CHAPTER II

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Mental retardation is not an entity. As the term implies, it is a relative concept. For some purposes an individual may be seen as mentally retarded for others, not. He may attend a school for the educationally subnormal but then make a satisfactory social adjustment and cease to be a statistic. If the sole criterion of intelligence is taken many will be judged retarded.

Defining the nature of "intelligence" is a central concern for most educational endeavors for the mentally retarded. A person who is consistently unable to meet those demands without some form of special assistance is generally considered "mentally retarded." To be classified as "Mentally retarded" a child must be unable to demonstrate behavior based on intellectual functioning that is appropriate for the person's age or social situation (Silver 1978).

Mentally retarded children may be willing to perform a task and have all the necessary senses, but be unable to perform it even with additional training. Incompetence in adapting to the demands of the environment is a factor to be considered when distinguishing the retarded child from those with normal intelligence (Blackhurst & Berdine, 1981).
2.1 THE SCOPE OF THE PROBLEM

Over the years, there have been remarkable changes. The aims and methods of care for the mentally retarded have been transformed. These changes and the remaining unsolved problems can be understood in relation to the history of development of services. The numbers of the mentally handicapped in hospital in England and Wales rose from some 6000 in 1916 to some 64000 between 1960 and 1970. The incidence of mental retardation seems to increase markedly at ages 5 to 6, to peak at age 15, and to drop off sharply after that.

In this chapter, attempt has been made to pool the relevant information from different available sources and then integrate them into a structure pertinent to the present research on mental retardation. The availability of Indian studies in these areas have been scarce, particularly on temper tantrums. This chapter constitutes the research materials available in connection to the variable selected and the sample related studies for the present investigation.

2.2 MENTAL RETARDATION: RESEARCH FINDINGS

Akeesson, Hans (1986) reviewed the biological origin of mild mental retardation. He reviewed the prevailing theory that normal intelligence and mild mental retardation are determined by multiple additive genes. It was
suggested that the prevailing theory was incompatible with a growing number of findings.

Baraitser, (1986), investigated the work on chromosomes and mental retardation and suggested that the greater the amount of extra chromosomal material, the more serious the consequences.

Chadsey - Rusch & Sprague Rh (1989) examined whether the decision to maintain mentally retarded persons on neuroleptic drugs was associated with specific maladaptive behaviours. They found that staff members' perceptions of disturbing behaviour, self-stimulation and physical aggression were likely to influence their decision to maintain mentally retarded persons on neuroleptics.

Ashkenazi et al. (1992) presented three mentally retarded children with severe self-inflicted ocular injuries including retinal detachment resulting in progressive visual loss and even blindness. Early identification of patients at risk of ocular self-mutilation is essential in order to prevent or minimize such severe ocular injuries.

Rasmussen (1992) described how a psychiatric hospital unit can apply behaviour modification resulting in a better life for the mentally retarded patient. It also recommended that behaviour modification techniques should be used concurrently with other methods of treatment used in psychiatry.
Floyd Saitzyk (1992) evaluated the theories of social class and parenting values, the role of socio-economic status as a determinant of parenting attitudes and behaviours and as a moderator of problems associated with raising children among 171 families with mild or moderate mental retardation. As expected, higher socio-economic status was associated with parental attitudes and behaviours related to fostering independent initiative in the family, and lower socio-economic status parents exhibited relatively more controlling and negative behaviours.

Crocker (1992) studied the data collection for the evaluation of mental retardation prevention activities using the list called "The fateful forty-three." It was proposed that the inventory to be used as a program checklist and a base for discussion and planning.

Rogers-Wallgren et al. (1992) examined the influence of verbal praise and verbal praise plus music or vibratory reinforcement on the level of independent performance on abdominal strength and endurance, lower back and hip flexibility, and upper body strength endurance exercises of 12 profoundly mentally retarded, ambulatory youth ages 10 to 18 years. Results reported that verbal praise and verbal praise plus music or vibratory reinforcement were not effective in increasing the level of independence in performing selected physical fitness tasks.
Eyman et al (1993) determined normative data on age-related probabilities of children with severe disabilities acquiring mobility or self-feeding skills, or dying during a 5-year follow-up period. The sample was made up of 7836 children and adults distributed among the three subgroups being served in California between January 1981 and December 1985. Results showed that subjects who were tube-fed and immobile showed very little likelihood of becoming mobile or feeding themselves and had a high probability of death. Individuals who had some mobility experienced a better outcome.

2.3 BEHAVIOUR PROBLEMS RELATED STUDIES

Behaviour problems or maladaptive behaviours are more prevalent among those with mental retardation.

Eyman and Call (1977) investigated the prevalence of maladaptive behaviours among groups of individuals with mental retardation living in institutions, in community facilities, and with their parents. They reported that 45% of the institutionalized sample, 20% of persons in community facilities, and 20% of those living with their parents engage in physical violence to other people.

Forehand, Rex et al (1981) examined the maintenance of treatment effects associated with the use of a standardized parent training program.
Results indicated that child behaviour change and parent perceptions of change in child adjustment were maintained at follow-up. Positive parent behaviour changed with treatment and occurred at a significantly higher rate at follow-up than at pre-treatment. No differences were detected at pre- or post-treatment between subjects who participated in follow-up and those who refused to participate.

Spain, Berne et al. (1984) described the use of appliances in the treatment of severe self-injurious behaviour. Three categories of appliances were described: protective environments, protective appliances that restrict the movements involved in self-injurious behaviours, and protective helmets. It was emphasized that while protective appliances may be of considerable value in the management and treatment of self-injurious behaviour, they should be used with caution and only as part of a general behavioural program.

Gemmingsöeta, et al. (1985) investigated the self-destructive stereotyped behaviour of 301 institutionalized mentally retarded individuals. Findings showed that the total occurrence of this type of behaviour was somewhat lower than what has been found in similar studies. However, the number of subjects showing self-destructive behaviours far outnumbered what has been reported in previous research. It was suggested that training of social and communicative skills could reduce stereotyped behaviours.
Carr et al. (1985) conducted two experiments to examine ways in which serious misbehaviours in children could be replaced by socially appropriate behaviour. In experiment I, an assessment method for identifying situations in which behaviour problems were most likely to occur was developed by observing 4 7-14 year old developmentally disabled subjects working on an easy or difficult task with either 100 or 33% of adult attention. Results demonstrated that both low level of adult attention and high level of task difficulty were discriminative for misbehaviour. In experiment II the assessment data were used to select replacements for misbehaviour. Results showed that behaviour problems and verbal communicative acts, though differing in form, may be equivalent in function. It is suggested that strengthening the latter showed weaken the former.

Epstein et al. (1985) examined treatment journals of 6 autistic children aged 5 - 9 years who underwent intensive behavioural treatment that involved the teaching of elementary skills and the reduction and control of self-stimulatory, tantrum, and interfering behaviour. Results showed that 4 subjects self-stimulatory behaviour changed from initial low-level motor behaviours to higher level behaviours. Subjects who changed to the highest levels of self-stimulatory behaviour showed the largest gains in treatment.

Suzuki et al. (1985) described the successful therapy of a 13 year old boy with a history of school refusal using successive approximation and a token economy system simultaneously. Successive approximation was used to
help the subject acquire school-attendance behaviour. The token economy system provided differential reinforcement.

Daniels Gary (1986) suggested that Romanczyk has conceptualized self-injurious behaviour in a way that allows a greater understanding of the etiological component of self-injurious behaviour and that his discussion of assessment and treatment strategies should provide alternative responses for clinicians.

Day et al. (1986) discussed the relevance of incorporating a pragmatic perspective into the assessment and treatment of self-injurious behaviour. Assessment and treatment implications were included, as was a case example which involved, a severely delayed 9-year-old boy who bit his hand and arm and was aggressive to others.

Romanczyk, Raymond (1986) contended that self-injurious behaviour is functional and provides the individual with positive gain. The topographies (e.g., head banging, slapping) of self-injurious behaviour, its frequency, and consequences were discussed. Treatment procedures ranged from extinction techniques to reduction of anxiety arousal.

Hall, et al. (1986) presented a case report of a 22-year-old woman with a one-year-old history of bulimia and a ten-year history of ticohomama of the eyebrows, eyelashes and pubic area, who was treated using a
hypnобehavioural approach. Behavioural approach and hypnotic suggestions were used to eliminate both behaviours. At 6 months follow-up, the subject reported no further episodes of either bulimia or trichotillomania.

Slifer (1986) presented the case of a 13 year old profoundly retarded blind boy exhibiting severe aggression, property destruction, noncompliance, and hyperactivity. Result showed that the intervention consistently increased compliance, with concurrent decreases in appropriate behaviours.

Pickar et al (1986) compared learning disabled adolescents (LDAs) and nondisabled adolescents (NDAs) on psychosocial development, self-concept, and delinquent behaviour. The LDAs included 30 males and 9 females in the tenth and eleventh grades. NDAs included 31 males and 16 females. Subjects in both groups had IQs of 90 or above. They were administered an inventory measuring the psychosocial developmental stages, developed by Rosenthal et al (1981), the Piers-Harris Children’s Self-Concept Scale and a delinquency Checklist by Kulik et al (1968). Findings showed that LDAs showed less resolution of Erikson’s 4th stage of inventory VS inferiority than did the NDAs.

Quine, Lyne (1986) studied social and environmental correlates of behaviour problem in a sample of 200 severely mentally handicapped children aged 0-16 years and their families. Data collection included interview a marital assessment, administration of the Malaise Inventory by Rutter et al (1970), and the disability Assessment Schedule. Compared to Children with no
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behaviour problem, those with such problems were more likely to be incontinent and to have more serious deficits in self-help, communication & reading, writing and counting skills.

Stermarc, Lana (1986) evaluated the efficacy of a short-term cognitive-behavioural anger control intervention with 40 forensic patients randomly assigned to an anger control treatment. Results support the efficacy of a short-term cognitive-behavioural treatment for anger control with forensic patients.

Sugai, et al. (1986) examined the effects of object self-stimulation on the task-interrupting self-stimulatory behaviour and prevocational work responses of a 13-year-old autistic boy. Analysis indicated that self-stimulatory behaviour may be shaped to facilitate performance proficiencies.

Vawian et al. (1986) examined the case of a 6.5-year-old girl who was treated for enuresis and subsequently for conduct problem. After both bed-wetting and misconduct displayed stable and substantial improvement, it was found that occasional nightly relapses in bed wetting were strongly associated with the occurrence of misconduct the following day.

Gardner et al. (1987) described a behavioural diagnostic approach to understanding and treating aggression and related conduct difficulties presented by mentally retarded persons. Treatment strategies for reinforcement motivated aggression, skills deficiency aggression and escape motivated
aggression were described and the issue of treatment of aggression with punishment were discussed.

Shores, Richard (1987) reviewed the social interactions of behaviourally disordered children and youth. From this research (1) more effective teaching tactics have been identified, (2) specific social initiation behaviours have been identified (3) teaching strategies have been evaluated to enhance maintenance and generalization of newly acquired social behaviours and (4) teacher training programs have been developed.

Oliver (1987) conducted a survey of self-injurious behaviour in people with mental handicap. 616 adults and children were found to have self-injurious behaviour in the previous 4 months and 596 of these were screened. Half were residents in hospitals, 28% were in non-hospital residential care and the remainder 21% were living at home. Results indicated that 19% showed self-injurious behaviour of one or more types, at a rate of at least once per hour, 13% were protecting of restraining devices for all or part of the day or night, only 2% were enrolled in formal psychological treatment programs, but nearly half were receiving psychotropic drugs.

Scholefield, Judith (1987) described three patients in a neurosurgical unit who developed aphonia following severe closed head injury.
McEvoy et al. (1987) reviewed the literature on recent advances in social interaction research for pre-school children who exhibited behavioural disorders such as social withdrawal or autism. Teacher-mediated, peer-mediated and interpersonal problem-solving approaches to prompting social interaction were presented. It was concluded that although researchers have been successful in increasing the social interaction skills of children with behavioural disorders, current research has several limitations.

Fenner, et al. (1987) noted that previous cross-sectional studies of Down’s syndrome have suggested that deficits in cognitive and neurological functioning after 35 years of age are symptomatic of Alzheimer’s disease. The extent, prevalence, and age of onset of intellectual failure were examined in 39 Down’s syndrome patients aged (20-49 years). Results showed that for those over 35 years intellectual deterioration had occurred in less than a third. No relationship was found between chronological age and the level of self-care skills or the presence of disturbed behaviour.

Black et al. (1988) pointed out that anger is poorly understood but very common emotion. An analysis of anger and a treatment paradigm was presented and they outlined a research project in which they are using the approach with a group of mentally handicapped adults.

Dyer et al. (1990) assessed the impact of choice making on the serious problem behaviours of three students aged 5 and 11 years with severe autism.
or mental retardation. Results showed consistently reduced levels of problem behaviours when subjects were given opportunities to make choices among instructional tasks and reinforcers. There were no systematic differences in the rate of correct responding between the two conditions.

Homer et al. (1990) assessed response efficiency for reducing aggression in a 14 year old boy with moderate mental retardation. It was found that use of a low effort, high efficiency response of a single key stroke for help resulted in decreased aggression. Increase in a pointing response suggested that intervention had resulted in a second common response.

Tres, Jeannette (1990), reviewed the literature concerning the development and effectiveness of biofeedback procedures to treat fecal and urinary incontinence and described a study with 5 head-injured incontinent patients. Subjects were treated with electromyographic neuromuscular reduction using surface abdominal electromyograph sensors and external anal sphincter sensors. All subjects developed complete continence and normal voiding patterns over the course of therapy.

Wacker et al. (1990) evaluated the separate treatment components of a functional communication training program for 3 severely handicapped persons (aged 7, 9 and 30 years) who developed different topographies of aberrant behaviour. One subject had autism, one had severe mental retardation and one had untreated phenylketonuria. Following a functional analysis of
maintaining conditions for inappropriate behaviour, each subject was trained to emit a communicative response that solicited reinforcement. It was suggested that the treatment components for communicative responding and inappropriate behaviour were both necessary for maximal control over aberrant behaviour.

Dura (1991), described a treatment program aimed at addressing intermittent extremely dangerous aggressive behaviour in an 11 year old girl who was blind, multiply handicapped, and profoundly retarded. Functional analysis produced no clear antecedents to aggression. Punishment was used to introduce a superordinate contingency. Differential reinforcement of alternative behaviour combined with contingent restraint reduced, then eliminated aggression. Follow-up at an age equivalent of 4 years, 6 months indicated a continued absence of aggression.

Grzenko et al., (1991), assessed the behaviour profiles of 176 mentally retarded individuals from two reception centres and nine group homes. The correlations between behaviour and age, sex, degree of mental retardation, etiology of mental retardation and medical diagnosis were assessed using the Revised Child Behaviour Profile. The moderately retarded subjects presented with more severe behaviour problems, than the severely retarded subjects. Individuals with Down's syndrome had fewer behaviour disturbances and those with autism and pervasive developmental disorder had significantly
more behaviour disturbances than other subjects. A psychiatric disorder was found in 10.2% of the sample.

### 2.3 BEHAVIOUR MODIFICATION: RELATED STUDIES

Kazdin (1978) defined behaviour modification as the application of basic research and theory from experimental psychology to influence behaviour for purposes of resolving personal and social problems and enhancing human functioning. Behaviour modification can be characterized by several assumptions about abnormal behaviour as well as by an approach toward treatment and its evaluation.

Smelts, Paul (1970) reports the treatment of a profoundly retarded 18 year old boy whose life was endangered by severe vomiting and rumination. A continuous conditioning paradigm heavily based on withdrawing social reinforcers significantly reduced the frequency and amount of regurgitation as well as of rumination. During the treatment period, subject gained weight and was out of danger.

Kysela, (1972) discussed the use of token reward systems or token economics to modify children's behaviour in therapeutic or learning situations. Principles involved in setting up and maintaining such a system are outlined. (a) Choice of a reward schedule (Positive, negative or mixed) (b) Consideration of the relationship between the total number of tokens that can be exchanged...
(c) Consideration of the reinforcement value of the back up rewards and (d) the use of social approval and praise along with specific evaluation of the child's behaviour during presentation or withdrawal of tokens.

Barrett et al., (1981) studied the comparison of punishment and DRO procedures for treating stereotypic behaviour of two mentally retarded children. Result of the study indicated that for both subjects all conditions were clearly discriminated and that punishment procedures were more effective for suppressing stereotypes than DRO.

Fleming et al., (1981), described the treatment of a 47 year old female suffering from compulsive self-scratching. Procedures including contingent mechanical restraint and social reinforcement proved ineffective. Application of 24 hour boxing glove restraints, with differential reinforcement of incompatible behaviour during time outs, eliminated the disorder. Follow-ups over a 15 month period indicated the extinction of the self injurious behaviour.

Alvarez Uribe (1982) studied the application of a DRO program with feedback for the modification of attention distractibility and passivity in a retarded female adolescent. A 14 year old female who initially was extremely distractible and given to sitting passively for prolonged periods. The subjects also maintained the improvements shown through the completion of simple tasks and attentiveness in conversation during follow up.
Astralaga, Maria (1983) administered a long term social behaviour training program to a child aged 5 years 4 months using the instructor as the therapeutic agent. The procedures used to facilitate the acquisition of positive social responses were generalized imitation, physical and verbal contact with adults and other children and establishment of cooperative behaviour. The program was administered gradually over 2 months. Interactive behaviour continued during the follow-up period and the bases of the training program were discussed.

Wolfe, Vicky et al., (1983) examined the effects of a reinforcement program on social behaviours of 3 preschool children aged (3-5-4 years) who displayed inappropriate behaviours during peer interaction. A multiple base line design across the 3 subjects and two settings—morning and afternoon classrooms—was employed to determine the effects of reinforcement on each subjects rate of cooperative play and on intervals spent in time-out due to aggression. The program was effective in increasing cooperative play among these subjects by at least 50% over base line and the behaviour changes were maintained when tokens were withdrawn.

Donat, Dennis (1984) described the use of findings obtained from analysis of a 79-year-old woman's wandering behaviour in the design of an appropriate intervention to control the behaviour. The use of basic behavioural principles to rapidly decrease this disruptive behaviour without affecting reinforcements for this or other patients were demonstrated.
Riordan, Mary et al., (1984) examined the eating behaviour of a 4 (16-40 month) old handicapped children who exhibited chronic food refusal. It was noted that all subjects were nutritionally at risk and one subject received all nourishment by way of a gastrostomy tube. Results of multiple - base line and reversal desings showed marked behavioural improvement for each subject and increases in the amount of food consumed. Further improvements were noted at 7 30 months post treatment.

Rosen et al., (1984) reviewed the literature on myopia, prevalent disorder of vision that had traditionally been managed by means of corrective lenses. Research in this area was timely in view of the increasing interest in the role of learning factors in the development and maintenance of myopia. Despite a number of methodological problems identified in this review, there appears to be considerable promise in the application of behaviour modification to disorders of vision.

Adachi et al., (1985) studied the effects of group behaviour modification of obesity in 1 male and 814 female adults. The program consisted of 13 sessions over a 25 week period. The rate of weight reduction was shown to slow significantly over time. A questionnaire survey indicated that subjects eating habits had improved.

Altmeyer et al., (1985) presented the case of a 16 year old severely mentally retarded blind female who exhibited severe biting of self and others.
Treatment consisted of the contingent application of an aversive gustatory stimulus (tobacco sauce), brief time-out, differential reinforcement of other behaviour and contingent restraint against biting while in time-out. Deceleration of biting was rapid and was maintained for 20 months after initiation of treatment.

Ball et al., (1985) described the use of flexible arm splints, which permits the control of hand-to-mouth contacts without restricting range of motion. Data showed that the splints were effective in restraining targeted behaviour for subjects. Findings suggested that this method represents an easily applied and much less restrictive alternative to the soft tie and tubular arm restraints in common use.

Cole et al., (1985) selected six mildly and moderately mentally retarded adults who displayed chronic and severe behavioural or emotional difficulties participated in a workshop designed to (1) provide each subject specific alternative coping responses, (2) teach skills of self-managing these responses (3) provide the motivation to use these skills under provocation. Data obtained during training and at 9 month follow up indicate that the intervention package produced immediate, clinically significant, and durable reductions in severe conduct difficulties presented by these.

Frankel, Fred & Simmons, James (1985) reviewed current behavioural approaches to the control of aggression in children and provides hypotheses.
regarding the motivation of aggression in children. It was concluded that operant approaches were in need of further refinement and that the study of extrinsic and intrinsic factors in pathological childhood aggression may improve the design of treatment programs.

Blackbourn, (1986) designed to increase the rate of basket retrieval by patrons of a public swimming pool. Data indicate that an aversive response - cost technique was a viable means of ensuring return of storage baskets.

Burke et al., (1986) examined the effectiveness of an individualized behaviour point system in reducing maladaptive social behaviour in a severely brain injured 21 - year old male with congenital heart disease. Results indicated that the target behaviour declined with the introduction of the point system. Loud verbal outbursts and interruptions were more responsive to treatment than nonsensical talk.

Burland Roger (1986) discussed the use of Behaviour modification techniques at a residential school for boys (aged 7-12 years) with behavioural difficulties. Parents are involved in the treatment process. Six case examples illustrates the use of Behaviour modification within the family context. The process of living as part of the family enables interventions at home to be more efficient and therapists can help parents to be better managers.
Clement, Paul (1986) proposed behavioural approaches to anger management training and suggested the use of tranquilizers, relaxation training, systematic desensitization, implosion, stress management, stimulus control, rational restructuring, cognitive restructuring, behavioural contracts, social models, self-modeling, social skills training, assertiveness training, hot seat, thought stopping, contingency management and self-regulation, contingency management and self-regulation procedures as behavioural interventions to control anger or aggression.

Krupe et al., (1986) suggested that behaviour modification programmes for adolescents with anorexia nervosa may be successful in facilitating weight gain, but also may be related to increasing obsession with calorie counting on the adolescents part. A food exchange system is recommended as a more appropriate alternative to treating anorexic adolescents.

Kushlick et al., (1986) described projects that aimed to teach appropriate skills to children and adults who have severe learning disabilities and are self injurious, aggressive to others, damaging to the environment, noisy, noncompliant, or generally disruptive. It was found that the curriculum of cognitive behaviour modification appeared to be effective in these programs.

Luscelli, James (1986) examined the effects of using contingent protective equipment to control multiple forms of self injury in a 16-year-old
Whaley et al (1986) evaluated the effects of behaviour modification and lithium therapy on the behavioural symptoms (inappropriate touching and verbalizations) associated with frontal lobe damage in a 21 year old woman. There was a significant decrease in inappropriate behaviours after treatment with a token economy program but no additional change was noted in subsequent phases involving lithium therapy. Results do not support the use of a combined treatment approach.

Chadaz et al (1987) studied the effect of extinction on bed time crying and on a disruptive sleeping pattern was explored with a 7 month old female infant. An extinction intervention employed by the parents involved not overtly responding to the infant's operant crying once she was placed in her crib for the night. Results indicated that when extinction was supplemented by parental intervention, it was an effective tool in eliminating bed time crying as well as the disruptive sleeping pattern of the infant.

Elder, John (1987) discussed the concepts and practices of behaviour modification as applied to public health issues in the developing world. The application of behaviour modification will be effective if specific cultural practices and problem of developing countries are respected.

Singh, Nirbhay et al (1987) studied parents acceptability ratings of alternative treatments for use with mentally retarded children. 96 mothers, each with at least one mentally retarded child, rated the acceptability of four
treatment techniques - differential reinforcement of incompatible behaviour.
over correction, time-out and drug therapy.

The most acceptable treatment was differential reinforcement of incompatible behaviour followed by overcorrection. Time out and drug therapy proved least acceptable but were not rated significantly different from each other.

Towyz, Beaumont and Dunn (1987) evaluated the rate of weight gain in 68 patients with anorexia nervosa (100 consecutive admissions to a specialised eating disorders unit) using a sensitive, flexible approach to refeeding. Despite this more human approach, similar results were achieved when compared to other more rigid behavioural programmes in that they gained 0.16 kg per day.

Weir Dimnick (1988) described a controlled trial of behaviour modification in the treatment of sleep problems. The subjects were 51 children aged 4 months to 4½ years recruited from the community by health visitors. In the experimental procedure health visitors were trained and supported in the use of behaviour modification. At 6 months follow-up both control and experimental groups showed equally marked improvements.

Aurand, Joann et al (1989) evaluated the effectiveness of behavioural intervention in reducing stereotyped tongue chewing, hand flapping and hand
waving exhibited by a 4 year old child with visual impairment and moderate mental retardation. The efficacy of differential reinforcement of incompatible behaviour (DRI) alone was evaluated with tongue chewing. DRI involved verbal praise and soft physical touch. Probes showed that behaviour change occurred across several settings and for up to 2 months following intervention, the subject exhibited less self-stimulatory and more on-task behaviour during a group activity.

Gedye (1989) found that episodic rage and aggression in mentally handicapped people have typically been very difficult to eliminate or reduce. He considered the possibility that these behaviours are involuntary and probably due to frontal lobe dysfunction.

Council for children with Behavioural disorders (1990) addressed the dilemma faced by administrators, special educators, and other practitioners regarding the appropriate use of behaviour reduction procedures with behaviourally disordered children. The empirical foundation of available behaviour reduction procedures were reviewed and eight recommendations were made regarding the appropriate use of behaviour reduction procedures.

Cowley et al. (1990) presented a controlled case study in which severely and longstanding self-injurious behaviour exhibited by a 9 year old boy was treated successfully with (DRO). Results of a brief multi-element
manipulation showed that the effects of token reinforcement were superior to those of a more easily administered DRO based on social reinforcement.

Durand et al. (1990) suggested that sleep disorders are presented among otherwise healthy young children and can be disruptive to family life. Treatment was initiated for the chronic night waking and night time disturbance exhibited by a 14-month old girl. Graduated extinction (gradually increasing the time before attending to the subjects crying) resulted in rapid reductions in these sleep disorders.

Alderman (1991) described the use of satiation through negative practice in the successful treatment of a severely brain-injured patient whose behaviour, in the form of prolonged shouting, had previously not responded to the range of behavioural techniques used previously with this population. Significant reductions in both the frequency and duration of shouting were found, enabling physical and functional gains to be made through successful participation in previously avoided rehabilitation activities.

Northup et al. (1991) conducted a brief functional analysis to identify maintaining variable for aggressive behavior and an alternative replacement response during a 90-minute outpatient evaluation of 3 individuals with severe handicaps. The contingency that produced the highest percentage of aggressive behaviour was then presented for the occurrence of a specific alternative behaviour. During this contingency reversal phase, each participant...
displayed a substantial reduction in aggressive behaviour and a substantial increase in alternative behaviour.

Wood and Chamove (1991) assessed the efficacy of paradoxical directives, levels of challenging behaviour during 2 weeks of paradox, reprimand and extinction were compared with baseline levels in four adults with mental handicaps attending a day centre. Paradox was the most effective procedure for reducing the frequency and severity of challenging behaviour by an average of over 70% by the end of 2 weeks and up to 90% in certain subjects. Extinction was least effective.

Rasmussen (1992) described how a psychiatric hospital unit can apply behaviour modification resulting in a better life for an otherwise untreatable patient. It was recommended that behaviour modification techniques should be used concurrently with other methods of treatment used in psychiatry.

2.4 REINFORCEMENTS: RESEARCH FINDINGS

Reinforcements are important means of changing behaviours in children. The event that happens after a behaviour which makes that behaviour to occur again in future is called reinforcement. Reinforcement for the child is something that he/she likes or feels good about. A reinforcement increases the probability of the behaviour it follows.
If a behavioural response increases following the presentation of an event after a response, the reinforcing state is referred to as being positive. If a behavioural response increases following the removal of an event, the event is termed a negative reinforcement.

Frankel et al (1976) used a program of differential reinforcement of other behaviour to reduce the rates of aggression and head-banging in a profoundly retarded female aged 6 years and 8 months. Results suggested that

(a) initial values of such programs may be situation specific and
(b) either the procedure or the inclusion of contingencies for all maladaptive within one program may be superior to a time-out program which focusses on a subset of all maladaptive behaviour.

Bustinova et al (1980) investigated the possibility of reducing unruly behaviour in 24 8-10 years old by means of behaviour modification. Results showed that there was a decrease of unruly behaviour and an increase of disciplined behaviour after the experimental procedure. A follow-up one month later showed that the gained result remained stable.

Budd, et al (1981) implemented a home based reinforcement package to decrease serious disruptive and aggressive behaviour in 3 groups of 6-4-6 year old children who participated across successive summers in an intensive 9 weeks remedial program. Results showed that the home-based package was
highly effective for all target responses of all subjects in the first two groups but failed to modify disruptive responses of 2 subjects in the third group.

Matson, Johnny et al (1981) examined the effectiveness of independence training that involved using social reinforcement, information feedback, modeling, and evaluation of self and others in teaching showering behaviour to institutionalised mentally retarded adults. Results showed that treatment and no-treatment subjects on post test and 3 month follow up evaluations. At post test, it appeared that treatment was perceived to be acceptable and non punitive.

Cauteela, Joseph (1984) introduced the concept of "general level of reinforcement" (GLR), which is defined as the number, quality and duration of reinforcement for each unit time. The assumptions of this theory were discussed, one of which was that the theory is related to psychological and physiological well-being. Ways to measure GLR were described and clinical implications presented. Methods to increase the GLR, such as covert reinforcement and the self-control triad are specified.

O'Leary, Daniel (1984) responded to a study by Lund and Kegeles on the use of rewards to influence the health behaviour of adolescents. It was noted that the study neglected to include any measures of the dependent variable (dental caries, cavities). It was also suggested that perhaps the particular items used for motivation (e.g., toys, pencils) were not uniformly
valued by the participants. A question was raised about the effectiveness of using a fluoride rinse with adolescents.

Hazinski et al., (1985) investigated the effectiveness of social skills training and direct reinforcement methods in the treatment of 30 21-67 year old mentally retarded patients functioning in the mild to - moderate range of retardation. Findings showed that the social skills training resulted in more immediate effects than contingent reinforcement, but effects were not generally well - maintained at follow - ups.

Lusselli et al., (1985) studied effectiveness of reinforcement - based programs with blind, multihandicapped students was examined. In study I, the aggressive behaviour of a deaf/blind adolescent was eliminated through a differential reinforcement of other behaviour (DRO) procedure that was combined with a reinforcer cueing technique and brief time-out. In study II, DRO was utilized to reduce stereotypic eye-pressing by a young blind child who was also hearing impaired. Follow-up observations while treatment procedures remained operative revealed maintenance of intervention effects from 1 to 8 months post-treatment.

Wolery et al., (1985) assessed the effects and side effects of using stereotypic behaviour as a consequence for correct responding with 2 autistic males. Measures of the stereotypic behaviour used as a reinforcer, other stereotypic behaviours and appropriate behaviours were collected during daily
5 minutes free-operant settings before and after the task session. No overt stereotypic behaviour in free operant settings was not adversely affected. Side effects of using stereotypic behaviours as reinforcers were considered.

Fox et al., (1986) evaluated the effects of access to opportunities to earn edibles for performing a high probability stereotypic behaviour on the public genital stimulation (GS) and stereotypy of a 16 year old male (IQ-21) in a special education class. Treatment involved a series of increasing differential reinforcement of other behaviour (DRO), lengths in which the absence of GS was reinforced with edibles and a stereotypic behaviour. Genital stimulation was nearly eliminated with the graduated DRO procedure, with holding the edibles had little effect in reducing the stereotypic behaviour. Edibles alone were enough to maintain the reduction in genital stimulation.

Gould et al., (1986) investigated the effectiveness of token reinforcement for improving appropriate ward robe care in 5 6-9 years old emotionally disturbed children at a resideditated treatment. The results indicate that all 5 subjects increased their appropriate behaviours ward robe behaviour during 3-6 weeks treatment. All but, 1 of the subjects maintained an increase in appropriate wardrobe care behaviour during the 2 weeks observation follow-up.

White, et al (1986) investigated whether antecedent events influence chronic pain behaviour among 4 female chronic pain patients (mean age 40 years) exposed over 7 consecutive days to two conditions within an alternating
treatments design. Findings showed that subjects pain intensity ratings were consistently and significantly lower after verbally reinforcing well talk compared with verbally reinforcing pain talk.

Allen et al (1987) used a reinforced practice procedure to facilitate cooperative behaviour in 5-3-6 year old children during dental treatment. The procedure was effective in reducing overall heartrate and blood pressure reactivity to dental treatment. All subjects were rated by the involved dental professionals as more cooperative and relaxed following exposure to reinforced practice.

Dube et al (1987) assessed two mentally retarded subjects learned conditional discrimination with two sets of stimuli. Each set included a spoken name, an object, and a printed symbol. Results of 3 experiments suggested that when programmed contingencies establish 4-term behavioural units that terminate with different reinforcing stimuli, all 3 stimuli terms of each unit may become members of the same stimuli class.

Fox et al (1987) studied the long-term effects of a token economy on safety performance in open-pit mining. Implementation of the token economy was followed by large reductions in the number of days lost from work because of injuries, the number of lost-time injuries, and the costs of accidents and injuries. The reductions in costs far exceeded the costs of operating the token economy.
Iwata, Brian (1987) described 3 aspects of negative reinforcement as it relates to applied behaviour analysis: behaviour acquired or maintained through negative reinforcement, the treatment of negatively reinforced behaviour and negative reinforcement as therapy. Research done suggested the emergence of an applied technology on negative reinforcement.

Klonoff et al. (1987) presented the role of reinforcement in psychophysiological disorders. Results suggested that it may be a mistake to advise patients who may be hypoglycemic to eat whenever they experience symptoms.

Luiselli, James (1987) evaluated the behavioural treatment of secondary enuresis displayed by a 19 year old developmentally disabled female with multiple sensory impairments. Intervention resulted in a decrease in wetting incidents and an increase in self-initiated toileting and maintained through a 7 month follow up assessment.

Redmond, William (1987) used a differential reinforcement of other behaviour (DRO) procedure to reduce the frequency of physical attacks by an 18 year old severely retarded male adolescent. The baseline rate of attacks was high and usually involved injury to staff or clients. Once the differential reinforcement of other behaviour was applied, the number of episodes dropped immediately and remained low throughout the study.
Santarcangelo, et al (1987) exposed two autistic students aged (5 and 9 years) to training consisting of differential reinforcement of appropriate play, verbal feedback and prompts for inappropriate play or disruptive behaviour and a specific toy training condition that involved extrinsic reinforcement of specific components of toy play. This training resulted in decreases in disruptive behaviour accompanied by generalization and maintenance of appropriate play in an unsupervised setting.

Smith, Marcia (1987) examined the usefulness of differential reinforcement of other behaviour in the treatment of pica in a 23 year old autistic, profoundly retarded man working in a nonsheltered place of employment. Results indicated that a reduction in pica could be achieved by differential reinforcement of other behaviour.

Donnelly (1990) studied the effect of differential reinforcement of incompatible behaviour on pica for cigarettes in 2 intellectually disabled males aged (38 and 44 years) and evaluated the efficacy of using placebo pica stimuli. Results support the efficacy of differential reinforcement of incompatible behaviour with pica, as well as the use of placebo pica stimuli.

Steege et al (1990) used behavioural assessment procedures to determine the maintaining conditions of self-injury exhibited by 2 profoundly mentally retarded children (aged 5-6 years) with severe multiple handicaps. Negative reinforcement was the maintaining reinforce for self-injury within an
alternating treatments design. Treatment led to a marked decrease in self injury for both subjects.

2.5 PUNISHMENT: RELATED STUDIES

Punishment refers to an event that is made contingent on a response that results in a decrease in the probability of the response's occurrence. Stimuli that can be classified as punishers can be divided into two classes: those that result in decrease in responding following the onset of the stimulus event (e.g., electric shock paired with a barpress response) and those that produce the same result following the withdrawal of an event (e.g., withdrawal of food following a response).

The effects of reward and punishment have important implications for helping us meet the objective of modifying maladaptive human behavior. Reward does strengthen behavior, punishment does not weaken it. It only results in the suppression of responding.

Romanczyk, Raymond (1977) performed 2 studies comparing the effectiveness of FR and VR schedules of punishment during application and extinction. Both studies found significant positive side effects of punishment in terms of increased play and social behavior as well as increased performance of academic tasks.
Mace Charles (1986) evaluated a commonly used component of brief time-out, in which release from time-out is delayed contingent on the occurrence of disruption. Subjects were a normal 4-year-old, a mildly retarded 3-year-old, and a severely to profoundly retarded 15-year-old who all had severe behaviour disorders. Results of a combination ABAC reversal and multiple baseline design indicated that both delay and no delay variations were effective in reducing the frequency of the target behaviour.

Miller, David (1986) investigated the use of seclusion or exclusionary time-out, which is still practiced extensively within children's residential facilities and some day treatment or special education classrooms as a means of managing an out-of-control child. Data showed that the seclusion room and seclusion as a treatment intervention from a child’s perspective are seldom if ever therapeutic, seclusion is perceived by the child as punishment, emphasized by its use as a threat.

Irman, Patrick & Hove, Gayleen (1987) evaluated the effects of aversive taste treatment of thumb sucking on untreated trichohilomana (habitual hair pulling) in 2 children aged 2 and 5 years who chronically pulled their hair and sucked their thumbs. Results suggest an efficient method for changing behaviour that are difficult to treat directly.

Horton, Steven (1987), examined the effectiveness of facial screening as a treatment to reduce repetitive spoon banging by an 8-year-old severely
mentally retarded girl during mealtime. Results of an A-B-A-B design showed high frequencies of spoon banging during non-treatment conditions which rapidly decelerated when facial screening was in effect.

Mulick James (1990) examined the conflicts between those who viewed aversive therapeutic interventions from an ideological perspective and those who viewed them from a scientific perspective. It was argued that some of those who rejected aversive therapeutic interventions appeared to do so out of a poor understanding of behavioural science and a primarily ideological frame of reference.

Roberts, Mark et al (1990) studied 36 mothers of noncompliant, clinic-referred children (aged 2-6 years) were randomly assigned to 1 of 4 chair timeout enforcement procedures: spark, hold, barrier or child release. Group data were obtained in the home setting across 4 weeks. Most subjects displayed near zero levels of timeout resistance within 3 weeks in the home.

Horner et al (1991) presented two assessments of the effect of interspersed requests on aggression and self-injury during instruction. The participants were individuals with severe mental retardation who used aggression and self-injury to avoid difficult instructional situations. Results from both studies indicate that interspersed requests were effective at increasing the responsiveness of the learners to instructions and reducing levels of aggression and self-injury.
2.6 TEMPER TANTRUMS - RELATED LITERATURE

Temper tantrums are a normal response to anger and occur commonly in the child between one and four years of age. They arise from the child's thwarted efforts to exercise mastery and autonomy. Particularly if childhood tantrums produced the desired results, learned tantrum behaviour may persist into adult life. (Chadsey - Rusch, Sprague 1989)

Bouvier et al. (1985) described the application of other behaviour modification principles to two patients who resisted physical therapy. Peer modelling was used with case 1, a 2½ year old girl who cried frequently when wearing her brace, and refused to walk except with much assistance. Case 2 was a 21 year old hemiplegic man with severe head injury. Severe tantrum behavior accompanied all demands placed on him. In both cases clinically significant behavioural changes were observed.

Adams, Rickert (1989) studied 36 toddlers and preschool children exhibiting bedtime tantrum activity and were randomly assigned to one of three groups; positive routines, graduated extinction or control. Children in the two treatment groups had tantrums less frequently and for shorter periods than control subjects during 6 weeks of treatment and during two follow-up observations 3 and 6 weeks after treatment.
2.7 OTHER RELATED LITERATURE

Shimada, Tasuhits (1985) compared the retrieval speed of 18 mental retardates and 18 non-mental retardates matched for mental age on a constrained recall task. Mental retardates had a mean chronological age of 17 years 10 months, mean mental age of 9 years 1 month and mean IQ of 51. Non mental retardates had a mean chronological age of 9 years 3 months and a mean IQ of 108. The results suggested that 1 of the cognitive deficits of mental retardates was in the area of category access.

Harris, Sandra (1986) presented issues for the behaviour therapist to consider when working with families of children with autism. Studies on training parents and siblings to act as behaviour therapists for the autistic child were reviewed. The impact of the autistic child on the family was discussed in relation to stresses and demands on coping abilities.

Narayanan and Mohan (1986) studied the most common symptoms and etiology in 522 mentally retarded children under age 4 years. Different symptoms were observed at ages 0-7, 7-12, 13-23, 24-35 and 36-48 months. The etiology was environmental in 37.9% of cases, unclassified in 31%, genetic in 13% and chromosomal in 8.6%.

Ager, Alastair (1987) suggested that workers in the field of mental handicap should consider generalization phenomena as products of their
interventions. Broad strategies with the aim of fostering generalization were reviewed.

Dudley, James, (1987) identified 3 common misperceptions about people labelled as mentally handicapped, that they have little understanding of their handicaps, are indifferent to the language used by others in referring to them, and are unaffected by the stigma-promoting way in which they are tested.

Voelker, et al (1987) compared self-reports by 16 retarded adults (aged 19-47 years) in residential programs or independent apartment settings with standard Vineland Adaptive Behaviour Scales (VABS) scores, using counselors as informants. Self and informant reports showed agreement on the VABS summary score and on Daily Living Skills and Socialization scores. Lower functioning subjects under-reported maladaptive behaviour. Higher functioning subjects underestimated their communication skills, but provided more information on problem behaviour than their counselors.

2.8 EVALUATION

It is revealed from the review of literature discussed in this chapter that most of the studies were conducted in mental retardation, behaviour problems, behaviour modification, reinforcement and punishment. But they were all individualised. The present researcher is aware of the most commonly found
behaviour problem - Temper tantrums in the mentally retarded children, which has paved the way for the formulation of the hypothesis for the present research.

Considering these aspects, the present research is planned to investigate the effect of behaviour modification in the reduction of temper tantrums in mentally retarded children. The behaviour modification for the present research includes reinforcement and punishment techniques.

It is also observed that most of the researchers have studied behaviour problems in general and other related studies. Limited studies have been done on temper tantrums which is one of the most important behaviour problems to be reduced or eliminated.