the ceiling. Study the tension in your right wrist and forearm, and then let it relax ... and feel the contrast between tension and relaxation. Once again, bend your right hand at the wrist and point your fingers up to the ceiling ... Feel the tension in your right wrist and your forearm ... then let it relax, noting the contrast between tension and relaxation ...

Now bend your left hand at the wrist; point the fingers up to the ceiling ... and then let it relax ... Just go loose and limp and very relaxed ... Once again, bending your left hand at the wrist, pointing the fingers up to the ceiling, study the tension in your left wrist and forearm ... and then let it relax. ... Notice the contrast between tension and relaxation ...

Now I'd like you to flex both of your bicep muscles by bringing your hands up to your shoulders. Bring your hands up to your shoulders, flex both of your bicep muscles ... study the tension in your biceps ... and then let them relax ... It's not necessary to tense your muscles so much that you get a cramp, only just to tense them enough so that you can feel the tension. Once again ... flexing your bicep muscles ... bringing both hands up to the shoulders, and then let them relax ... just go loose and limp and relaxed ...

Now shrug your shoulders up to your ears. Study the tension in your shoulders and the base of your neck ... and then let your shoulders relax. Notice the pleasant contrast between the tension and the relaxation ... Once again, shrug your shoulders up to your ears ... study the tension in your shoulders and the base of your neck ... and then just let them relax ... Just sag down ... loose and limp and very relaxed ...

Now wrinkle up your forehead by raising your eyebrows up to the top of your head ... Study the tension in your forehead ... and then let it relax. Once again, raising your eyebrows up to the top of your head ... study the tension in your forehead ... and then let them relax. Let your forehead become more and more smooth and more and more relaxed ...

Now, close your eyes very tightly ... Study the tension around your eyes, the bridge of your nose ... Squint your eyes tightly, study the tension, and then let them relax ... Once again, squinting your eyes very tightly ... study the tension around your eyes and the bridge of your nose ... and then let them relax ... Let them relax and just slightly close ...

Now make a big smile, as if to touch both ears. Study the tension in your cheeks and in your mouth ... and then let it relax, feeling the contrast between tension and relaxation ... Once again, making a big smile as if to touch your ears ... study the tension in your mouth, in your cheeks .. and then let it relax ... noticing the pleasant contrast between tension and relaxation ...

Now I'd like you to press your tongue up against the roof of your mouth ... and study the tension inside your mouth ... and then let it relax ... Once again, pressing your tongue up against the roof of your mouth ... study the tension inside your mouth, and then let it relax ...

Bury your chin in your chest ... Study the tension in the front of your neck, and your chin ... and then let it relax ... Notice the contrast between the tension and the relaxation ... Once again, bury your chin in your chest ... and study the tension in your chin and the front of your neck ... and then let it relax ... feeling the pleasant contrast between tension and relaxation ...

Now, I'd like you to press your head back, against the back of a chair or the bed, or whatever. Study the tension in the back of your neck ... and then let it relax ... Once again, pressing your head back ... study the tension in the back of your neck ... then let it relax ... let those muscles go loose and limp ... and relaxed ...

Feel that relaxed feeling now ... in your forehead ... your forehead is becoming more and more smooth, more and more relaxed ... That relaxed feeling is spreading down through your face ... your eyes relaxed ... your cheeks relaxed ... your mouth relaxed ... your jaw and your chin relaxed ... that relaxation flowing down into your neck ... down into your shoulders ... down into your biceps relaxed ... your forearms relaxed ... that relaxed feeling spreading down through your wrists ... and into your hands ... and all the way down to the tips of your fingers ... very warm ... and very relaxed ...

Now, take a deep breath and hold it ... Take a deep breath and study the tension in your chest ... and then let it relaxed ... Once again, taking a deep breath ... and holding it ... study the tension in your chest ... and then let it relax ... let your breathing become more and more regular ... more and more relaxed ... More relaxed with every breath ...

Now tighten up your tummy muscles ... Study the tension in your abdomen ... then let those muscles relax ... Once again, tensing the stomach muscles, study the tension in your stomach ... and then let them relax ... Feel that pleasant contrast between tension and relaxation ...

Now tighten up your buttocks muscles ... Study the tension in your buttocks ... and then let them relax ... Once again, tighten up your buttocks muscles ... study the tension ... and let them relax. Let that feeling of deep relaxation ... spread down into your buttocks muscles ...

Now, tighten up your thighs ... Study the tension in your thighs ... and then let them relax ... Once again, tighten up your thighs ... Study the tension in your thighs ... and then let them relax ... go loose ... and limp ... and relaxed

Now point your toes away from your face ... Study the tension in your lower legs and your ankles ... then let them relax ... Once again, pointing your toes away from your face ... study the tension in your ankles and lower leg ... and then let them relax ... Feel that pleasant contrast between tension and relaxation ...

Now curl up your toes ... curl them up inside your shoes or whatever ... Study the tension in your feet and your toes ... and then let them relax ... Once again, curl up your toes and study the tension in your feet and your toes ... and then let them relax ... Let that feeling of relaxation ... flow down into your feet ... and down into your toes ...

Now to help you relax even further ... I am going to review the different muscle groups that we've relaxed, and as I mention each one, they will become even more relaxed than they are now ... As I mention each muscle group ... it will relax even further than it already is ... Your fingers relaxed ... your hands and your wrists relaxed ... your forearms relaxed ... your biceps relaxed ... and that relaxed feeling flowing up into your shoulders ... along the back of your neck ... your forehead becoming more and more smooth ... and more and more relaxed ... The relaxation ... spreading down through your face ... as your eyes relax ... and your cheeks and your mouth relax ... and your jaw and your chin relax ... the front of your neck relaxed ... and that relaxed feeling spreading down into your chest ... your breathing ... more and more regular ... more and more relaxed ... The relaxation spreading down through your stomach ... around the sides and up and down your spine ... down into your hips ... and buttocks ... flowing down into your thighs ... your calves relaxed ... and your shins and ankles relax ... Deep relaxation flowing down into your feet ... all the way down into the tips of your toes ... Relaxation coursing through your veins ... bathing your whole body ... a peaceful, tranquil feeling of relaxation.

You've been doing a really good job of relaxing ... You're whole body warm and comfortable ... and very relaxed ... And now to help your body to return to its ordinary state ... I'm going to count backwards from five ... and as I count backwards from five ... you'll feel your body starting to wake up ... When I get to one ... you'll feel wide awake ... and very, very relaxed ... "five" ... "four" ... "three" ... you're beginning to wake up ... "two" ... "one".

APPENDIX I

AUTO-SUGGESTIVE RELAXATION

by

Dr. Bryan Hiebert

This is a follow-up program to progressive relaxation for people who can identify the feeling of deep muscle relaxation. Once a person can tell when their body is deeply relaxed, they can produce that feeling more quickly in their body. This program will help you learn to achieve that deeply relaxed state more quickly.

Begin by making yourself comfortable, hands lying peacefully in your lap, your right hand on your left hand. Now clench your right hand into a fist and study the tension in your right hand ... Feel the knuckles turning white with tension. Feel the tension even in your wrist and forearm ... And now, let it relax ... and feel the pleasant contrast between tension and relaxation ... Place your right hand on your left hand and let that feeling of deep relaxation spread into your left hand ... as that tingly feeling of relaxation becomes more and more apparent in your left hand ... And now ... let that relaxation start to spread ... up into your wrists ... as your wrists become more and more relaxed ... and the relaxation starts to spread up into your forearms ... up to your biceps ... both arms ... growing more and more heavy ... And now the relaxation spreading up into your shoulders ... as your shoulders become more relaxed ... And the relaxation now spreading up the back of your neck ... all of the muscles in the back of your neck relaxing ... the tension draining away ... As the relaxation spreads up the back of your neck ... all of the muscles in the back of your neck relaxing ... the tension draining away ... As the relaxation spreads up the back of your neck ... and across the top of your head ... as all the muscles in your scalp relax ... and

that peaceful feeling of relaxation ... spreading now down into your forehead ... as your forehead becomes more smooth ... and more relaxed ... Let your eyes relax ... the eyelids slightly closed ... the eyeballs floating peacefully in their sockets ... as the relaxation spreads down through your face ... as your cheeks relax ... your mouth and your lips of deep relaxation spreads down from your face now ... and down the front of your neck ... as the muscles in your neck relax more and more deeply ... and the relaxation spreading down into your chest ... as your breathing becomes more relaxed ... more regular ... and more relaxed. The air flowing easily in and out of your lungs ... Breathing effortlessly ... as you relax more and more deeply ... And the relaxation now spreading down to your stomach ... all of the muscles in your abdomen relax ... and the relaxation spreading around your sides ... all of the muscles up and down your spine relaxing ... Your whole body relaxing more and more deeply ... with every breath ... the air flowing in and out ... more and more peacefully ... more and more relaxed ... with every breath ... And that feeling of deep relaxation ... now flowing down into your hips and buttocks ... and down into your legs ... as your thighs relax ... your calves and your shins relax ... your legs becoming more and more heavy with relaxation ... As that peaceful feeling spreads down into your ankles ... and into your feet ... spreading along the soles of your feet ... curling up over the tips of your toes ... your whole body now ... so very relaxed ...

Even when you are as relaxed as you are now ... there is still an extra measure of relaxation that you can achieve ... and to help you become even more relaxed ... I'm going to ask you to imagine yourself standing beside the long, black wall, on which the numbers from one to ten are printed ... in large, white numerals. And I'm going to ask you to imagine yourself strolling along beside that wall ... and as you pass by each number ... you become more

and more relaxed ... even more relaxed than you are now. Imagine yourself now, standing alongside the long, black wall ... and starting to stroll ... and as you pass by the number "one" ... and you become more relaxed ... and more relaxed as you pass by "two" ... and "three" and more relaxed ... and more relaxed as you pass by "four" ... and "five" ... "six" and more relaxed ... and more relaxed as you pass by "seven" ... and even though you didn't think it possible ... as you pass by "eight" ... you become even more relaxed ... and more relaxed as you pass by "nine" ... and "ten" ... so very relaxed, indeed ... peace and tranquility coursing through your veins ... your whole body ... bathed in deep relaxation ...

Stop imagining the long, black wall now ... and imagine your relaxation place ... your special relaxation place ... that place where you go to relax ... Perhaps it was a spot where you visited as a child ... where the whole world seemed peaceful and secure ... and so very ... relaxed ... Imagine yourself in your special relaxation place ... while you continue to soak up the wonderful feelings of deep relaxation ... more and more peaceful ... more and more relaxed with every breath ...

You're doing a good job of relaxing ... your whole body feels peaceful and calm ... You can become just as relaxed as you are now ... simply by doing the short 10-second relaxation exercise ... The four-count breath in and the four-count breath out ... A second four-count breath in and on the second four-count breath out ... letting your jaw sag ... letting this deep feeling of relaxation spread down from your jaw to your chin ... up through your face ... across the top of your head ... down through your neck ... and into your shoulders ... down your arms to the tips of your fingers ... down through the body and into your legs ... and down through your legs ... to the tips of your toes ... Anytime you want to relax ... you can become just as

relaxed as you are now ... simply by doing this short ... 10-second relaxation exercise ... the four-count breath in ... the four-count breath out. A second four-count breath in and on the second four-count breath out ... letting your jaw sag ... letting this feeling of relaxation spread down through your jaw to your chin ... up through your face ... over the top of your head ... and down through your body ... to the tips of your toes ... Practice that now ... your relaxation cue ...

You've been doing a really good job of relaxing ... Your whole body is warm and comfortable ... and very relaxed ... And now to help your body to return to its ordinary state ... I'm going to count backwards from five ... as I count backwards from five ... you'll feel your body starting to wake up ... When I get to one ... you'll feel wide awake ... and very, very relaxed ... "five" ... "four" ... "three" ... you're beginning to wake up ... eyes starting to open ... and "one".

APPENDIX J

Analysis of Variance Summary Table for
 Frequency of Anger Words for 10 Mentally Retarded Subjects

Source	Sum of Squares	Degrees of Freedom	Mean Squares	F Ratio	Probability
A	0.450	1.	0.450	0.057	0.817
S - Within	63.000	8.	7.875		
B	68.450	1.	68.450	6.018	0.040
A B	0.050	1.	0.050	0.004	0.949
B S - Within	91.000	8.	11.375		

APPENDIX K

Analysis of Variance Summary Table for Frequency of Anger Words
with Personal Intent for 10 Mentally Retarded Subjects

Source	Sum of Squares	Degrees of Freedom	Mean Squares	F Ratio	Probability
A	0.0	1.	0.0	0.0	0.999
S - Within	3.200	8.	0.400		
B	9.800	1.	9.800	24.500	0.001
A B	0.0	1.	0.0	0.0	0.999
B S - Within	3.200	8.	0.400		

APPENDIX L

Analysis of Variance Summary Table for Response to Rotter and Rafferty
 Incomplete Sentences Blank for 10 Mentally Retarded Subjects

Source	Sum of Squares	Degrees of Freedom	Mean Squares	F Ratio	Probability
A	22.051	1.	22.051	0.086	0.777
S - Within	2058.063	8.	257.258		
B	2354.453	1.	2354.453	13.066	0.007
A B	162.441	1.	162.441	0.901	0.370
B S - Within	1441.561	8.	180.195		

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