CHAPTER II

THEORETICAL BACKGROUND
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BEHAVIOURISM

Behaviourism is one of the schools of psychology. It is also a method of dealing with the maladjusted persons. Exponent of behaviourism was Watson (1913) who held that a genuinely scientific psychology must be based on objective, observable facts rather than subjective, qualitative processes such as feelings, motives, and consciousness. To make psychology a naturalistic science, behaviourists proposed to limit it to qualitative events such as stimulus - response, the effects of conditioning, physiological processes, and study of animal behaviour - all of which can best be investigated through laboratory experiments that yield statistically significant results.

According to behaviourist view, only behaviours that can be observed and agreed upon are worthy of interest in psychology. People's inner thoughts and feelings are only of importance if they are expressed in overt actions or affect their behaviour in some way. Behaviourists hold that except for a few reflexes, all behaviour is learned. People learn to respond to certain stimuli. Skinner (1938) a current leader in behaviouristic perspective, maintains that behaviour is shaped by consequences. Behaviours that are rewarded, increase
and those that are punished, decrease. Thus, behaviour modification is based on the application of behaviourism.

**BEHAVIOUR PROBLEMS**

Various behaviour problems are found in pre-school children such as problems of eating, sleeping, elimination, manipulative motor habits, speech disorders, withdrawal reactions, and aggression.

Eating problems including weaning, food refusal, dislike for various foods, lack of appetite, over-eating, vomiting, dawdling or spending endless time in eating, and pica i.e., craving for unnatural foods such as dirt, rags, ashes etc. In sleeping problems resistance to sleeping, restlessness insleep, night wandering, and talking in sleep are common. Problems associated with elimination are enuresis, encopresis, regression in training, and constipation. Head-banging, rocking, thumb-sucking, nail-biting, nose-picking, masturbation and tics are manipulative motor habits of the pre-school children which cause parents concern.

Speech disorders include retarded speech and mutism, articulation disability and stuttering. Most of the pre-schoolers display their inability to cope with annoyance or overwhelming events by crying or showing fear. Lying, regression, or autism are even more determined methods of retreating from pleasantries, and these reactions anger parents,
who sometimes conclude that the child is attempting to outwit them. Aggression includes irritability, bullying, quarrelling, hitting, kicking, rudeness, jealousy, snatching, scratching etc.

In the present study behaviour problems included in the tool are classified such as, sleeping difficulties, eating difficulties, other difficult habits, sense of self inadequacy-inadequacy, aggressive behaviour, unsocial behaviour, non-compliant behaviour, and some specific (delinquent related) behaviour problems.

BEHAVIOUR DETERMINANTS

The causes of behaviour problems of children are complex and inter-related. Behaviour determinants are commonly divided into two major types: objective and interpersonal (Verville, 1967).

Objective Determinants: Objective determinants of the child's behaviour include his individual characteristics and those of his family structure. His intelligence, physical status, ordinal position in the family, its size, and his sex direct many facets of behaviour. If he is a twin, a step child, an adopted child or an illegitimate child, he is influenced in certain ways. The neighbourhood in which he lives affects his development. The values held by his parents direct his own attitudes and actions and the presence of relatives in his home or near it alters his behaviour. His teachers and the
kind of educational experience he has, the socio-economic status of his family, and his religious affiliations not only contribute to the child's estimation of others, but also present him with unsought challenges and labels.

**Interpersonal Determinants:** Interpersonal determinants are the factors related to the care and training of the child by the adults responsible to him. The child's interpretation of their task in rearing him is significant in his development. The child welcomes and responds to favourable attention and to concern for his physical welfare. He requires discipline, training in responsibility, and practice in social interaction. Without practice in self-control, meeting obligations, and contact with peers, he is unproductive and immature. Without respect, he becomes vengeful and deteriorates intellectually and emotionally.

Interpersonal determinants are described as a fixation of immaturity, neglect, unbalanced social experience, fatigue, rejection of responsibility, distortion of parental role, damaged self respect, excessive punishment, and freedom to defy and attack. In the life of every child with behaviour problems, one or more of these conditions are operant, and its elimination or minimization produces improved behaviour in the child.

**AGGRESSION**

In the socialization of the child no response pattern has more important implications than that involving aggression.
In order to understand aggression so as to be able to deal with it from a therapeutic and preventive point of view, it is necessary to arrive at a meaningful formulation of this complex problem.

The term aggression has been defined in literally hundreds of different ways. Buss (1961), for example, indicates that any behaviour that causes harm or injury to others is to be considered aggressive. Berkowitz (1974), on the other hand, believes that the intention to harm or injure others rather than mere delivery of such consequences would classify a behaviour as aggressive in nature. Zillman (1979) has further restricted the term to embrace attempts at bodily or physical harm. In any case, there does seem to be a lessening of controversy in this area and a wider acceptance of a consensual definition. This is perhaps best reflected in the description of aggressive behaviour proffered by Baron (1977) that "Aggression is any form of behaviour directed toward the goal of harming or injuring another living being who is motivated to avoid such treatment."

Kauffman (1983) viewed aggression as involving hitting, biting, scratching, teasing, cursing, name calling, and a variety of other specific behaviours. Children may direct aggressive behaviours towards others or towards themselves. Self-injurious behaviour is a fairly common characteristic of severely and profoundly disturbed children. Such children may
bang their heads, bite or scratch themselves or hurt themselves intentionally in a variety of other ways. Sometimes, they are serious enough to threaten loss of limb or life (Bachman, 1972; Lovaas, 1982a).

On the basis of the above definitions, aggression can be viewed as (i) a form of behaviour, (ii) an intention to harm (iii) involving directed actions towards another living being or towards self, and (iv) physical and/or nonphysical consequences to behaviour (e.g., insult, embarrassment).

THEORIES OF AGGRESSION

Theoretical activity concerning aggressive behaviour has mushroomed during the present century, providing widely divergent views regarding the nature of human aggression, its controlling influences, and potential strategies for preventing or reducing its rate of occurrence. These theoretical contributions have been quite heterogenous in both their terminology and their specific corollaries, but they generally fall into one of the three major theoretical categories - instinct, drive, and social learning models. Pictorial form of these models is represented in Figure 2.1.

Instinct Theories

Instinct theories are comprised of two sub-theories: psycho-analytic theory advocated by Freud (from 1905 to 1933), and ethological theory proposed by Lorenz (from 1966 to 1974).
Figure 2.1: Motivational determinants of aggression according to instinct, drive, and social learning theories

**INSTINCT THEORIES**

(i) Psychoanalytic: Freud

- Death Instinct

  - Instigation to Aggression

  - Aggressive Behaviour

  - Self-destruction

(ii) Ethological: Lorenz

- Aggressive Instinct

  - Releasing Stimuli

  - Aggressive Behaviour

**DRIVE THEORIES**

(i) Frustration-Aggression: Dollard et al.

- Frustration

  - Instigation to Aggression

  - Aggressive Behaviour

(ii) Aggressive-Cue: Berkowitz

- Frustration

  - Anger

  - Eliciting Cues

  - Aggressive Behaviour

**SOCIAL LEARNING THEORY: Bandura**

- Aversive Experiences

  - Emotional Arousal

- Anticipated Consequences

  - Reinforcement-Based Motivation

  - Dependency
  - Achievement
  - Withdrawal and resignation
  - Aggression
  - Psychosomaticization
  - Self-Anesthetization
  - Self-Anesthetization with drugs and alcohol
  - Constructive Problem solving

Source: Bornstein, Hamilton, and McFall, 1981.
Psychoanalytic Theory: In the early development of psychoanalytic theory, Freud (1905, 1917) proposed that all human behaviour is generated either directly or indirectly from a basic life instinct (Eros) and that the energy derived from this instinct (libido) serves to promote the integration, enhancement, and prolongation of life. On the basis of this single-instinct theory, human aggression was viewed as a reaction to the thwarting of libidinal impulses directed towards pleasure-seeking or pain-avoiding activities.

Freud (1920, 1933) proposed a second major instinct (Thanatos or death force) in order to revise his one-instinct theory. The function of Thanatos was directly antagonistic to that of Eros. Freud hypothesized that the death instinct served to promote disintegration and destruction of life in order to return the organism to its original inanimate form. Although the ultimate purpose of death instinct was that of self-destruction, Eros served to prevent the annihilation of the individual by redirecting or displacing the energy of Thanatos outwardly against the external world. As Freud (1933) remarked, "The organism preserves its own life, so to say, by destroying an extraneous one". Thus, self-directed aggression was viewed as the primary root of externally directed aggression, with all forms of human behaviour (whether destructive or not) being accounted for via complex interaction of the opposing life and death forces.
Freud's concept of a death instinct analogous to a built-in self-destruct mechanism received little scientific acceptance either within or outside psychoanalytic circles. Moreover, it is currently viewed as one of the most controversial constructs in the whole of the psychoanalytic theory (Baron, 1977). More specifically, this theory has been criticised due to its lack of intuitive appeal, its use of nonspecific, non-operationalized and unmeasurable hypothetical constructs, lack of biological substantiation for innate motivational determinants, and its lack of predictive utility (Bandura, 1973a; Zillman, 1979). Thus, in view of serious conceptual ambiguities and lack of empirical substantiation, psychoanalytic theory has contributed minimally to either the epistemological understanding of human aggression or the development of effective intervention strategies.

Ethological Theory: A somewhat similar yet more controversial theory of aggressive instinct known as ethological theory, has been proposed by Lorenz (1966, 1974). He proposed that human aggression is the result of an innate fighting instinct that has been developed and maintained over the course of evolution as a result of its benefits for species survival. According to Lorenzian model, aggressive energy is generated spontaneously within the organism at a constant and continuous rate with the actual elicitation of aggression being a joint function of (a) the amount of accumulated aggressive energy and (b) the existence and strength of certain highly specific
aggression - releasing stimuli. More specifically, Lorenz hypothesized that, if the amount of available aggressive energy is low, an extremely strong releasing stimuli would be necessary to elicit an aggressive act. Conversely, if considerable time had elapsed since the last aggressive episode, a relatively weak environmental stimulus would be sufficient to precipitate aggression. In this way, "trivial releasers, too weak to incite aggressive action, grow into powerful ones that force violent eruptions" (Zillman, 1979). Moreover, Lorenz reasoned that the level of stimulation necessary to elicit aggression could reach a 'theoretical zero point' where more intense destructive acts erupt in the complete absence of appropriate releasing stimuli due to excessive energy build up.

Although aggression was clearly viewed as inevitable, Lorenz tended to be more optimistic than Freud concerning the potential for reduction and control of human violence. Since high levels of aggression energy were considered necessary to fuel more harmful aggressive acts, such behaviours could, therefore, be potentially averted by preventing aggressive energy from reaching dangerous levels. Lorenz, therefore, suggested that participation in non-destructive aggressive activities, involvement in competitive events, and the facilitation of friendship and love between fellow human beings would all serve to keep aggressive energy at a manageable level.
Although Lorenz's instinct theory gained considerable popularity among lay readers due to its literary elegance, this theory has been criticised due to lack of evidence for a universal instinctive force in any organism and empirical demonstration of environmental releasers. As a result of these and many other congent criticisms, Lorenz's ethological theory has taken its place alongside other instinct models retaining its external strength in literary elegance yet critically weakened by its extremely fragile empirical foundation.

**Drive Theories**

As a result of the epistemological infertility of instinct theories of aggression, investigators turned to the idea of reactive drives to replace the one popular action of spontaneously generated aggressive energy. Despite substantial theoretical revision, drive theories have retained their unifying proposition that aggressive behaviour is generated by the arousal of an environmentally elicited drive to harm or injure others (Baron, 1977). Two Drive theories have been proposed by Dollard et al. (1939) and Berkowitz (1965). Theory proposed by Dollard et al. (1939) is known as Frustration-aggression theory, and that proposed by Berkowitz (1965) is known as Aggressive-cue theory.

**Frustration - Aggression Theory:** Frustration-aggression theory by Dollard et al. (1939) consists of two seemingly very straightforward propositions: (1) The occurrence of frustration always
increased the tendency for an organism to respond aggressively and (ii) whenever an organism responded aggressively, this was prima facie evidence for the previous occurrence of frustration. In other words, frustration always leads to aggression and aggression always implies that frustration has occurred at some previous time.

Dollard et al. described four main classes of factors that determined the specific form that aggression might take as a result of frustration. First of all, they described the conditions that could affect the strength of the tendency to respond aggressively to frustration. Firstly, the greater is the strength of the goal response sequence interfered with, the greater would be the tendency towards aggression. Secondly, the greater is the amount of interference with the goal response, the greater would be the tendency towards aggression, and thirdly, the greater is the frustrated response sequence occurring over a period of time, the greater would be the tendency towards aggression.

The second set of conditions reflected that the environment (organismic or inanimate) does not take aggression passively. The tendency of an organism to respond aggressively is frequently punished, both in case of specific outbursts and in principle. Therefore, the degree to which aggression will be expressed - at least overtly - is a function of the amount of punishment expected for a particular aggressive act.
The third set of conditions affecting the frustration-aggression relationship are those factors which determine whether aggression would be direct or indirect. Dollard et al. (1939) hypothesized that the strongest aggressive tendency is directed towards the agent perceived as being the source of frustration; less direct forms of aggression were less strongly aroused by frustration.

Finally, the formal development of the theory concluded with the implications of the fact that the successful occurrence of aggression is itself reinforcing. This leads to a decreased tendency towards aggression for the time being, just as successful eating temporarily reduces the tendency to eat. In psychoanalytic terms, this is called catharsis. Combining the principles of displacement and catharsis lead to a final conclusion that there is an aversive relationship between the tendency of different forms of aggression to occur. As one form is inhibited, others are strengthened; when one form occurs, others are weakened.

The emphasis on frustration has led to an unfortunate neglect of other large class of antecedents (noxious stimuli), as well as a neglect of aggression as an instrumental response. Frustration is only one antecedent of aggression, and it is not the most potent one (Buss, 1961). Empirical research conducted on frustration-aggression model indicated that
individuals do not always engage in acts of hostility and aggression when faced with frustrating events. They rather exhibit a variety of reactions ranging from dejection and resignation to active attempts at surmounting imposed obstacles (Bandura, 1973a; Baron, 1977; Buss, 1966). This model has also been criticized for the conceptual ambiguities. Dollard et al. failed to specify the presumed duration of instigatory and cathartic effects and left the issue of stimulus similarity (with respect to the concept of displacement) extremely vague (Buss, 1961; Feshbach, 1970).

Aggressive-Cue Theory: Emerging empirical findings have prompted several revisions and extensions of the original frustration-aggression model. Perhaps the most influential and controversial modifications have been put forth by Berkowitz (1965, 1969, 1973, 1974). In contrast to the original notion of Dollard et al. (1939) that frustration itself is sufficient to promote harmful acts of aggression, Berkowitz (1965) proposed that frustration serves to produce a state of emotional arousal (i.e., anger) which merely creates a readiness to engage in aggressive acts. In order for 'anger' to be transformed into overt aggression, the presence of 'suitable' aggression eliciting cues i.e., stimuli associated with past or present anger instigators or with aggression generally was viewed as necessary. Berkowitz (1974) suggested that, even in the absence of annoyance or frustration, exposure
to strong environmental cues may serve to instigate aggressive acts. For the most part however, Berkowitz believed that human beings are partly driven by a state of anger and partly pulled by the environment into violent action.

Aggression-Cue theory has been soundly criticized for the ambiguity surrounding the notion of suitability and lack of clarity concerning the degree of association necessary to make such cues behaviorally active. The available research evidence concerning 'aggressive-cues' such as weapons is largely negative, inconsistent, and contradictory (Zillman, 1979).

Social Learning Theory

As a result of the deteriorating empirical status of instinct and drive theories of aggression, the social learning perspective has grown rapidly in popularity and research support within the past decade. The social learning perspective essentially depicts human aggression as a form of social behaviour generated and maintained in much the same manner as other prosocial behaviours. The social learning framework holds that hostile and violent behaviours are precipitated by a host of varied conditions ranging from direct provocation to anticipated contingencies of reinforcement and punishment (Baron, 1977). Although a general state of emotional arousal is still viewed as being one of the primary motivational determinants of aggression, the responses resulting from any
aversive situation are thought to vary widely depending on the way in which people have learned to cope with stressful conditions in the past. Bandura (1973b), the primary spokesperson for the social learning perspective, stated that "When distressed some people seek help and support; others display achievement behaviour; others show withdrawal and resignation; some aggress; others exhibit heightened somatic activity; others anaesthetize themselves with drugs and alcohol; most intensify efforts to overcome their problems." As anticipated, reinforcement is viewed as the second primary motivational determinant in social learning system, anger arousal is considered to be facilitative though not necessary for the actuation of aggressive behaviour (Novaco, 1979; Rule and Nesdale, 1976).

Aggression based on the analytical system devised by Bandura (1973a,b) can best be examined by the three issues: (1) the ways in which aggressive behaviours are acquired; (2) the factors which instigate their occurrence; and (3) the conditions that serve to maintain their performance. With regard to the first issue, aggressive behaviour, according to social learning theory, is thought to be acquired through either direct or indirect experience. The probability of aggressive behaviour will increase when such acts are followed by reinforcing consequences.

Although instrumental learning greatly influences acquisition of aggressive behaviour, Bandura (1973a,b) attributed
even greater importance to the process of social modelling. Bandura proposed that human beings often develop new behaviours merely from observing the actions of others. Although various interrelated subprocesses are presumed to underlie the effective acquisition of any modelled response, the actual performance of aggression is thought to be primarily dependent on the incentive value for engaging in such acts. Therefore, Bandura (1973a,b) not only emphasized the role of direct consequences in relation to the performance of aggressive behaviour but also focused on the effects produced by vicarious reinforcement and punishment. Thus, Bandura (1973b) proposed that observing reinforcement being provided for the aggressive behaviour of others will increase, and seeing it punished will decrease the tendency for the observer to act in similar aggressive way.

With regard to instigating factors, Bandura (1973b) stressed the importance of anticipated rewards as well as proposed a number of other factors serving to promote the incidence of aggressive behaviour. According to Bandura (1973b) formerly neutral stimuli acquire aggression-eliciting properties as a result of their association with previous violent encounters. He also proposed that aggression is often instigated by "unpleasant, thwarting, offensive, and physically painful treatment". The aggressive behaviour of provoked individuals has been shown to increase with antagonistic appraisals and to decrease with
syntonic appraisals. Bandura (1973b) also proposed that aversive life situations (impoverishment, deprivation) as well as thwarting of goal-directed behaviour may lead to aggressive responses, depending on an individual's expectation that such reactions will lead to reinforcing consequences. Bandura (1973b) indicated that the potential for compliance is particularly higher when commands for aggressive action are presented by a strong coercive agent in a manner that justifies the attack and depersonalizes both the intended victim and the consequences of inflicted injury.

According to social learning theory, once aggressive behaviours are learned and initially performed, their rate of occurrence can be strengthened and maintained through a variety of factors. Tangible rewards, social approval and alleviation of aversive treatment are important consequences providing expectations of continued reinforcement for aggressive behaviour (Bandura, 1973a). Seeing others receive reinforcement for behaving in an aggressive manner may also serve to maintain acts of aggression in individuals observing such actions (Bandura, 1973b). Self-reinforcement is viewed as a primary motivator when associated with personal pride. It can also dominate the external contingencies of reinforcement and punishment over time.

In brief, social learning theory is an empirically sound and best alternative to instinct and drive theories of
aggression. The social learning perspective holds considerably more optimism for the reduction and eventual control of societal aggression as human beings are not viewed as being internally impelled towards violence due to inborn characteristics or everpresent environmental obstacles. If the external conditions which serve to maintain aggressive behaviour are removed and strategies are developed to prevent the initial learning of aggressive responses, reductions in the interpersonal hostility and violence can be made successfully.

CLASSIFICATION OF AGGRESSIVE RESPONSES

Buss (1961) has classified aggressive responses into two ways. The first is on the basis of organ systems involved—physical versus verbal aggression. The second is on the basis of the interpersonal relationship—direct versus indirect aggression, and active versus passive aggression.

Physical vs. Verbal Aggression

Physical aggression may be defined as an assault against an organism by means of body parts or weapons. Assault may have two kinds of consequences. The first includes overcoming or removing a barrier and eliminating the source of noxious stimulation. The second kind of consequence of physical aggression is pain or injury to another organism. Pain is the more inclusive term. Physical aggression, when successful, inevitably leads to pain but not necessarily injury. On the
other hand, injury that results from assault is virtually always accompanied by pain.

Seriousness of injury may be used as a basis for grading the intensity of physical aggression, but probably the serious injury cannot be used as a basis for grading or defining verbal aggression. Threats, criticism, and verbal abuse leave no scars and draws no blood. Notion of injury has also been used by some psychologists not only to define physical aggression but also verbal aggression—referring to 'psychic injury'. Injury, in the usual biological sense, is a clear term. Verbal aggression is defined as a vocal response that delivers noxious stimuli to another organism. The noxious stimuli delivered in physical aggression are pain and injury and responses that are already aggressive. Threats are noxious stimuli by a process of classical conditioning. The unconditioned stimulus is physical or verbal aggression; the conditioned stimulus is the threat such as 'I am going to hit you'. The unconditioned stimulus of being attacked usually elicits an emotional response (fear or anger). Threat initially does not produce an emotional response, but after pairing with the unconditioned stimulus of attack, threat comes to elicit the same or similar response. Eventually the victim makes similar responses to both the threat and the attack.

Direct Versus Indirect Aggression

In direct aggression, an individual or organism directly assaults another organism physically or verbally. Indirect
aggression may be verbal (e.g. spreading nasty gossip) or physical (e.g. a man sets fire to his neighbour's house).

Gossip is indirect in that the victim is not present and the noxious stimuli are delivered via the negative reactions of others. The victim gets into trouble at the end of a chain of mediating events and people. Damaging a person's possessions is indirect in that the victim is not hurt or injured, but objects associated with and valued by him are destroyed.

**Active Versus Passive Aggression**

Most aggressive responses are active in that the aggressor makes an instrumental response that delivers noxious stimuli to the victim. However, noxious stimuli may also be delivered in the absence of an active response by the aggressor. He may aggress by preventing the victim from achieving a goal. Blocking of another's path is aggressive in that noxious stimuli are presented to the victim, despite the aggressor's lack of activity. Most passive aggression is direct in which the aggressor blocks the ongoing behaviour of the victim. Passive indirect aggression is rare but it does occur, e.g. hunger strikes by Gandhi against the British in India, the 'sit-ins' by Negro students in South etc. Such acts are aggressive only via a complex chain of events, the aggressor delivering noxious stimuli merely by his presence or by self-denial. In passive indirect aggression, the ongoing behaviour of the victim is not immediately and directly blocked, but
the refusal of the passive aggressor to act for himself constitutes an aversive stimuli. This kind of aggression differs greatly from the active, direct aggression of assault or cursing, and perhaps it constitutes the borderline of aggression.

AGGRESSION IN CHILDREN

Aggressive behaviour can easily be observed in children's social interactions with one another, with parents, and with authority. To educate the children to control their aggression is a very difficult task for the parents as well as for the children who must learn to inhibit their rage and to discriminate between those situations in which it is appropriate or inappropriate to behave aggressively.

Usually every living organism reacts aggressively when confronted with those interfering circumstances which disturb the fundamental urges of life. If an animal is teased or disturbed while eating food, it will attack the interfering agent. Such aggressive reactions to frustrating situations are shown by human beings as well as animals because they do not tolerate interference with their activities. The annoyance or frustration is usually expressed in children by punching and kicking another child, biting, bursting a balloon, or by using abuses. Even a mature adult may manifest aggressive behaviour when faced with some frustrating situation, though at first he may use some control and try to put up with
the annoyance until it reaches the extreme limit.

There are other ways and means which may be adopted by the living organisms when faced with a threatening of interfering situations. It can escape from the situation or it can change itself in order to adjust to the new circumstances. However, some show of aggression or rebellion is generally quite normal when one is faced with unpleasant external conditions. Some aggressive behaviour in children such as in the face of interference in their games or activities or while overcoming difficulties in controlling the surroundings, is not abnormal.

Though the expression of aggression in the face of difficulties may be normal in children yet the persistent symptoms of violent and destructive behaviour, when the child uses abusive language, hits and bites others, creates scenes, screams or stamps his feet, are clear signs of maladjustment. There are some children who are constantly at war with others. They usually show poor performance in their school work and their attitude is that of hostility, revengefulness and suspicion. They are not responsive to the natural demands of the people around them and look upon others as enemies. These children outwardly manifest or give the impression of great strength, fearlessness and arrogance. But internally they are disturbed and are very insecure, fearful and uncertain.

Aggression may be expressed in two main forms, one, when it is externalized, as directed against outside objects
or persons and the other as it is internalized or as directed against one's own self. The first form of expression may be expressed or manifested in three ways. First, in bullying or in violent attacks on younger brothers, sisters or playmates. Secondly, it may be expressed in destructive behaviour as breaking things, screaming, throwing things, biting etc. Thirdly, it may be manifested in the unruly or disobedient behaviour when the child is in conflict with all forms of authority and talks back in the face of elders or superiors. The externalized type of aggression which can be expressed in any of the above mentioned forms is usually violent and terrifying. Here the child expresses his aggression on any external agency which serves as an obstructor in the satisfaction of his immediate needs.

The second form of aggression is the one in which the child turns his aggression on himself. He beats himself, tears his clothes, pulls his hair or seriously injures himself. This happens when the child finds himself helpless and unable to externalize his frustration or when he finds himself too weak to fight against the heavy odds.

Slavson (1943) has outlined the following nine types of aggression such as aggression (i) from prolonged infancy (ii) as attention getting, (iii) as a release of organic tension, (iv) as the acting out of a neurosis, (v) from maturity fantasies (vi) from effeminacy, (vii) from hostility, (viii) deflective,
The degree and type of the aggressive behaviour manifested by children depends largely upon the personality pattern of the individual child developed from his constitutional structure and his environmental history in early childhood. Some children, as a result of their strong physical constitution, are more active, bold and full of energy. They usually react to a frustrating condition more by attacking it rather than by escaping from it. But generally in order to explain any particular type of aggression in a child, one has to look for the difficulties experienced by him in his social relationship with his closely connected human beings.

BEHAVIOUR MODIFICATIONS

The foundations of behaviour modification were developed years ago in experimental laboratories but its impact has been very recent. Recent developments include the adoption of behaviour modification by individual therapists, school systems, correctional facilities, industry, mental hospitals, and even middle class homes in western countries. All in all, its versatility, recency, increasing popularity and impressive success rate have made behaviour modification an exciting, productive area for research and application.

This surge of popularity, however, has generated a number of problems. Perhaps the greatest one surrounds the definition of behaviour modification. Since, in a very literal sense,
any procedure that results in a behaviour change may be labelled behaviour modification, it is apparent why this is a difficult issue. For example, removal of part of the brain undoubtedly changes behaviour. Is psychosurgery, then, a form of behaviour modification? The injunction of huge quantities of certain tranquilizing drugs into an organism undoubtedly changes that organism's behaviour. Is psychopharmacology, then, a form of behaviour modification? While popular publications have labelled such procedures as behaviour modification, contemporary behaviour modifiers would reject these two clinical procedures as being unrelated to behaviour modification. One reason for the difficulty in determining whether or not some clinical procedure should be labelled behaviour modification is that no equivocal definition of behaviour modification exists. Thus, there exists a deal of confusion regarding the definition of behaviour modification.

A few attempts have been made to define behaviour modification. According to Ullman and Krasner (1965), behaviour modification is a term and concept defined as "the application of the results of learning theory and experimental psychology to the problem of altering maladaptive behaviour". The focus is on observable or overt behaviour. Inherent in this behaviouristic philosophy is the belief that all behaviours (adaptive or maladaptive) occur as a result of the interaction of the individual with stimuli in his environment. Consequently, these stimuli may be manipulated in order to alter behaviour.
Bendura (1969) indicated that behaviour modification is an encompassing term and includes such areas as vicarious learning, self-control, and other cognitive procedures. Gardner (1971) described behaviour modification as a term that applies both to an orientation to clinical problems that is conceptually constant with experimental psychology and to a number of different behaviour changing techniques that have the goal of changing human behaviour in a beneficial manner.

An alternate definition by Sulzer and Mayer (1972) is that "when the methods of behavioural science and its experimental findings are systematically applied with the intent of altering behaviour, the technique is called behaviour modification". The general term 'behaviour modification' is used to include more specific terms such as operant conditioning, contingency management, contingency contracting, and behavioural modelling. However, in each case the individual utilizing behaviour modification (in whatever form or forms) is applying the methods of behavioural sciences.

Kauffman (1975) defined behaviour modification as a "systematic control of environmental events to produce specific changes in observable behaviours. Environmental events preceding behaviour in question (i.e., instructions, cues, models, prompts etc.) as well as events following the behaviour (i.e., positive reinforcers or aversive stimuli) may be arranged to modify an individual's performance. Furthermore, procedures which strengthen appropriate behaviour are equally as important
as techniques designed to eliminate undesirable behaviours.

Behaviour modification for the mentally retarded has been conceptualized by Bigelow (1977) as focusing on specific behavioural deficiencies and attempts to correct them. Behaviour modification is viewed as having practicability, relevancy, and most importantly an intervention strategy that is positive in its orientation. Behaviour modification aims to produce improvement in behaviour that can lead to more effective functioning and enjoyment of a wider range of experiences and thus, it is totally consistent with the principle of normalization.

A very effective description of the basis for behaviour modification is provided by Alberto and Troutman (1982). They describe a hypothetical 'Professor Grundy' who eventually, through trial and error, gets his professional world under control and evolves some simple principles. These include: (1) learning occurs as a result of the consequences of behaviour; (2) behaviour followed by pleasant consequences tends to be repeated and thus learned; and (3) behaviour that is followed by unpleasant consequences tends not to be repeated and thus not be learned. Behaviourists, through behaviour modification, attempt to apply these three principles to reinforce that behaviour which they wish to be repeated and to change the behaviour that they feel is unacceptable.

The Encyclopaedic Dictionary of Psychology edited by Harre and Lamb (1983) described behaviour modification as a generic term which refers to the applied use of behavioural
psychology to bring about changes in the human behaviour by workers in the helping professions (clinical and educational psychologists, social workers, teachers etc.). Based on Skinner's operant conditioning paradigm, its central tenet is that all behaviour is primarily learned and maintained as a result of an individual's interaction with his environment, which includes other individuals, and is, hence, susceptible to change by control over features of that environment. The three-term analysis of behaviour (or ABC model) indicates that behaviour change may be achieved by manipulating either the antecedent conditions for behaviour, or the consequences following behaviour in line with the law of effect. Simply stated this means that reward/behaviour will tend to increase in frequency, while behaviour followed by punishing consequences will tend to decline.

Finally, Longman's Dictionary of Psychology and Psychiatry (1984) attempts to define behaviour modification as "the use of operant conditioning, bio-feedback, modeling, aversive conditioning, reciprocal inhibition, or other learning techniques as a means of changing human behaviour, improving adaption, and alleviating symptoms."

Behaviour modification is sometimes used as a synonymous to behaviour therapy which has a little different connotation. Behaviour therapy, in general, is best defined as an empirical approach to psychological problems. It entails continuous evaluation of therapeutical interventions and thus, calls for
objectively defined terms and measurable procedures. Behaviour therapists operate on the assumption that psychological abnormalities are forms of behaviour that have been acquired or have modified the lawful operations of psychological principles of development learning, perception, cognition, and social interaction and that the application of these principles can be used to bring about therapeutical changes. It can thus, be said that the child behaviour therapy is the application of psychology to the alleviation of the psychological distress of children. As such it is an open ended, self-correcting and constantly changing field of endeavour.

Behaviour therapy is the application of methods and findings of experimental psychology to the alteration of maladaptive behaviour. It has been applied with considerable success to a wide variety of the problem behaviour traditionally seen as falling within the prominence of Psychiatry, including phobias, obsessions, generalized anxiety, depression, enuresis, encopresis, drug and alcohol abuse, the effect of long term institutionalization in psychiatric patients and the mentally handicapped, marital discord, sexual inadequacy, and decreasingly sexual deviation, aggression, delinquency, and eating disorders, smoking, obesity, asthma, headache etc. (The Encyclopaedic Dictionary of Psychology, edited by Harre and Lamb, 1983).

Longman's Dictionary of Psychology and Psychiatry (1984) defined behaviour therapy as "a form of psychotherapy
which focuses on modifying faulty behaviour rather than basic changes in the personality. Instead of probing the unconscious or exploring the patients thought and feelings, behaviour therapists seek to eliminate symptoms and modify ineffective or maladaptive patterns by applying basic learning techniques, such as Pavlovian conditioning, Operant conditioning, Aversive therapy, and reciprocal inhibition.

MANAGEMENT OF AGGRESSION THROUGH BEHAVIOUR MODIFICATION TECHNIQUES

There are a number of behaviour modification techniques such as reinforcement, extinction, punishment, modelling (imitation), prompting, fading, shaping, chaining, contingency contracting, and discriminative training etc. Many of these techniques are effective in managing aggression. Fagan, Long and Stevens (1974) have devised a self-control curriculum that emphasizes affective and cognitive abilities. Spivack (1974) and Shure described a programme of problem solving skills in real life situations for teaching aggressive, impulsive young children. A great deal of behavioural research has been done, leading to recommendation of the following techniques (Kauffman, 1981):

1. Provide models (live or filmed examples) of non-aggressive responses to aggression-provoking situations.
2. Guide the child in practising (role playing, and rehearsal) non-aggressive behaviours for real life situations.
3. Reinforce non-aggressive behaviours by giving rewards for specific alternative, non-aggressive behaviours.

4. Extinguish aggression by withholding rewards for aggressive behaviours.

5. Give consistent and appropriate punishment for aggressive behaviours.

Since the present study is centred around positive reinforcement and punishment procedures (i.e., differential reinforcement of other behaviour, differential reinforcement of incompatible behaviours, and time-out) only these techniques will be dealt with in detail.

**REINFORCEMENT**

Reinforcement refers to the presentation of a positive reinforcer or the removal of a negative reinforcer after a response. It increases the frequency of that response.

A reinforcement is any stimulus event that will increase or maintain the strength of a response or stimulus response connection associated with it. A reinforcement in the case of operant behaviour is the stimulus that follows the occurrence of the response and reward it; a reinforcement is respondent behaviour i.e., the stimulus that elicits the unconditioned reflex (Desse, 1958).

Craighead et al. (1976) have described two types of reinforcement - positive and negative reinforcement.

**Positive Reinforcement**

Positive reinforcement refers to an increase in the
frequency of a response that is followed by a positive reinforcer. Positive reinforcer is different from a reward. A positive reinforcer is defined by its effects on behaviour. If an event follows behaviour and the frequency of behaviour increases, the event is a positive reinforcer. Any event that does not increase the behaviour it follows is not a positive reinforcer. An increase in the frequency of the preceding behaviour is the defining characteristic of a positive reinforcer. In contrast, rewards are defined as something given or received in return for service, merit, or achievement. Although rewards are subjectively highly valued, they don't necessarily increase the frequency of the behaviour they follow. Many events that a person evaluates favourably may serve as reinforcers, yet this can not be known on the basis of verbal statement alone. Moreover, there may be many reinforcers available for an individual of which he is unaware or which he does not consider as rewards. For example, in some situations verbal reprimands inadvertently serve as positive reinforcers because they provide attention for the response. Behaviour followed by reprimands may increase. Even though reprimands may sometimes serve as positive reinforcers, most people would not refer to them as rewards. Thus, a reward is not synonymous with a positive reinforcer.

There are two categories of positive reinforcers, namely, primary or unconditioned and secondary or conditioned reinforcers. Stimuli that do not acquire an individual to learn their
reinforcing value are primary reinforcers. For example, food and water serve as primary reinforcers to hungry and thirsty people. Primary reinforcers may not be reinforcing all the time. For example, food will not reinforce someone who has just finished a large meal. However, when food does not serve as a reinforcer, its value is automatic or unlearned and does not depend upon previous association with any other reinforcer.

Some events that control behaviour, such as praise, grades, money, and completion of a goal become reinforcers through learning. Secondary reinforcers are not automatically reinforcing. Events that once were neutral in value may acquire reinforcing properties as a result of being paired with events that are already reinforcing (either primary or other conditioned reinforcers). If a neutral stimulus is repeatedly presented prior to or along with a reinforcing stimulus, the neutral stimulus becomes a reinforcer. Operant and classical conditioning may occur simultaneously. For example, praise may not be reinforcing for some individuals. It is a neutral stimulus for them. If praise is to be established as a reinforcer, it must be paired with an event that is reinforcing, such as food or money. After several pairings of the delivery of food with praise, the praise alone serves as a reinforcer and can be used to increase the frequency of other responses. Secondary or conditioned reinforcers are further classified into three categories: generalized conditioned reinforcers, token reinforcers, and response reinforcers.
Some conditioned reinforcers are paired with several other reinforcers and are referred to as generalized conditioned reinforcers. Money is a good example of a generalized reinforcer. It is a conditioned reinforcer because its reinforcing value is acquired through learning. It is a generalized reinforcer because a variety of reinforcing events contribute to its value. Additional examples of generalized conditioned reinforcers include approval, attention, and affection from others. Attention from someone may be followed by a variety of other events such as physical contact, praise, smiles, affection, or delivery of tangible rewards (food).

Token reinforcer is simply a special kind of conditioned reinforcer, one that is particularly applicable in the classroom. The tokens may consist of check-marks, points, coins, tickets, stamps or anything that the student recognizes as representing some real value. Tokens may be exchanged for snacks, and privileges such as watching television playing games, and attending social events.

Reinforcing events include stimuli such as praise, smiles, food, or money which are presented to an individual after a response. However, reinforcers are not limited to stimuli. Allowing an individual to engage in certain responses also can serve as reinforcers. Certain responses can be used to reinforce other responses. Premack (1959, 1965) demonstrated that behaviours which have a high probability of occurring can reinforce behaviours with a relatively low probability of
occurring. If the opportunity to perform a high probability response is made contingent upon performance of a low probability response, the frequency of the lower probability response will increase. The probability of a behaviour is measured in a situation that is relatively free of extraneous contingencies. For example, if one's choice of coffee over tea is not influenced by such factors as their availability, one's budget, or a friend's assistance, then his choice is contingency free. Behaviours can be high in frequency without accurately reflecting one's preferences (e.g., paying taxes, cleaning house).

According to Premack's (1959) principle 'any pair of responses or activities in which an individual engages, the more probable one will reinforce the less probable one'. For example, for most children, playing with friends is more probable than completing homework. If the high rate probability behaviour (e.g., playing with children) is made contingent upon the lower probability behaviour (e.g., completing homework) the lower probability behaviour will increase.

**Negative Reinforcement**

Negative reinforcement refers to an increase in the frequency of a response following removal of a negative reinforcer (e.g., aversive event or stimulus) immediately after the response occurs. An event is a negative reinforcer only if its removal after a response increases performance of the response. Events that appear to be annoying, undesirable, or
unpleasant are not necessarily negative reinforcers. A negative reinforcer is defined solely by its effect on behaviour.

Negative reinforcement requires some aversive event, such as shock, noise, or isolation which is presented to the individual before he responds. The event is removed or reduced immediately after a response. Negative reinforcement is not punishment. Reinforcement is an increase in the probability of behaviour, while punishment is a decrease. There are two types of negative reinforcements i.e. primary and secondary.

Intense stimuli, such as shock or loud noise, which impinge on the sensory receptors of an organism serve as primary negative reinforcer. The aversive response to them is unlearned.

Secondary negative reinforcement or conditioned aversive events become aversive by being paired with events which already are aversive. For example, disapproving facial expressions or saying the word 'no' can serve as aversive events after being paired with events that are already aversive.

One type of negative reinforcement occurs when an individual escapes from an aversive situation. Both classical and operant conditioning may be involved. An aversive stimulus or event may elicit an escape response (classical conditioning) that serves to terminate the aversive stimulus or event (operant
conditioning). Negative reinforcement is a universal phenomenon. There are many every day situations in which it occurs. Escape from the heat of the noon day sun, close a window to shut off a draft, respond to a child to escape her crying, take off shoes when they pinch feet, and kindle fire to escape cold are the examples of secondary negative reinforcement.

MAXIMIZING THE EFFECT OF POSITIVE REINFORCEMENT

Delay of Reinforcement: One basic principle of behaviour is that immediate reinforcement is more effective than delayed reinforcement (Skinner, 1938). Reynolds (1968) discussed the reasons of ineffectiveness of delayed reinforcement as follows: "... Delayed reinforcement is not as effective as immediate reinforcement, partially because it allows the organism to emit additional behaviour between the response we wish to reinforce and the actual occurrence of the reinforcer; thus, the intervening behaviour is also reinforced, with the result that what is reinforced is the response followed by some other behaviour rather than just the response alone."

Thus, a reinforcer should be delivered immediately after the target response to maximize the effect of reinforcement. If reinforcement does not follow the response immediately, another response different from the target response may be performed in the intervening delay period. The intervening response will be immediately reinforced whereas the target response will be reinforced after a delay period. The target
response is less likely to change. For example, children are often praised (or punished) for a behaviour long after the behaviour is performed. If a child straightens his room, a parent would do well to immediately provide praise. If praise is postponed until the end of the day, a variety of intervening responses may occur (including, perhaps, the messing up of the room).

**Situational Conditions**: Another factor that can facilitate discrimination, and thus rapid learning, is clear specification of the environmental conditions, or stimuli, under which reinforcement will be delivered (Sulzer and Mayer, 1977). If hand raising is to be reinforced during study time but not during recess or discussion time, when only spontaneous participation is reinforced, that should also be specified. Clear specification of the stimuli that must be present if the behaviour is to be reinforced enhances the likelihood that the behaviour will occur at the appropriate time and place.

**Amount of Reinforcement**: The amount of reinforcement delivered for a response also determines the extent to which a response will be performed. The greater is the amount of a reinforcer delivered for a response, the more frequent is the response (Kimble, 1961). The amount can usually be specified in terms such as the quantity of food given, the number of points, or amount of money. Although the magnitude of reinforcement is directly related to performance, there are limits to this
relationship. An unlimited amount of reinforcement does not necessarily maintain a high rate of performance. A reinforcer loses its effect when given in excessive amounts. This is referred to as satiation. Hence, the effect of the magnitude of reinforcement is limited by the point at which the individual becomes satiated.

**Quality or Type of the Reinforcer:** The quality of a reinforcer is not usually specifiable in physical terms as is the amount of the reinforcer (Kimble, 1961). Quality of a reinforcer is determined by the preference of the client. Reinforcers that are highly preferred lead to greater performance. Preference can be altered by taking a reinforcer such as food and changing its taste. For a given client, usually it is not difficult to specify activities which are highly preferred. Behaviours engaged in, frequently provide a helpful indication of highly preferred reinforcers. However, preference for a particular reinforcer depends upon satiation. At one point in time a reinforcer may be more effective in changing behaviour than another as the client is satiated with one and deprived of another (Premack, 1965). Hence, the type of reinforcer alone determines the extent of behaviour change.

**Scheduling of Reinforcement:** Scheduling of reinforcement involves the "rule followed by the environment.... in determining which among the many occurrences of a response will be reinforced". (Reynolds, 1968). It refers to the pattern by
which reinforcers are related to responses. The primary
distinction between schedules of reinforcement is based on
whether every correct response is reinforced (continuous
reinforcement) or whether only some correct responses are
reinforced (intermittent reinforcement). Learning is faster
with continuous reinforcement than with intermittent reinforce-
ment. Therefore, it is often strategic first to teach the
behaviour under continuous reinforcement and then gradually
switch to intermittent reinforcement to maintain it.

REINFORCEMENT SCHEDULES

Reinforcement schedules are of two types, i.e., continuous
and intermittent. Pictorial form of reinforcement schedules
is represented in the following Figure 2.2.

Figure 2.2: Reinforcement Schedules

Continuous Reinforcement Schedule: In this schedule the
response is reinforced each time it occurs. When each instance
of a response is reinforced, the schedule is called continuous
reinforcement.
Intermittent Schedules of Reinforcement: If reinforcement is provided only after some instances of a response but not after each response, the schedule is called intermittent reinforcement. There are four major types of intermittent schedules: Fixed-ratio schedule, variable ratio schedule, fixed interval schedule; and variable interval schedule.

In **fixed-ratio schedules** there is a systematic relationship between the number of times an appropriate operant is emitted and the number of times the reinforcing stimulus is presented. Examples include getting salary based on producing a fixed number of units of a product on an assembly line or a sales bonus based on the number of units sold. If the number of responses needed to obtain a reinforcer is high, a pause in an individual's responding will occur after the reward is given. To eliminate such pauses, the number of responses required for a reinforcer should be kept low.

In **Variable-Ratio Schedule**, a reinforcer is given after a variable number of responses. That is, an individual may receive a reinforcer for every tenth or twentieth response. In laboratory situations, efforts are made to give reinforcer for an average number of responses. In everyday life, variable ratio schedules are encountered while playing golf, poker or slot machines. Every response is not reinforced, nor is the reinforcement given after a predetermined number of responses. A high handicap golfer usually has few 'rewarding' shots.
Their occurrence is somewhat erratic since it is hard to predict when a good shot will be made.

In **Fixed Interval Schedule**, a reinforcer is given after a fixed interval of time, provided the response has occurred at least once during that interval. This can be hourly, weekly, or even monthly. Pay at work and the grades received in school occur on a fixed interval schedule. People tend to increase their responding just before the reinforcer is given and to decrease it afterwards (e.g., cramming before an examination and relaxing afterwards).

In **Variable Interval Schedule**, a reinforcer is given after variable intervals of time. As with the variable ratio schedule, the reinforcer is obtained after an average interval of time (e.g., an average of every 10 minutes). This is not a typical schedule for human beings. An instructor who gives 'pop quizzes' is using a variable interval schedule.

**DIFFERENTIAL REINFORCEMENT SCHEDULES**

Differential reinforcement consists of two basic operations. Firstly, a given response, emitted in the presence of or upon presentation of one or more particular stimuli, is reinforced (is based on extinction) if it is emitted in the absence of the stimulus or a group of stimuli. As a response is repeatedly reinforced in the presence of these particular stimuli, the antecedent stimuli begin to assume control. Eventually the response will tend to persist in the presence of the stimuli, even if it is no longer reinforced every time.
Johnson and Baumeister (1981) have divided behaviour reduction methods into four types based on the principle of positive reinforcement: (1) differential reinforcement of compatible behaviour (DRC); (2) differential reinforcement of incompatible behaviour (DRI); (3) differential reinforcement of other behaviour (DRO); and (4) differential reinforcement of low rates of behaviour (DRL).

Differential Reinforcement of Compatible Behaviour (DRC):

DRC involves the application of reinforcement contingent on a specific response, the emission of which does not prevent simultaneous occurrence of the behaviour targeted for reduction. In this case, the therapeutic goal is to achieve increasingly higher proportions of the reinforced response (e.g., toy play or attention to task) in the behaviour repertoire, reducing aberrant behaviour as a collateral effect. Most researchers and reviewers have included this type of reinforcement procedures under the heading of DRO (e.g., Baumeister and Rollings, 1976; Harris et al., 1978; Schroeder et al., 1979). Johnson et al. (1981) have labelled this approach DRC so as to differentiate between those procedures involving reinforcement of a specific response and the non-specific reinforcement techniques for which the term DRO will be reserved.

The response targeted for reinforcement when using DRC may be chosen for convenience or ease of gaining stimulus control,
such as bar pressing. In these cases, the response chosen for reinforcement is one already in the individual's repertoire or the one likely to be learned quickly. On the other hand, the reinforced responses can be selected as having the potential for serving the same function for the individual as that served previously by the aberrant behaviour. For example, smiling or a verbal greeting could be reinforced when it appears that the aberrant behaviour functions to gain caretaker attention.

A serious shortcoming of DmG is that occurrences of the aberrant behaviour accompanying the reinforced response may be adventitiously reinforced. Due to this reason DRI is often preferred.

**Differential Reinforcement of Incompatible Behaviour (DRI)**

DRI differs from DmG in that performance of the response selected for reinforcement precludes display of the targeted aberrant behaviour, either physically or by definition. The goal is again to decrease target responding as a result of increases in the rate of the reinforced response. Unlike DRC, adventitious reinforcement of the aberrant behaviour targeted for reduction is not a problem with DRI.

DRI schedule uses the rationale that rewarding behaviour which is incompatible with the appropriate behaviour, rather than just an alternative will be more effective. Evidence to support this suggestion is provided by Tarpley and Schroeder (1979) for self injury.
For every undesirable behaviour a child demonstrates, there is a directly opposite or more appropriate desirable behaviour which could take place. For example, isolated play can be replaced by interactive or cooperative play. Out-of-seat running can be replaced by having the child do other activities with his hands. Thus, some undesirable behaviours can be reduced by rewarding the child for performing behaviours which are incompatible (or prevent the occurrence of) the undesirable behaviours (Morris, 1976).

In using this procedure, not just one undesirable behaviour is being extinguished and another desirable behaviour rewarded, rather, the child is taught to perform a behaviour which is incompatible with his performance of the undesirable behaviour. A child can not mumble and talk clearly at the same time, run around in the classroom and sit in his seat at the same time, slap his face with both hands and hold a doll with both hands at the same time, and so forth. The successful use of this procedure, therefore, depends on (1) how adept the therapist is identifying a behaviour which is incompatible with his undesirable behaviour, and (2) whether the therapist can find a reward which is powerful (and attractive) enough to outweigh the positive factors associated with the child's performance of the undesirable behaviour. Obviously, as the desirable behaviour increases in occurrence, the undesirable behaviour will occur less frequently.

Differential Reinforcement of Other Behaviour (DRO):

DRO is defined as a procedure in which positive
reinforcement is applied contingent on time periods with no display of the targeted aberrant behaviour. DRO has also been labeled omission training (Weiher and Harman, 1975). While the latter term is more descriptive, DRO is used here to maintain consistency with the labels used for other positive reinforcement methods.

DRO is a deviant of the differential reinforcement procedure but it is directed specifically at reduction of a particular behaviour. "The DRO schedule refers to a procedure in which a reinforcer follows any performance the (individual) emits except a particular one" (Ferster and Perrott, 1968). DRO is a schedule which requires the subject to withhold a response for a specified period of time. If this is withheld reward is given, if not, the time period begins again from the termination of the response (Reynolds, 1967). Schroeder et al. (1979) pointed out that, if no specific incompatible response is to be reinforced, DRO becomes reinforcement of zero behaviour. A DRO procedure usually includes the programming of reinforcement delivered according to some specific schedule, except when the individual engages in a particular response. Because the reinforcement is contingent upon the omission, rather the commission of a behaviour, the DRO may also be labelled omission training (Sulzer and Mayer, 1977).

As with DRI, the DRO has the advantage that the aberrant behaviour targeted for reduction cannot be adventitiously reinforced, since an aberrant response results in cancellation
of reinforcement. However, DRO does not involve the purposeful involvement of a pre-selected response. Consequently, it suffers from a potential disadvantage that is less apt to occur when DRC or DRI is used (Harris and Ersner-Hershfield, 1978; Hobbs and Goswick, 1977). Furthermore, in cases of high rates occurrences of aberrant behaviour, it can be difficult to find out periods with no occurrence of aberrant behaviour for which to reinforce the individual (Baumeister and Rollings, 1976).

Differential Reinforcement of Low Rates of Behaviour (DRL):

On occasion, certain responses must be reduced but not necessarily eliminated. Consuming small amounts of sugar may be appropriate for a diabetic child, whereas too much can be dangerous. The student who writes too quickly and ends up handing in a sloppy paper, the swimmer who needs to work to perfect a stroke, the ballet dancer who performs more rapidly than called for by the score - all must be slowed down. The procedure best suited for this change is the differential reinforcement of low rates of behaviour (DRL).

DRL schedules specify that a response is not to be reinforced unless a minimum time interval has elapsed since the preceding response. DRL involves reinforcing lower rates of a behaviour. A reinforcer is presented contingent on occurrences of the aberrant behaviour targeted for reduction. When the individual has learned that the display of the aberrant behaviour will be followed by a reinforcer, the...
contingency schedule is gradually changed such as the behaviour must be displayed at increasingly lower rates to receive reinforcement.

Because the reinforcement is presented for increasingly fewer target behaviours regardless of other behaviours that may be occurring, it is possible that other forms of aberrant behaviours may be adventitiously reinforced (Hobbs and Goswick, 1977). Furthermore, as the intervals between aberrant responses are lengthened, the subject receives fewer and fewer reinforcers. This may lead to insufficient density of reinforcement to encourage progress and, in fact, at some point, stimulus control may be lost completely (Mulhern and Baumeister, 1969).

**EXTINCTION**

Extinction refers to a reduction in response frequency following the cessation of reinforcement. A previously reinforced behaviour will decrease when it ceases to produce positive reinforcers or to terminate negative reinforcers. Gelfand and Hartman (1975) defined extinction as a term which is "applied to a procedure in which reinforcement that has previously followed an operant behaviour is discontinued. No restraint is used to prevent the child from performing the behaviour, but, when he does so, he no longer receives the reinforcer. Under extinction procedures, the previously reinforced behaviour generally decreases in rate, perhaps
following temporary rate increase (extinction burst). If the maintaining reinforcer has been identified, extinction procedure can be used. Control over the dispensing of the reinforcer must be gained and it should be consistently withheld following the desired behaviour.

In everyday life, the most common use of extinction is ignoring a behaviour that may have been reinforced previously with attention. A parent may ignore a whining child. A teacher may ignore children who talk without raising their hands. A therapist may ignore certain self-defending statements made by the client. In each of these examples, the prior reinforcer (attention, approval or sympathy) for the response is no longer presented. The absence of reinforcing consequences reduces the behaviour. In clinical applications, the stimuli or events that previously reinforced the behaviour must be identified so that their occurrence can be controlled. Extinction frequently results in a temporary increase in the behaviour and the subsequent decrease. However, such an extinction burst, or temporarily increased response rate, does not always occur when extinction is employed.

When to use Extinction

The optimal situation in which to use an extinction procedure is when the target behaviour has previously been consistently reinforced. When the response has been maintained on a near continuous reinforcement schedule, the extinction
procedure is easily discriminated by the child and takes effect most rapidly. The process can be very slow if the target behaviour was maintained on a lean intermittent schedule. It might be some times before the child discovers that no more reinforcement is forthcoming for the target behaviour, and the resistance to extinction of behaviours maintained on intermittent schedules is a well-documented phenomenon (Ferster and Skinner, 1957).

PUNISHMENT

The term 'punishment' has many connotations. Some see it as a physical pain applied by one individual to another individual. For example, mother wishes to convince her son that it is naughty to pull the table cloth off the table. She slaps his hands vigorously so that he really feels it. She apparently believes that it is the pain that enhances the probability of his learning that table cloth snatching is bad.

Others view punishment as a psychological 'hurt' administered to an individual or a group. An example of this notion is the teacher who holds a youth up to public ridicule before the class i.e., to 'hurt' him psychologically. Furthermore, an event may be described as punishing by the person who administers it while the recipient does not actually feel punished. For example, adults are likely to identify spanking as a punishing activity. Yet a child or youth may solicit spanking because of the concurrent reinforcement in the form
of attention. Spanking is then not necessarily punishing.

Different interpretations are attached to punishment in other situations. Therefore, operational definition of punishment by Azrin and Holz (1966) is more suitable. According to Azrin and Holz (1966), "Punishment is a procedure in which the presentation of a stimulus contingent upon behaviour reduces the rate of emission of the behaviour." Punishment can be said to have occurred only if the individual's rate of emitting the dependent behaviour has been demonstrably reduced. Punishment, like reinforcement, is defined solely by its effect upon behaviour.

There are two types of punishment, positive and negative (Mikulas, 1978).

Positive Punishment

Positive punishment is a contingent event whose onset or increase results in a decrease in the probability of the behaviour it is contingent upon. This is what most people mean when they use the word 'punishment'. If every time a student tells his algebra teacher he is having trouble keeping up with the class he is then, given extra remedial work. The extra work then may act as a punisher resulting in a decrease in asking for help. Again, if each time the child starts eating his mother's house plants she shows disapproval and if this disapproval reduces the probability of the child's eating the plants in the future, then the disapproval is positive.
punishment. Disapproval, criticism, pain, and fines are common forms of positive punishment.

As a behaviour change procedure, punishment has many disadvantages and possible side effects. Punishing an undesirable behaviour does not necessarily result in desirable behaviours. Punishment may condition in reactions such as fear, anxiety, or hate to the people who administer the punishment or the situation in which it occurs. Attempted punishment of an escape or avoidance response may rather increase the strength of the avoidance. Children may model after their parents and learn to hit people when mad. Finally, punished people may become generally less flexible and adaptable in their behaviours.

If punishment is to be used, it needs to be applied immediately after the behaviour and applied consistently. The earlier the punishment occurs in the response chain, the better it is for then it may stop or disrupt a sequence of undesired behaviours. Punishment should generally be coupled with extinction and reinforcing of alternative behaviours. If possible, punishment should be viewed, by all people involved, as part of a contractual agreement rather than a personal attack.

Fox and Azrin (1973) experimented with a form of positive punishment which they called 'overcorrection'. It is a procedure which aims to prevent the child (physically) from engaging in
the problem behaviour. Fox and Azrin (1973) described two types of overcorrection - positive practice over correction and restitutio nal over correction.

**Positive Practice Overcorrection:** In positive practice overcorrection the person is required to practise correct or functional behaviours contingent upon instances of misbehaviour. For example, the child tipping over the bricks should be required not only to pick up all the toys but to place each toy into its appropriate drawer. In the case of the child scribbling on the walls he would be required to copy a set of patterns using a pencil and paper, that is, practise appropriate behaviours with a pencil rather than inappropriate wall scribblings.

**Restitutional Overcorrection:** In restitutio nal overcorrection, clients must correct the results of their misbehaviour to a better-than-normal state. A child who marks on the wall may be required to erase the marks and wash the entire wall as well. A child who turns over chairs may be required to set up those chairs and straighten up the rest of the furniture. Screaming may require a period of exceptional quiet. A child who tips a box of bricks onto the floor would be required to pick up the bricks and pick up all the other toys on the floor.

**Negative Punishment**

Negative punishment is a contingent event whose offset or decrease results in a decrease in the behaviour it is
contingent on. This generally consists of taking away something that is reinforcing from a person when he misbehaves, i.e., it corresponds to decrease in something desirable following some behaviour. If every time a person stutters, it briefly turns off a movie he is watching and describing and if this results in a decrease in stuttering, then the offset of movie is a negative punisher for stuttering. The procedure of negative reinforcement generally results in positive punishment and/or extinction. In behaviour modification there are two major forms of negative punishment, response cost and time out (Mikulas, 1978).

Response cost: Response cost is the withdrawal or loss of a reinforcement contingent on a behaviour. This may be the loss or fine of tokens in a token system, such as a fine for the use of abusive language in the classroom. Response cost has been used to suppress a variety of behaviours such as smoking, over eating, stuttering, psychotic talk, aggressiveness, and tardiness (Kazdin, 1975).

Gearheart et al. (1986) described response cost procedures as those in which reinforcers are removed as a consequence of inappropriate behaviours. If they are used properly, specific amounts of reward must be removed for specified behaviour. In applying response cost in the classroom, it must be certain that there are reinforcers to remove. This has been accomplished in some classrooms by 'giving' all students X points or tokens at the start of each day, which may be exchanged for a variety
of privileges or rewards (use of just one privilege would not necessarily be a reward for all students). Then if certain behaviours are exhibited, students lose points. In such systems it is important that students understand rules and it is usually best to penalize sparingly. A reverse of reinforcement from which to extract the cost is essential.

It is possible to apply response cost to tangible reinforcers. For instance, the parent may take away the child's food contingent upon some misbehaviour. Because of the nature of response cost procedure, its use in applied settings is usually limited to the withdrawal of exchangeable or other conditioned reinforcers like grades, points and tokens. In order to remove specified amounts of a reinforcer, the individual must have some level of positive reinforcement available in order to provide the opportunity for withdrawing that reinforcement (Azrin and Holz, 1966). Little would be accomplished by imposing fine on someone who had no money, and it would be impossible to remove a primary reinforcer that had already been consumed.

Deprivation of privileges, following misbehaviour also constitutes a response cost procedure. A teacher might deprive a child of recess time for making excessive noise during class, or a parent may deprive a child of television viewing time and of his food in an effort to control his child's lying or stealing. In the preceding example, tokens or points are neither administered nor confiscated, although the child pays a penalty for improper behaviour.
Possible advantages of response cost are that it may have fewer aversive side effects than positive punishment and it leaves a person in the learning situation, which time out does not.

**Time out:** Time out (or time out from reinforcement) is the punishment procedure in which the punishment is a period of time during which reinforcement is not available. For example, time out has been an effective punishment procedure in the classroom. If a child misbehaves, he may be sent to spend ten minutes in a time out area, perhaps a screened off corner in the back of the classroom (Mikulas, 1978).

According to Alberto and Troutman (1982), time out is a procedure used to reduce inappropriate behaviour, in which an access to reinforcement (to the opportunity to be reinforced) is removed for some specified period of time. Time out is usually considered as a separate procedure for reducing inappropriate behaviour but may also be considered by some as a type of punishment. Time out includes placement outside the room e.g., in the hall as standing on a chair or on the floor or in an established 'time out room'.

According to Longman's Dictionary of Psychology and Psychiatry (1984) "In operant conditioning, time out is a time interval during which a behaviour does not occur. A time out procedure may be used to eliminate stimulus effects of earlier behaviours or as a marker in the series of events".
It is very easy to abuse time out. Time out should not be used to stop a problem behaviour when the behaviour is really caused by something wrong in the teaching programme and not by something wrong in the child. Before using time out, problem behaviour should be tried to replace with a good behaviour, and it should be made sure that teaching sessions are rewarding. Time out should never be the usual way of teaching (Kozloff, 1974).

For selecting Time out Location, discretion must be used in selecting an isolated location. A lively, crowded school hall may provide rich sources of reinforcement for the child who is supposedly timed out from classroom activities. The child's own bedroom may contain attractive toys, books, or other amusements that preclude its use as a time out room. For these reasons, bathrooms are often used as isolation areas; in the home, corridors and stairways may be convenient locations. In classroom settings, younger children might be seated in a chair facing the wall, and the older children can be sent to vacant school rooms. In individual tutoring projects, the tutor can turn away and busy himself with other activities or can leave the tutoring room in order to administer time out to the child. To a very young child, the adult can simply turn away from the child briefly to give him a time out.

Highly unpleasant locations for time out should not be used. Dark and cob webbed basement rooms can frighten the child severely and cause him engage in much emotional and escape behaviour. The objective is to deter and not to frighten the child.
Again, so far as time out duration is concerned, as yet no firm guidelines are available. In research and clinical reports, time outs have varied in length from a brief as a few seconds to as long as several hours. Most clinical programmes directed towards children have employed time out duration between 30 seconds and 10 minutes. Generally, the younger is the child, the briefer should be the time out used. Brevity is desirable for several reasons. Firstly, it minimizes the time during which the child is removed from the learning situation. Secondly, very long time outs have been found to disrupt both correct and incorrect responding of animal subjects, i.e., extremely long time outs can have a generally suppressing effect on behaviour. Brief time out periods can prove effective when the child has not previously been exposed to longer time out intervals.

Concerning Return from Time out, it is important not to terminate time out because of a child's protests against it or his assault on the time out room. Giving way in the face of such behaviour may well act to reinforce the child's violence. Time out room should be cleared of delicate and valuable items in advance. If the child throws water around the room or otherwise messes up things, he should clean up the things before he is released from time out. Extra minutes in time out should be made contingent upon room damage.

With regard to the administering of Time out, the child should be escorted to the room in a calm but firm and business-
like manner. He should be told the rules for the length of
time he must stay in time out and under what conditions he
can earn release. No arguments should be made rather just
instructions should be given and these rules should be carried
out. Child's return from time out should be allowed only
when his misbehaviour has ceased for some predetermined interval.
Allowing a child to return while he is still yelling or kicking
can reinforce that type of behaviour, whereas terminating the
time out contingent upon good behaviour will reinforce the
desired behaviour, such as ceasing tantrums and other protest
behaviour.

AVERSIVE STIMULATION

White (1971) has defined an aversive stimulus as an
event or an object, "the removal of which is reinforcing....
or which may suppress responding that just precedes its
presentation". There are three closely related procedures
which involve aversive stimulation - punishment, avoidance,
and escape. Methods using aversive stimuli to reduce aberrant
behaviour involve one or more of these procedures.

Probably one of the most useful definitions of punishment
was offered by Azrin and Holz (1966) when they said that
punishment is "a reduction of the future probability of
a specific response as a result of the immediate delivery
of a stimulus for (following) that response." In other words,
punishment techniques are those in which a stimulus (an event)
is delivered following occurrences of the target aberrant
behaviour with the intent of decreasing future occurrences
of the behaviour. Examples of punishment include hand slaps, squirting a liquid into a subject's mouth, and electric shock. When these are delivered following occurrences of the behaviour one is interested in decreasing that behaviour. Time out response cost, overcorrection, and aversive stimulation involve punishment.

Although punishment is the most frequent use of aversive stimulation, avoidance and escape procedures have also been successfully employed to reduce aberrant behaviours. Typically, avoidance procedures involve a discriminative stimulus or warning to let the individual know that future occurrences of the aberrant behaviour will result in aversive stimulation. For example, the trainer may say 'no', and give the individual an opportunity to avoid a subsequent electric shock by not hitting or biting himself again.

With escape procedures, a response incompatible with the targeted behaviour, terminates an ongoing aversive stimulus. Termination of the stimulus is negative reinforcement. Again, in some procedures the response may be any behaviour, including 'doing nothing', provided that the targeted aberrant behaviour is not displayed. An example of an escape procedure for reducing non compliance might involve activating a low intensity shock delivered through a belt device, then issuing a verbal instruction, and finally turning off the shock immediately upon compliance with the instruction.
Aversive stimulation involving punishment procedure includes a hand slap, verbal reprimands, electric shocks, unpleasant tasting solutions such as lemon juice, and citric acid, inhalation of aromatic ammonia, contingent scolding, tapping with finger on the back of the subject's hand or arm, squeezing the subject's arm or neck etc.

Guidelines for the Effective and Human Use of Punishment to Control Aggression

Punishment is a controversial topic and an easily abused method to control aggression. Kauffman (1981) has suggested the following acceptable guidelines for the effective, humane use of punishment to control aggression:

(1) Use it only when positive methods fail and the aggressive behaviour is worse than the punishment.

(2) Make sure that the punisher is warm, loving person who gives the child lots of positive reinforcement for non aggressive behaviour.

(3) Administer punishment fairly, consistently, and without anger, threats, or moralizing. Punish immediately and only for behaviours the child has been told are punishable.

(4) Make the punishment reasonable in intensity and whenever possible, related to the offence e.g., cleaning floors for throwing food.
(5) Use the rewards rather than inflict pain whenever possible.

(6) Use self control techniques (e.g., self-monitoring, self-instruction) in conjunction with punishment, if possible.

(7) Remember that the punishment is to help the child gain self-control.

The present study was carried out in the ICDS centres of Chandigarh. Hence, ICDS scheme is discussed in brief in the following pages:

**INTEGRATED CHILD DEVELOPMENT SERVICES SCHEME (ICDS)**

High infant mortality rate, high levels of morbidity, high incidence of malnutrition and nutrition-related diseases, temporary or irreversible disorders, low literacy rates - these are some of the prospects staring at 10 million children under six years of age in India. Against such a grim background, the Government of India formulated a comprehensive child survival and development scheme drawing the resources of the Centre, States, Voluntary Organizations and the community themselves.

In pursuance of the National Policy for children which laid emphasis on the integrated delivery of early childhood services and services for expectant and nursing women, and based on the recommendations of the Inter-Ministry Study Team set up by the Planning Commission, the scheme of Integrated Child Development Services (ICDS) was evolved to
make a coordinated effort for an integrated programme of
delivery of a package of such services (NIPCCD, 1984). ICDS
is centrally sponsored programme and is implemented with
hundred per cent financial assistance from the central
government. This plan was launched with only 33 projects
in 1975. Within ten years, it has extended to 1356 projects.
In 1985, ICDS covered 1189 of a total of 5092 community develop­
ment blocks and 157 urban slums in the country (Figure 2.3).
By the end of September, 1986, there were 1,605 ICDS projects
(Ministry of Human Resource Development). Under the 1985-90
plan, the government intends to extend the programme to cover
40 per cent of the administrative blocks. Targets of various
services to be reached during the Sixth Five Year Plan are
given in Figure 2.4 and year-wise expansion and expenditure
of ICDS is given in Figure 2.5.

OBJECTIVES OF ICDS:

(i) Improve the nutritional and health status of
children in the age group 0-6 years;

(ii) Lay the foundations for the proper psychological,
physical, and social development of the child;

(iii) Reduce the incidence of mortality, morbidity,
malnutrition, and school drop out;

(iv) Achieve effective policy and its implementation amongst
the various departments to promote child development; and
FIG. 2.3  A DECADE OF ICDS (1975-1985)

TOTAL ICDS BLOCKS IN THE COUNTRY (1985) = 5092

COMMUNITY DEVELOPMENT BLOCKS UNDER ICDS

**Figure 2.4: Targets of the Sixth Five Year Plan, 1980-85.**

<table>
<thead>
<tr>
<th>Category</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunization and Health check-ups</td>
<td>10.4 million children</td>
</tr>
<tr>
<td>Supplementary Nutrition</td>
<td>6.1 million children</td>
</tr>
<tr>
<td></td>
<td>1.2 million women</td>
</tr>
<tr>
<td>Pre-school Education</td>
<td>3.0 million children</td>
</tr>
<tr>
<td>Non-formal Education</td>
<td>2.4 million women</td>
</tr>
</tbody>
</table>

*Source: Sadka, 1984.*
**FIG. 2.5** INTEGRATED CHILD DEVELOPMENT SERVICES

- **EXPENDITURE (Rupees in crores)**
- **NUMBER OF PROJECTS (Cumulative)**

Total AWs in India: 63,267
Total 0-6 years beneficiaries: 3,420,000
1 Crore = 10 million

Enhance or strengthen the capacity of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.

The present study is centred around the objective 'laying the foundations for the proper psychological, physical and social development'. To achieve this objective, ICDS provides non-formal education to children in the age group 3 to 5+ at the anganwadis. The intention is not to impart formal learning but develop in the child desirable attitudes, values and behaviour patterns, and provide environmental stimulation. This task is carried out by anganwadi workers. They are local women who are appointed on an honorary basis to provide an integrated package of health, nutritional and educational services to children below six years of age, pregnant women and nursing mothers. The anganwadi worker assumes a pivotal role in the ICDS structure due to her close and continuous contact with the community. As a crucial link between the village population and the government administration, she becomes a central figure in ascertaining and meeting the needs of the community she lives in. Mukhya Sevikas (Supervisors) and Child Development Project Officer support and supervise anganwadi workers.
CONVERGENCE OF SERVICES

The convergence of inputs and services of ICDS is a clear trend which cuts across all the levels of planning and implementation process (Sadka, 1984). On drawing on the resources of a wide spectrum of Central Ministries as well as of State Departments, ICDS has assumed an advocacy role on behalf of children especially with reference to government ministries and departments which have not previously considered development of children as their priority. ICDS extends beyond the existing health and education systems to reach children and their mothers in villages, tribal areas and urban slums and deliver to them an integrated package of essential early childhood services such as non-formal pre-school education, immunization and health check-ups as shown in figure 2.6.

The above pattern is based on the concept that the services for children must collaborate and function in tandem if they are to have lasting value, and if their total impact is to be more than the sum of their separate efforts (Kohli, 1988).

INTEGRATED CHILD DEVELOPMENT SERVICES (ICDS) IN CHANDIGARH

The ICDS Project, Chandigarh was started on 1st August, 1979 with 24 anganwadis (AWs). At that time estimated population of rural and slum areas of Chandigarh was 50,000. Later on in December, 1979 Manimajra Town which had a population of 20,000 was included in the project and number of AWs rose
FIG. 2.6 CONVERGENCE OF SERVICES

to 70. The purpose behind this scheme was to provide preschool education, nutrition, and health services to cover children between 3 to 6 years. Pregnant and nursing mothers were also to be provided with nutrition and regular health check up. Similarly, children below three years were also to be given priority in providing health services to reduce mortality.

The scheme is being run by health and social welfare departments. The communities both rural and urban have shown much enthusiasm and encouragement towards this scheme. At present, there are two ICDS projects in Chandigarh and a total of 200 AWS i.e., 100 AWS in each of the two projects are being run. Project I is comprised of 74 rural and 86 urban AWS and Project II consists of 47 rural and 53 urban AWS. Total population enrolled in AWS and average attendance of pregnant women, nursing mothers, of both projects is represented in Table 2.1 (figures are obtained from ICDS records, Chandigarh, 1988).

Table 2.1
ICDS beneficiaries in Chandigarh

<table>
<thead>
<tr>
<th>Category</th>
<th>Total Population</th>
<th>Enrolled</th>
<th>Average Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Project I</td>
<td>Project II</td>
<td>Project I</td>
</tr>
<tr>
<td>Pregnant women</td>
<td>1325</td>
<td>1580</td>
<td>876</td>
</tr>
<tr>
<td>Nursing mothers</td>
<td>1522</td>
<td>1963</td>
<td>922</td>
</tr>
<tr>
<td>Children with an age-range of 6 months to 3 years.</td>
<td>6610</td>
<td>7831</td>
<td>-</td>
</tr>
<tr>
<td>Children with an age-range of 3 years to 6 years.</td>
<td>8674</td>
<td>9070</td>
<td>3844</td>
</tr>
</tbody>
</table>
Table 2.1 shows that total population of 3 to 6 years of age in Chandigarh was 8674 under Project I and 9070 under Project II. Total children enrolled in the Projects I and II were 3844 and 3995 respectively (ICDS, 1988). Average attendance of children with age range of 3 to 6 years in Projects I and II was 3359 and 3199 respectively. Representative sample of the present study was taken from these Projects. Details for the sample are given in Chapter V. Lists of AWs of both Projects are given in Appendix-VII.