II. THEORETICAL BACKGROUND

The present investigation explores the efficacy of early intervention in integrated preschool settings. It has been carried out on normally developing children, as well as on children having mild mental retardation and developmental delays by integrating them with their normal peers. Intervention to non-handicapped normally developing children has been given on the pretext that the developmental process encompasses a wide range of abilities; and every child, falls somewhere on the continuum of skills and abilities where he/she requires little or more assistance, time, and techniques to reach his/her maximum potential. Since this study deals with all round development of preschool children, (with or without handicaps) so the important aspects related to this study namely, the Early Childhood Special Education, the developmental domains, and a brief description of mental retardation have been presented for the perusal of readers.
Early Childhood Special Education

Early Childhood Special Education has emerged from three separate fields of education namely, (a) Special Education, (b) Early Childhood Education, and (c) Compensatory Education (which paved the path for early intervention movement). Early Childhood Special Education is still in its infancy, with a very short history but a rich legacy of values and educational practices from its parent fields, which have been touched upon with regard to their historical perspectives. In India these fields are in their 'embryonic stage' (Jangira & Mukhopadhyay, 1991) and we are incorporating the programmes and strategies of the developed nations into our educational stream, so the historical perspective has been presented with reference to the developed nations.

Special Education

Special Education is specially designed instruction intended to meet the particular needs of exceptional children (Kneedlar et al., 1984). As a
discipline, this field deals with individuals at all age levels exhibiting all types and degrees of exceptionality. Recently, the notion of special education has become more instructionally oriented. It includes a variety of services, materials, equipment and instructional methods that exceptional learners need as supplementary or alternative educational support to perform optimally within their milieu. These services can be provided in a variety of settings such as regular and special classes in schools, day care centres, preschools, workshops and vocational training programmes.

The historical perspective of Special Education can be attributed to the changes in societal attitudes towards disadvantaged, deviant or handicapped persons. It is an account of the growing awareness and concern for the welfare of these persons. Its history is more than the facts and dates listed here. Pereire (1715-1760) was the pioneer in this field who proved that a deaf person could be taught communication skills. Itard (1775-1838) introduced the notion that a mentally subnormal child could be taught through systematic stimulation and
teaching. Braille (1809-1852) a French, was the first to develop a system of reading and writing for the blind which was based upon an arrangement of raised dots in a six-dot cell providing for all the 63 braille characters, and is known as the standard English Braille System. Seguin (1812-1880) developed teaching techniques for retarded persons that included special materials. These were later studied and perfected by Montessori (1870-1952) who advocated that mentally deficient children benefited more from educational rather than medical techniques. Her efforts brought forth the striking revelation that the teaching methods used for mentally deficient children could be fruitfully used for their normal peers also. Galton (1822-1911) coined the term 'eugenics' calling it as a science that deals with factors which improve the inborn qualities of a race. He earned repute for his work on individual differences in human abilities.

In the U.S.A., the council for exceptional children was founded by a few special education teachers in the second decade of this century. Farrell, its first president stressed the need for
adequate education programmes for special needs children and special training programmes for the special educators. This led to the first ever attempt of integrating handicapped with non-handicapped children in a private school. However, the growth of these special services was hampered by the Great Depression.

The effects of the world war II resulted in the recognition of the value of handicapped workers in industry and of the needs of the disabled, which was a significant shift in attitudes. This set the stage for a new and historic phase of special education in public schools. The extensive screening and testing of young men and women for services in the military assessed a large number of Americans as physically, mentally, and behaviourally handicapped - a number that was far beyond the expected proportions. This alarming ratio of disabled persons prompted the government and the public to take immediate and effective measures to combat this situation. To add to the grimness of the present situation, the world war II rendered thousands of men and women disabled. This resulted in a drastic change in the societal
attitude towards the handicapped. People became more sensitive to the plight of handicapped persons and it was no longer considered disgraceful to be related to a handicapped person.

A major thrust in improving the education and care of the handicapped was observed with the public law 94-142 coming into full effect in the U.S.A. Between 1947 and 1980 an explosion of services for the handicapped resulted in the establishment of various institutions and associations, for example, in the year 1950, the first institute for research on exceptional children was established. The National Association for Retarded Citizens and many other associations of parents of exceptional children came into being. The U.S. Education department started granting funds for developing educational programmes for mentally retarded children and also for training teachers of the retarded. 1960s brought about one of the most significant milestones with the deinstitutionalization of handicapped children. There was a reawakening in the minds of people, and they identified special education with the civil rights movement, thereby questioning segregated special
classes. Consequently, the federal laws in the U.S. established the right of every child to a free and appropriate education.

**Recent Trends**

In the developed nations, greater importance is now given to criterion referenced tests, besides standardized tests. In case of the norm referenced tests, the norms are being revised by taking up more and more representative samples of the target population and including performers who are at the lower end of the scale. There has been a change in the interpretation methods too, and now the educational decisions on a child are not based on a single test score, rather a number of assessment procedures are taken account of before diagnosing a child.

**Individualized Education Programme (IEP).**

In order to optimize the learning of each handicapped child, individualized education programmes are coming into greater use nowadays. This programme is based on the assessment results and
information provided by the child’s parents. Outlined in writing, this plan is developed by the child’s teacher in co-ordination with a representative from the evaluation team, a representative from the school, the child’s parents, and the child himself — if the need so arises. Periodic revision and updating ensures the success and effectiveness of individualized education plans.

Due Process.

Principles governing Due Process ensure that the decision pertaining to a child’s placement should not be taken by the school personnel alone. This is to prevent a child from unnecessary and improper labelling and placement without giving due consideration to the child’s needs, informed consent by the child’s parents, or legal representative. Due process makes the parents active participants in taking decisions about their child’s education, placement and progress.

Least Restrictive Environment (LRE).

The concept of Least Restrictive Environment
requires that children should not be needlessly segregated. It has resulted in grouping mildly handicapped children with their non-handicapped peers in regular classes. To be more precise "least restrictive environment means placing the handicapped child in as normal an environment as is consistent with an appropriate education" (Kneedlar et al., 1984). It is an attempt to let the retarded individuals function in a more normalizing environment thereby keeping them in the mainstream of society. This has also encouraged the special educators to give due consideration to all placement alternatives before placing any child in a particular setting.

**Early Childhood Education**

Interest in the early education of children is not a recent phenomenon. Centuries ago philosophers like Comenius (1592-1670), Rousseau (1712-1778) and Pestalozzi (1747-1827) realized the significance of the early years of life and stressed the importance of early childhood as a time of learning. It was probably in the late 1800s that some of the first
nursery schools appeared in Germany, Italy and England.

**The Kindergarten Movement.**

Frederick Froebel’s efforts to instruct the young children initiated the Kindergarten movement, both in the United States and Europe. Froebel’s Kindergarten included various activities for 3 to 6 years old children namely, ‘The Gifts’, ‘The Occupations’ and ‘The Mother’s Plays’. ‘The Gifts’ included objects, ‘The Occupations’ included activities that stimulated artistic expression in children and introduced experiences that children should be familiar with, and ‘The mother’s Plays’ consisted of games and songs. As his ideas became popular, a greater need was felt to train teachers, so he involved himself in this job. Froebel’s contributions had a lasting importance and eventually became the backbone of early childhood practices in America (Peterson, 1987).

**The Nursery School Movement.**

The historical roots of nursery schools can be
traced to the establishment of the first nursery school by Rachel and Margaret MacMillan in London. Initially set up as a health clinic, it was later converted into an open air school which was eventually named 'Nursery School'. Simultaneously Maria Montessori (1870-1952) started the first nursery school in Italy. The objectives, the populations served, and the social concern of both the British, and the Montessori schools were similar as their philosophies were influenced by Seguin rather than by Froebel. The only difference was that whereas the British nursery schools were broadly conceived and delivered comprehensive programmes involving the parents, the Montessori system was somewhat narrowly defined. In England, the nursery school concept, as evolved by the MacMillan sisters was an instant success but did not progress satisfactorily for want of funds. Maria Montessori's extensive lecturing and writing lead to expansion of Montessori methods the world over. There has been a rise and fall of interest in the Montessori methods in the present century, nevertheless, her ideas have had a significant impact on the early childhood education.
"Despite the existence of this long term connection between preschool and social reform, actual support for preschool has been intermittent, being picked up and abandoned as a function of economic, social, and political forces" (Karweit, 1989).

Compensatory Education

Compensatory education is meant to compensate for deficits (real or perceived) in the education and early experiences of disadvantaged children. The notion of early intervention came into being as a result of this movement. Projects "Head Start" and "Follow Through" are its major programmes.

Project Head Start.

The project Head Start came into practice on the established beliefs that children belonging to lower socio-economic families tended to perform poorly intellectually and scholastically, and that not only the impoverished environments, but also the low socio-economic status was the cause of
developmental retardation. Hence this project was conceived on the belief that education would help children come out of the cycle of poverty. Not merely a preschool readiness programme, it was meant to cater to all aspects of a child’s early development and effect changes in the community.

Research provides evidence that Head Start which was conceived about three decades back in the developed countries has been successful in achieving its targets.

**Project Follow Through.**

Project Follow Through, as the name implies, was launched keeping in mind the need for continuous intervention in order to maintain the developmental and learning gains that occurred as a result of Head Start. Initially it was meant to be an early childhood service programme for low socio-economic status children in primary grades but later it assumed a new dimension and came to be known as an experimental research and development programme and one of the most significant educational experiments to date (Peterson, 1987).
The Developmental Domains

Since the present investigation aims at enhancing all round development of preschool children, the various development domains namely, motor development, social development, language development, and cognitive development, as they occur in the early childhood years, have been briefly discussed in the following pages:

Motor Development

Motor development is an important aspect of a child’s overall development as this helps the child in becoming independent and self confident. Motor development necessitates a child to use his muscles and be able to control his environment without any assistance from others. Motor development is related to a child’s personal and social adjustment and greatly influences the child’s self concept and personality development. A child having an adequate motor development is able to amuse and entertain himself by playing with his toys and peers, but if these skills are not adequately developed he tends to
be lonely and becomes a group liability.

Motor development occurs as a result of development of motor areas in the brain. It is during the early years of life that cerebellum or the lower brain develops rapidly which results in control over the body, and matures fully by the time a child is five years old. Cerebrum or the upper brain also develops during the early childhood years which parallels skilled movements. However, it is not only maturation, but also the learning opportunities that enhance the pace of motor development. Therefore training in the development of motor skills, based on adequate knowledge of maturation of the neuromuscular system is beneficial to a young child in enhancement of motor skills.

Motor development is influenced by genetic constitution, prenatal factors like an active fetus unless impeded by incongenial environmental conditions, and favourable parental conditions which include maternal nutrition, general health and nutrition of the child during the early postnatal life. It is however hampered by a difficult birth,
especially when temporary brain damage occurs, a premature birth, or any other physical impairment. Early stimulation, encouragement, and training in the use of all parts of body speeds up the motor development (Hurlock, 1956).

**Social Development**

With physical growth and mental development of children comes the development of emotional control and social participation. This area of development covers observed behaviours such as an increasing sense of responsibility, development of self confidence, interests in surroundings, and interest in the adult world. Social development is characterized by acquisition of desirable personality traits and character (Garret, 1961). Little children are attracted to others for functional reasons generally but sometimes they seek others’ company when there is no such need, when being associated with others holds a value of its own, when becoming the centre of attraction holds a great psychological value - all this is called social development (Lindgren, 1971).
Little children aren’t socially minded and cannot share their belongings with others. A major responsibility of parents and educators at the preschool stage is to inculcate habits of respecting the rights of others and willingness to share one’s things with other children. A two years old child will be less social than a three or four years old. Social influences appear in the play of children at three to four years of age when they engage in co-operative play. This is the stage when the child should be provided ample opportunities to interact socially with others. During this stage reinforcement and opportunities for imitation play an important role in the social learning which results from a child’s interaction with others. Social development too is related to physical growth and maturity, and mental abilities though the correlation is not a perfect one.

**Language Development**

Language development probably is the most crucial factor that promotes the intellectual growth of a child, and is considered a prerequisite to many
developmental milestones in the cognitive and social domains. Language is instrumental in helping a growing child explore his environment with interest and acquire new experiences. Language improves the communication of a child and gives him an increasing control over himself and his environment. As a young child acquires language, basic concepts help him to narrate his surroundings and experiences. The knowledge of basic concepts is also necessary for development of child’s thinking and problem solving skills. Mentally retarded children frequently experience difficulties in language. Mildly retarded children begin to talk late, but muteness is generally not found among these children.

It has been established that preschool children, who are at-risk for later learning are often delayed in language and tend to experience more difficulty with basic concepts (Kavale, 1982; Nelson & Cummings, 1981). Research on the acquisition of relational concepts suggests that concepts are learned in developmental stages and over a time period, so testing a child’s knowledge of basic concepts allows caregivers and teachers to detect
possible delays in the development.

During the preschool years, children gradually master a variety of basic concepts, and the knowledge of basic concepts is very important for a child to understand the teacher's instructions, directions and also the content being communicated in the classroom. Adequate knowledge of basic concepts effects the child's achievement positively (Beech, 1981; Brown, 1976; deVilliers & deVilliers, 1978; Estes et al., 1976; Klausmeier & Sipple, 1980; Moers & Harris, 1978). Early detection and remediation of deficits in concept formation helps children to start formal schooling with a better understanding of language considered necessary for achievement in the initial years of school.

Cognitive Development

Cognition is one of the most significant aspects of child development and is also one of the better researched areas in child development. Many psychologists have propounded theories on cognitive development. Discussing all of them would be taking
this issue out of proportion. However, Piaget’s views on cognitive development have been briefly discussed because the work of many contemporary developmental psychologists has been greatly influenced by Piaget’s views, and his theory of cognitive development is undoubtedly the most systematic study yet made. To understand it more clearly it is essential to understand his definition of terms ‘the cognitive operations’ comprising intelligent behaviour, and ‘stages of development’ through which one achieves cognitive competence (Piaget, 1960, 1963, 1970). Piaget has viewed intelligence as a changeable and not a fixed entity, ‘a developmental phenomenon’ that evolves through one’s experience and interaction with the environment. With the passage of time these cognitive operations change both quantitatively as well as qualitatively. He has depicted intelligence as ‘an adaptive process’ and considered has individual’s interaction with his environment as an adaptive process that involves two types of actions, that is, ‘accommodation’ and ‘assimilation’. Whereas an individual’s adjustment with the situation is called accommodation, the modification of environment to suit one’s needs is called assimilation. Piaget
has maintained that intelligence or adaptive process is the continuous use of these processes in order to maintain ‘equilibrium’ thereby, resulting in continuous development. Behaviour patterns (termed as ‘schemas’ by Piaget) have been considered basic structure of an individual’s mental equipment. When a child performs certain behaviour patterns repeatedly, they become more stabilized. As a child acquires more and more behaviour patterns, they combine to form more complex response patterns. Hence the more opportunities that a child gets to acquire and practice different behaviour patterns, the more the chances for achieving higher levels of cognitive proficiency.

Piaget has also identified four major stages of development through which every individual passes in the same order, though at different rates. Each stage is a prerequisite to the next and builds upon the intellectual achievements of its precursor (Peterson, 1987). The first stage from 0-2 years is termed as the period of sensorimotor intelligence in which a child deals with concrete aspects and learns by doing. The second stage from 2-7 years is known as
the *period of pre-operational* thought when the child is able to think and talk about things not present physically. The third stage, that is the *period of concrete operation*, extends from 7-11 years wherein the child forms well organized cognitive systems and is able to deal with a wide range of problems. The fourth and the last stage starts from 11 years onwards, that is, when the child is capable of imagining what is possible and not just what is real (for more details refer Piaget, 1960, 1963, 1970).

This study is based on the premise that environmental mediation influences intellectual abilities of children, hence it is necessary to list some other influences that effect intellectual functioning, for the information of the readers. Interaction of many complex factors is reflected in the intellectual growth of children. Genetic programming, nutritional status, and environmental influences affect the course of mental development (Wilson, 1978). **Children do not inherit an IQ.** They inherit a collection of genes called genotype for intelligence. The expression of the genotype, called the phenotype (the observable performance of
individuals), results from the interaction of the genotype with environmental experiences.

Bouchard and Segal (1985), have considered the following environmental influences as significant in influencing the intellectual functioning:
(a) prenatal and early developmental influences;
(b) malnutrition and famine; (c) family background (for example, income, education, occupation and home atmosphere); (d) specific home environmental factors (namely press for achievement motivation, language development and provision for general learning);
(e) family configuration (for example, the birth order, family size and birth intervals among siblings); and (f) schooling (involving the quality, extent and participation of child in preschool enrichment programmes).

Environmental influences play a vital role in fostering in a child an enthusiasm to learn and provide him opportunities to develop fully. A supportive and stimulating family environment is required for a child for realization of his/her maximum potential (Sattler, 1988). Whereas, genes set the limits of phenotype, the environment determines
the range in which a child’s final IQ will fall. The nature-nurture controversy can be reduced to the single issue of how wide the range of reaction is. Those in favour of environmental explanations argue for a wide reaction range of 50, 70 or even 100 IQ points, and those who acknowledge genetic determinants assert that the reaction range (within which environmental variables operate) is more narrow, generally around 25 points. "Heritability estimates do not set the final limits on human intelligence because intelligence is always expressed in an environment, which may promote or restrict intellectual development" (Sattler, 1988). Our efforts then, should be to assess environmental factors that nurture or impede a child’s intellectual development, and consequently, strategies that enhance cognitive functioning of child, should be developed.

Development - a Multi-faceted Process

Development is not just confined to the intellectual level, but is rather a multi-faceted process that involves a physical or motor dimension, an emotional dimension and a social dimension as
All these parts combine to make a whole and any developmental irregularity along one dimension impedes the development on other dimensions. A harmonious or all round development of personality according to the Indian philosophy consists of development of mind, body and spirit simultaneously. The combination of parts to whole and whole to part and their working in harmony is the essence of Integrated development (Seth, 1989).

Child development is an extremely complex and multi-variate situation wherein the relevant aspects are so inextricably intertwined that it becomes almost impossible to separate and identify them, moreover these aspects don’t operate in a linear sequence, but in clusters of concurrent interaction (Prakasha, 1983a; Prakasha, 1983b).

Changes occurring in one dimension, effect and are effected by changes along the other dimensions and hence are, inter-related organically. Since development of preschool age children occurs along many dimensions, Integrated programmes covering all domains of development are required for preschoolers.
The term being consistently used throughout the manuscript is 'mildly mentally retarded children'. Hence it becomes necessary to clarify this term for the readers.

The term 'mental retardation' describes a heterogeneous group of conditions characterized by low or very low intelligence and deficits in adaptive behaviour (Sattler, 1988). The most widely accepted and used definition is the one used by the American Association on Mental Deficiency (AAMD), the pioneer organization in the field of mental retardation. It states:

"Mental retardation refers to significantly sub-average general intellectual functioning resulting in or associated with impairments in adaptive behaviour and manifested during the developmental period" (Grossman, 1983).

The two most important aspects of this definition are that a person must be well below average in measured intelligence and adaptive behaviour in order to be classified as retarded.
Today, mental retardation is not viewed as a permanent condition with which one is saddled for the whole life, but the current understanding views that a person once retarded may not be retarded at another time.

The retarded individuals are classified according to the severity of their problems. The most accepted approach is to consider the AAMD system which uses the terms mild, moderate, severe and profound for classifying the different degree of retardation. The IQ range for mild retardation is considered to be between 50-55 to approximately 70, for moderate retardation it is between 35-40 to 50-55, for severe mental retardation it is between 20-25 to 35-40, and in case of profound retardation, it is below 20 or 25. A narrow band at each end of each level has been used to indicate that clinical judgment about all information, including the IQs, and more than one test, the information about intellectual functioning obtained from other sources, etc. is necessary in determining level. Thus, someone whose full scale Wechsler IQ is 53 might be diagnosed as either mild or moderate, depending on other
factors, such as relative difference in performance and verbal IQ or results of other tests (Grossman, 1983).

Educators, however, use terms like educable mentally retarded (EMR) and trainable mentally retarded (TMR). EMR individuals can be more appropriately called mildly retarded as these have IQ between 50-75. The TMR individuals are moderately retarded on the AAMD continuum possessing an IQ between 25-50.